

Tour Profile: Paula Cole · Steve Albini on Plant & Page · Review: Audio-Technica Tube Mic!

AN INTERTEC PUBLICATION

WWW.MIXONLINE.COM • U.S. \$4.95 CANADA \$5.75 JULY 1998

MIX

PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

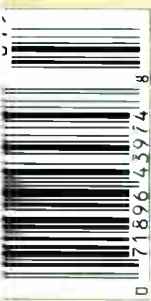
Computer
Control
In Live Sound

Small Format
Consoles

Studio Business
Quarterly

THE MIX INTERVIEW

Emmylou Harris



Mean Business



adat TYPE II

Although the M20 uses our new 20-bit ADAT Type II recording format, it's completely compatible with more than 110,000 ADATs in use around the world.



An all new remote/autolocator, the CADF, provides control of up to eight M20s from hundreds of yards away. Remote metering in the control room is made possible by the new RMD™ meter display.

In commercial recording and post production, there's no room for compromise and no time for excuses.

While you're up and running 24 hours a day, seven days a week, your recording equipment has to set the pace for your facility. So the Alesis M20™ was designed to handle all the business you take on. With features like a direct-drive, servo-controlled tape transport that offers the fastest lock times of any MDM ever made. Comprehensive built-in synchronization. And many more features we added off the professional ADAT users' wish list.

Let's not forget audio quality. The M20 features ADAT Type II, the only MDM recording format that writes 20 bits to tape. State-of-the-art 24-bit A/D converters that yield an astonishing 115dB of dynamic range. Whether you're mixing a jazz combo or posting a feature film, you'll hear the difference.

So if you've been waiting for an MDM that works as hard as you do, it's here. Take care of business with the M20. Available today at a select range of Authorized Alesis Professional Audio and Broadcast dealers.



The M20's comprehensive feature set includes built-in SMPTE/EBU sync, MIDI Machine Control, provision for 9-pin edit control, a true jog/shuttle wheel that scrubs forward and backward, and dedicated aux and time code tracks. Everything you ever wished for in an ADAT. And more.



The M20's S-VHS recording media is the least expensive, most effective storage for digital audio data. Over 3.4 megabytes of data gets stored on each tape. Cost? About fifteen bucks.

For a complete list of Alesis M20 retailers in the US, call us at 800-5-ALESIS or get on the internet at www.alesis.com/m20@alesis. In other parts of the world, contact your Alesis distributor. © Alesis and ADAT are registered trademarks; M20, CADF and RMD are trademarks of Alesis Corporation.

Alesis Corporation

1633 26th Street Santa Monica CA 90404 800-5-ALESIS alescorp@alesis1.usa.com www.alesis.com

CIRCLE #001 ON PRODUCT INFO CARD

ALESIS

ALESIS recording

Made for Mixing

A digital multi-track console so straightforward,
it could be analogue!

Solid State Logic's new Axiom-MT provides up to 96 fully configured channels with standard SSL in-line ergonomics. Every control is dynamically automated - including surround panning on the small fader!

Axiom-MT supports all mixing formats via 48 multi-track buses and 12 main mix buses, and SSL's innovative EFX matrix provides access to 60 effects sends from each of the 192 automated inputs in mixdown.

Combining a familiar control surface layout with outstanding digital processing, Axiom-MT offers the many thousands of highly experienced SSL mixing engineers worldwide a seamless transition to the digital domain.



Solid State Logic

International Headquarters

Begbroke Oxford OX5 1RU England

Tel: +44 (0)1665 842300

Fax: +44 (0)1665 842118

Email: sales@solid-state-logic.com

<http://www.solid-state-logic.com>

New York

+1 (1)212 315 1111

Los Angeles

+1 (1)213 463 4444

Tokyo

+81 (0)3 5474 1144

Paris

+33 (0)1 3460 4666

Milan

+39 (0)2 2622 4956

Toronto

+1 (1)416 431 9131

Singapore

+65 (0)285 9300



INTRODUCING
THE WORLD'S FIRST PERSONAL
DIGITAL MIXER:
THE YAMAHA 01v.

Our new 01v digital mixer has everything you need for top quality recording and live sound. You get 24 inputs, 6 busses, 6 aux sends, direct outs, 12 mic preamps with phantom power, 34 parametric equalizers, 22 limiter/compressor/gates, two 32-bit effects processors, motorized faders, snapshot memory

of all mixer settings, optional 8-channel digital multi-track I/O and the pristine sonic performance of the Yamaha 02R. You even have the ability to link two 01v mixers for true 48 track mixdown. All for just \$1,999. With the new Yamaha 01v you don't have to have big bucks to make the big bucks.

DIGITAL POWER TO THE PEOPLE

YAMAHA

For more information, please call 1 800 937 7171 ext. 676. © Yamaha Corporation of America, P.O. Box 6600, Buena Park, CA 90622 6600. www.yamaha.com. www.yamaha.co.jp/product/proaudio. Yamaha is a registered trademark of Yamaha Corporation.

CIRCLE #002 ON PRODUCT INFO CARD

Clean Up Your Listening Environment



Recycle Your Old Monitor Speakers



SEE US AT NAMM BOOTH #538



REVEAL



Tannoy/TGI North America • 300 Gage Avenue, Unit 1 • Kitchener, Ontario, Canada N2M 2C8 • 519 745 1158 • Fax: 519 745 2364 • Web site: <http://www.tannoy.com>

TOLL FREE DEALER ORDER HOT LINE (FAX): 1-800-525-708

CIRCLE #003 ON PRODUCT INFO CARD

World Radio History

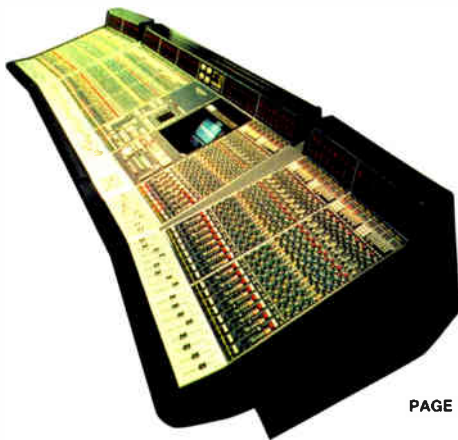
MIX[®]

PROFESSIONAL RECORDING • SOUND AND MUSIC PRODUCTION

JULY 1998, VOLUME 22, NUMBER 7

AUDIO

- 20 **The Fast Lane:** Tips From Space...And Beyond
by Stephen St.Croix
- 24 **Insider Audio:** Do Not Collect 200...Pounds?
by Paul Lehrman
- 30 **Acoustic Ensemble Recording:** Nashville Engineers
Share Tracking Secrets *by Rick Clark*
- 42 **The Mix Interview:** Emmylou Harris *by Rick Clark*
- 56 **On the Cover:** Sound Stage Studios
- 66 **Small-Format Consoles:** Compact, Location and
Utility Mixers *by Chris Michie*
- 78 **Mix Masters:** Chuck Ainlay *by Maureen Droney*
- 90 **The Project Studio:** Béla Fleck—"Left of Cool,"
Right at Home *by Loren Alldrin*
- 92 **Thirty Years at the Record Plant**
- 94 **Mix Business Quarterly** *by Dan Daley*
- Nashville Faces the Music
 - Hiring a Studio Manager
 - Odds & Ends from the World of Business
 - Travelwise



PAGE 153



PAGE 58

- 130 **DVD-Audio:** Closing in on a Final Spec
by Oliver Masciarotte
- 153 **Product Hits from AES Amsterdam**
by George Petersen
- 184 **Recording Notes**
- Recording Page & Plant's "Walking Into Clarksdale"
by Steve Albini
 - Froom & Blake Get High on "Dopamine"
by Paul Myers
 - Classic Tracks: Dolly Parton's "Jolene"
by Blair Jackson
- 205 **Media & Mastering News** *by Philip De Lancie*

SOUND FOR PICTURE

- 58 **Film Snapshots:** A Sampling From This Summer's
Blockbusters—"Armageddon," "Godzilla" and
"Small Soldiers" *by Kim Wilson*; "The Exorcist,"
by Dan Daley
- 138 **Post Script**
- Sound for TV: The Audio Chain for Advanced
Television *by Peter M. Baird*
 - Facility Spotlight: 615 Music *by Loren Alldrin*
 - Cinema Audio Society's 34th Annual Awards
 - Post Notes

LIVE SOUND

- 108 **Active Direct Box Tests:** Seven for the Road *by Mark Frink*
- 116 **Computer Control Update** *by Chris Michie*
- 117 **Tour Profile:** Paula Cole *by Eric Rudolph*
- 118 **All Access:** Amy Grant *by Steve Jennings*
- 119 **MerleFest:** Acoustic Fun on 12 Stages *by Bil VornDick*
- 128 **New Sound Reinforcement Products**

PRODUCTS

- 156 **Preview/Hot Off the Shelf**
- 159 **New Software/Hardware Products for Audio Production**
- 160 **Field Test:** Manley VoxBox Tube Preamp/Compressor/EQ/De-Esser/Limiter *by George Petersen*
- 161 **Field Test:** SPL Machine Head Digital Tape Saturation Emulator *by Alex Artaud*
- 164 **Technology Spotlight:** Fender SFX Instrument Amplifiers *by George Petersen*



PAGE 117



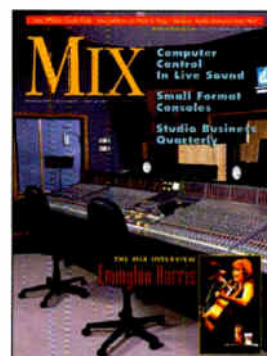
PAGE 30

- 167 **Field Test:** Studer D950 Digital Recording/Production Console *by Mel Lambert*
- 174 **Field Test:** Audio-Technica AT4060 Tube Studio Cardioid Microphone *by George Petersen*
- 175 **Field Test:** Meyer HM1S Powered Studio Reference Monitors *by Larry the O*
- 182 **Field Test:** Alesis ADAT XT20 *by George Petersen*
- 248 **Power Tools:** Yamaha SPX990 Multi-Effects Processor *by Mark Frink*

DEPARTMENTS

- 8 **From the Editor**
- 10 **Feedback**
- 12 **Current**
- 16 **Industry Notes**
- 208 **Coast to Coast** (includes L.A. Grapevine, NY Metro, Nashville Skyline, Sessions & Studio News)
- 218 **Studio Showcase**
- 224 **Ad Index/Product Information Card**
- 229 **Marketplace**
- 235 **Classifieds**

On the Cover: The Front Stage "A" Room at Sound Stage Studios, Nashville, was designed by George Augspurger and features an 80-input SSL 9000J, Hidley-Kinoshita monitors and 48-track digital recording, either Sony or Studer. For more on Sound Stage, see page 56. **Cover photo:** Beth Gwinn. **Inset photo:** Dan Dior/BGP Archives.



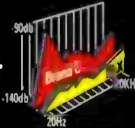
Introducing PLX.



High

Introducing a new line of amplifiers that defines high impact. Up to 3,000 watts in a 2 rack-unit chassis. Only 13" deep and 21 lbs.

Our exclusive PowerWave™ Technology  used in our PowerLight™ Series for chest pounding bass

and crystal clear highs.  A hum-free noise floor of -108 dB (20Hz-20kHz) and ultra-low distortion of .03% THD.

An advanced thermal management system  for true 2-ohm performance. And not to mention QSC's 30 year

reputation for reliability. They're called PLX. And at a low impact price, you'll definitely want to find a dealer near you. Call (800) 854-4079.

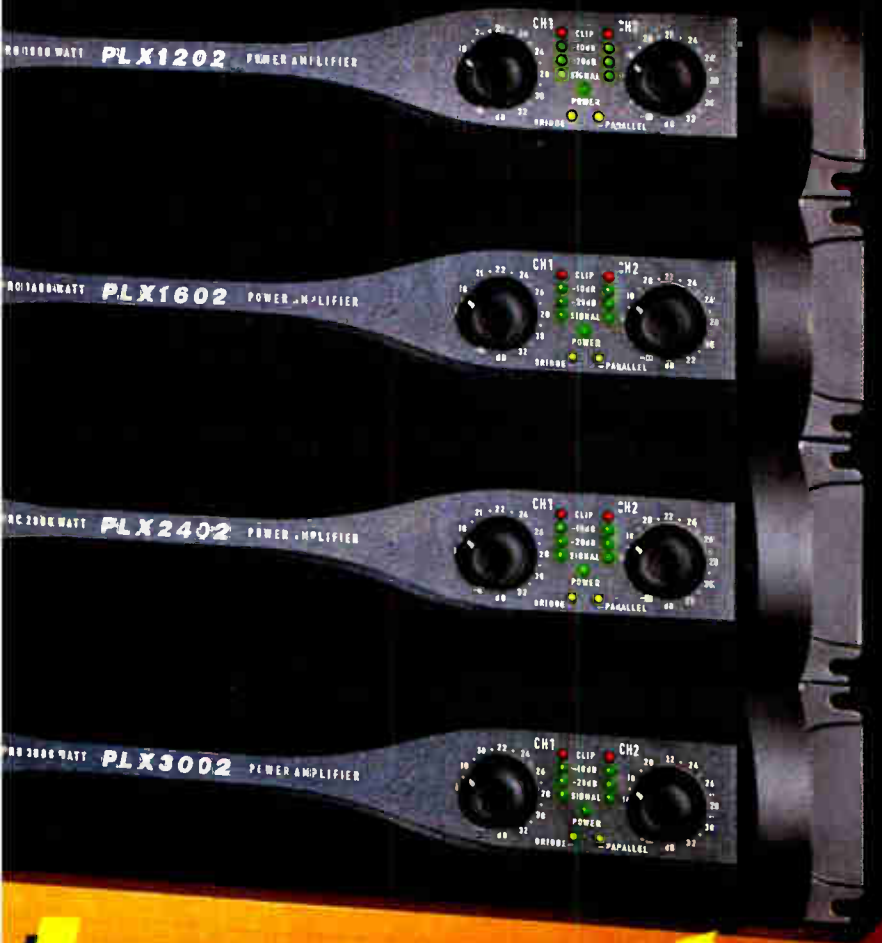
Model	Watts per channel		
	2Ω*	4Ω	8Ω
1202	600	350	200
1602	800	500	300
2402	1200	700	425
3002	1500	900	550

20Hz-20kHz, 1% THD



*PowerLight™, PowerWave™, and "Hear the Power of Technology" are trademarks of QSC Audio Products, Inc. QSC and the QSC logo are registered trademarks of QSC Audio Products, Inc. in the U.S. Patent and Trademark Office. QSC Audio Products, Inc., 1000 Arthur Blvd., Costa Mesa, CA 92626 USA

SEE US AT NABM BOOTH #625



Impact Power.

CIRCLE #004 ON PRODUCT INFO CARD
World Radio History

QSCTM
AUDIO

www.qscaudio.com

HR824 ACTIVE NEAR FIELD

■ UNFLINCHING ACCURACY.

We've claimed it. Reviewers and power users are confirming it: the HR824 is the most accurate 8-inch 2-way near field monitor you can buy. It lets you hear exactly what was recorded — from microphones right through to your mixdown deck. You'll suddenly discern fine nuances of sonic texture, dynamics, equalization and stereo perspective that were sonically invisible before. As one owner put it, "I am correcting a lot of mixes I have made in the past."



HR824

According to *Mix* magazine's recent field test of the HR824...

"Frequency response was the flattest we have measured so far... there can be no question... they speak the truth."

"The HR824s performed admirably, allowing us to distinguish very fine shades of tonal color and to establish subtle timbral and harmonic relationships between sounds. When the mixes were played on other monitors, including some that cost more than twice as much, they translated very well. The overall imaging was extraordinarily clear and detailed."

Because the HR824 is active, we can precisely match each transducer's actual output. During final assembly, each HR824 is carefully hand-trimmed to ± 1.5 dB, 39 Hz 20kHz. As proof, each monitor comes with its own serialized, guaranteed frequency response printout.

■ EXTREMELY WIDE SWEET SPOT.

Instead of a traditional, narrow "sweet spot" directly between the monitors, you'll discover that the HR824s have a wide, "sweet zone." They maintain a wide, coherent, stereo panorama that lets you move from side to side — and share what you hear with others.

Again, *Mix* magazine...

"[HR824s] also have a wide off-axis listening range, due to the high-frequency dispersion of the waveguide...the mids and highs were tightly focused, and the stereo image well defined."

■ EXTENDED LOW FREQUENCY RESPONSE (sub

woofer is built in*). The HR824 has the lowest frequency response of any 8-inch near-field

monitor. It really IS capable of flat, accurate, articulated response below 39 Hz and usable response to 30Hz — low frequency accuracy that simply can't be achieved with passive speakers. Bass notes start and stop instantly, without

*A large honeycomb composite piston mounted on the back of the cabinet couples with the front woofer, acting as a subwoofer.



AC power and input connectors (1/4" & XLR) extend directly from the bottom of the amplifier down, allowing the cabinet to fit flush against any surface.

overhang, distortion or "tubbiness."

Mix further states...

"The HR824s handled the ultra-low bass remarkably well... Mackie asserts that the HR824s are smooth from 39 to 20k Hz (± 1.5 dB), and our tests corroborated the claim. This is no mean feat for monitors this size, and at this price."

■ BRING ON THE HR824s. HOLD THE ICEBERGS.

Simon Franglen and his cohorts worked on the blockbuster hit *Titanic* at Castle Oaks Studio in Calabasas, CA. The studio was equipped with expensive studio monitors (one each for left, center and right) and a matched sub

woofer. When Simon received three Mackie HR824s, he immediately did a series of rigorous listening tests against the old monitors. The unanimous decision: replace the studio's previous near field monitors with the HR824s.

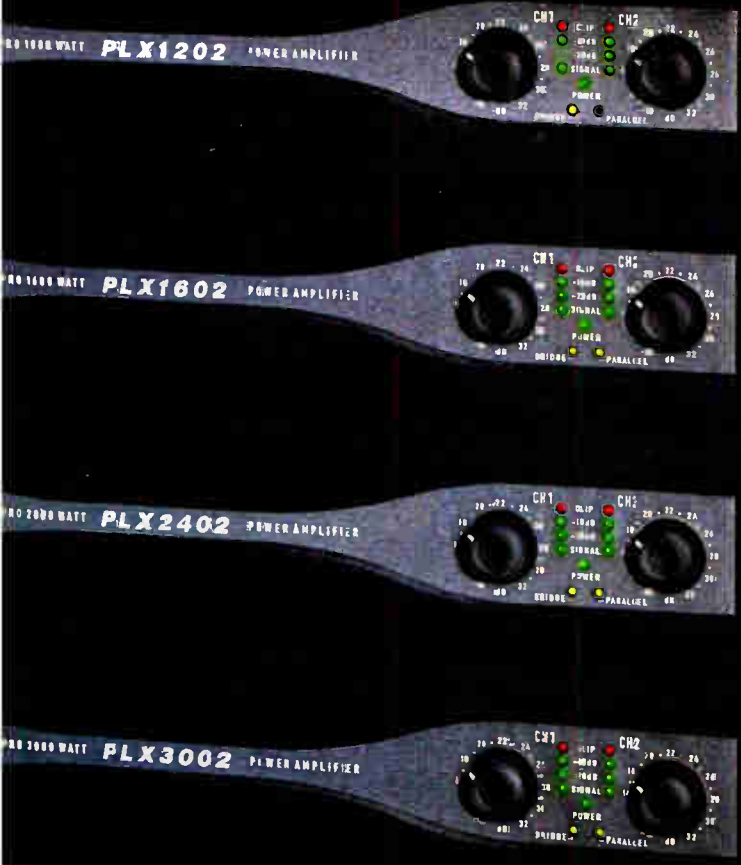
"The difference was extremely pronounced," explains Simon. *"Three HR824s gave us better bass response than the larger monitors with a sub woofer. The HR824s were louder, had more dynamic response, and the imaging throughout the room [was incredible]."* Simon says the HR824's sweet spot is much larger, which made listening to things easier, *"when you were off to the side of the room."* *"Apart from*

very expensive speakers," says Simon, *"I've not come across any other speakers that sound as good. They absolutely tell me what I'm putting on tape."*



■ One person who's taken Mackie to heart is British-born synth player/producer SIMON FRANGLEN. You may not know his name, but you most certainly know his work. Simon Franglen's curriculum vitae includes work with Grammy winners Eric Clapton, Madonna, and Celine Dion (including the single from the blockbuster movie *Titanic*), rockers Yes and Crash Test Dummies, and legendary performers such as Michael Jackson and Barbra Streisand. Simon's done work in the movies, too, including *Titanic*, *The Client*, *Dances With Wolves*, *Mission Impossible*, *Seven*, and *Contact*. He's won seven Clio

Awards for his work in television commercials—his clients have included Nike and Lee Jeans. His talents as a session synth player and programmer, as well as producer, are well-known throughout the entertainment world. With such credits, you'd think the guy was using incredibly esoteric, expensive gear. How else could he get such award-winning results? Well, Simon will be the first to say: you don't have to spend wads of money to get tough, quality sound gear. Not with Mackie.



Impact Power.



CIRCLE #004 ON PRODUCT INFO CARD
World Radio History

FROM THE EDITOR

NASHVILLE CATS

According to that old song, there are 1,352 guitar pickers in Nashville. These days, the number is certainly much higher, and it's a sure bet that Music City is one town with more pickers, strummers and twangers per capita than anywhere on this or any other planet.

Although traditionally regarded as "The Country Music Capital of the World," an increasing number of non-country artists have made Nashville their home, either for the duration of a project or as permanent transplants. Besides the plethora of ace session players, Nashville offers numerous amenities ranging from several excellent sushi restaurants to a huge selection of available studios in every price range. In fact, due to a bit of overzealous building, Nashville currently has an overabundance of world-class rooms, creating a buyer's market for studio services. And with falling rates, now may be the perfect time to select Nashville for your next project. (For more on the Nashville business scene, see Dan Daley's special report, starting on page 94.)

Today's Nashville is a study in contrasts: It's a major recording center nestled within the context of a friendly, small-town atmosphere. Yet it's anything but backwater: In the early to mid-'80s, Nashville was one of the first cities to "go digital," joining the digital multitrack movement as the first 3M and Mitsubishi 32-tracks came onto the scene. And even today, as you drop in on a session, you may be just as likely to see engineers cutting and pasting vocal licks on a DAW as you are to encounter punching-in on a 2-inch reel of 499 or SM900.

Fortunately, the community of hot Nashville session players is one constant that has never changed. In our annual salute to Nashville, Rick Clark talks to a number of top producers, engineers and studio musicians about the issue of capturing the sound of acoustic instruments, then captures the essence of Emmylou Harris in "The Mix Interview." In "Mix Masters" Maureen Droney chats with veteran engineer Chuck Ainlay, whose credits include Trisha Yearwood, George Strait, Wynonna, Vince Gill, Reba McEntire, Nanci Griffith, Mark Knopfler, Shana Petrone, The Mavericks and Olivia Newton-John. Loren Alldrin drops in to visit Béla Fleck, who recorded *Left of Cool*, the latest Béla Fleck & The Flecktones CD, at his private Nashville-area home studio. Our "Classic Track" is Dolly Parton's "Jolene," yet another one of the myriad hits cut at RCA's Studio B.

And this month, from July 10-12, the industry turns to Nashville for the Summer NAMM show. By all early indications, this should be a good one. We've spotlighted several products to be unveiled at the show, including Audio-Technica's long-awaited AT-4060 tube microphone and Fender's SFX amp line. Soon to be on every live player's must-have list, the latter is the biggest transducer breakthrough in instrument amp technology since the debut of the Leslie speaker, and it's based on sonic principles so simple that you'll smack yourself in the pants for not patenting it first yourself.

See you there,



George Petersen
Editor

S T A F F

EDITOR George Petersen
EXECUTIVE EDITOR Blair Jackson
MANAGING EDITOR Tom Kenny
ASSOCIATE EDITORS Adam Beyda Barbara Schultz
TECHNICAL EDITOR Chris Michie
ASSISTANT EDITOR Sarah Jones
EDITORIAL ASSISTANT Anne Eickelberg
SOUND REINFORCEMENT EDITOR Mark Frink
MEDIA & MASTERING EDITOR Philip De Lancia
LOS ANGELES EDITOR Maureen Droney
EAST COAST EDITOR Dan Daley
CONSULTING EDITOR Stephen St. Croix
TEC AWARDS EDITOR Karen Margroff Dunn
CONTRIBUTING EDITORS
Larry Blake Rick Clark Michael Cooper
Bob Hadas Paul Lehman
PHOTOGRAPHY Steve Jennings

ART DIRECTOR Tim Gleason
ASSISTANT ART DIRECTOR Kay Marshall
GRAPHIC DESIGNER Mika Chisaki
GRAPHIC ARTIST Alex Butkus

PUBLISHER Jeffrey Turner

EASTERN ADVERTISING DIRECTOR
Michele Kanatous
EASTERN ADVERTISING ASSOCIATE Jason Perl
WESTERN ADVERTISING DIRECTOR Terry Lowe
WESTERN ADVERTISING MANAGER Shawn Yamell
SALES ADMINISTRATION MANAGER
Dan Hernandez
SALES ASSISTANTS
Marianne Mara Mari Stancati
Kahil Thompson Amanda Weeden
CLASSIFIEDS & MARKETPLACE MANAGER
Robin Boyce-Trubitt
CLASSIFIEDS SALES ASSISTANT Jef Linson
CLASSIFIEDS ASSISTANT Mark Hopkins
FACILITIES SALES MANAGER Shawn Langwell

MARKETING SERVICES MANAGER Jane Byer
PROMOTION MANAGER Christen Pocock
MARKETING ASSISTANT Daniela Barone

DIRECTOR, SPECIAL PROJECTS Hillel Resner
SPECIAL PROJECTS ART DIRECTOR Judy Oliver

DIRECTOR OF OPERATIONS AND MANUFACTURING
Anne Letsch
PRODUCTION DIRECTOR Georgia George
PRODUCTION ASSISTANT Tom Marzella
COLLATERAL PRODUCTION DIRECTOR
Ellen Richman
SENIOR ADVERTISING PRODUCTION COORDINATOR
Elizabeth Myron
COMPUTER SUPPORT TECHNICIAN Mike Castelli

CIRCULATION DIRECTOR Phil Semler
CIRCULATION FULFILLMENT ASSOCIATE
Austin Malcolm

BUSINESS MANAGER Cindy Elwell
EXECUTIVE ASSISTANT Heidi Eschweiler
FACILITIES/HR ASSISTANT Lauren Gerber
RECEPTIONIST
Carrie Gebstadt



ALSO PUBLISHERS OF
ELECTRONIC MUSICIAN
MIX BOOKS
RECORDING INDUSTRY SOURCEBOOK
MIX MASTER DIRECTORY

INTERTEC PUBLISHING CORPORATION
PRESIDENT AND CHIEF EXECUTIVE OFFICER
Raymond E. Maloney
SENIOR VICE PRESIDENT
Cameron Bishop

NATIONAL EDITORIAL, ADVERTISING AND BUSINESS OFFICES:
6400 Hollis St., #12, Emeryville, CA 94608. (510) 653-3307. FAX: (510) 653-5142. Web site: www.mixonline.com. PHOTOCOPY RIGHTS: Authorization to photocopy items for internal or personal use of specific clients is granted by Intertec Publishing, provided that the base fee of U.S. \$2.25 per copy, plus U.S. \$00.00 per page is paid directly to Copyright Clearance Center, 222 Rosewood Dr., Danvers, MA 01923 USA. The fee code for users of this Transactional Reporting Service is ISSN 0164-9957/1997 \$2.25 + \$00.00. For those organizations that have been granted a photocopying license by CCC, a separate system of payment has been arranged. Before photocopying items for educational classroom use, please contact CCC at 508/750-8400. Organizations or individuals with large quantity photocopy or reprint requirements should contact Sherry Bloom at (510) 653-3307. Microfilm copies of Mix are available by calling/writing UMI, 300 N. Zeeb Rd., P.O. Box 1346 Ann Arbor, MI 48106-1346; 313/761-4700; 800/521-0600.

Founded in 1977 by David Schwartz and Penny Riker Jacob



Mix magazine is published at 6400 Hollis St., #12, Emeryville, CA 94608 and is ©1998 by Intertec Publishing Corp. Mix (ISSN 0164-9957) is published monthly, 12 issues per year (12 issues) subscription is \$46. Single copy price is \$4.95, back issues \$6.00. Send subscription applications, subscription inquiries, back issue requests and changes of address to Mix magazine, PO Box 41525, Nashville, TN 37204 or call (800) 843-4086. Outside U.S., call (615) 377-3322. POSTMASTER: Send address changes to Mix magazine, PO Box 41525, Nashville, TN 37204. Address all other correspondence to Mix magazine, 6400 Hollis St., #12, Emeryville, CA 94608; (510) 653-3307; Fax: (510) 653-5142. Periodical class postage paid at Oakland, CA, and additional mailing offices. *Editeur Responsable* (Belgique), Christian Desmet, Vanstaatsstraat 92, 3090 Overijse, Belgique. This publication may not be reproduced or quoted in whole or in part by printed or electronic means without written permission of the publishers. Printed in the USA. Canadian GST #R129957991; Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement #0487833.



THE TAPE FORMERLY KNOWN AS AMPEX.



FEEDBACK

MIX FIGHTS CRIME

I'd like to send a note of my appreciation for Dan Daley's February article "The Mean Streets of Pro Audio." Sometimes with the constant flow of sessions and clients, the issue of studio security doesn't receive the attention that it should. So far, here at Kampo Audio (located in the crime-free borough of Manhattan), we've been lucky.

But having security systems and personnel around the clock will not stop the thief intent on expanding his own mic collection, so we took the opportunity to hold a staff meeting for the discussion of this topic. Everyone received a copy of the article, and we learned that there indeed were ways we could tighten security at Kampo. It really helps to know some of the methods used by perpetrators at other studios—methods that may have worked here before the article was published. Keep up the good work, crime dogs!

*Jim McNamara, marketing director
Kampo Audio/Video
New York City*

SUPPORT YOUR LOCAL PARTS DEALER

Congratulations on the neat article on "Upgrading and Restoring Tape Recorders and Consoles" in the October 1997 issue. My intent in writing is to extend the coverage of your excellent article. I realize you cannot be all things to all people, but articles of this type should be more inclusive.

My primary interest is tape recorders. My company, Sequoia Electronics, is the sole source of original parts for Scully and Metrotech recorders and tape-logging units, having purchased their assets several years ago. We also provide primary support for the Ampro and Ampro/Scully line of broadcast consoles and tape cartridge recorder/reproducers. This is in addition to our stock of Ampex parts and manuals.

I think that the list of resources included in your article is short by at least a couple of names. Our name should have been included, as well as the name of one of the longest-lived suppliers of Ampex and Scully parts: VIF International. VIF was one of the earlier

parts and service depots in the country. It also manufactures the pressure rollers for many recorders, as well as its great hold-down knob, used by most North American recorders and duplicators. VIF is also the exclusive source for ITC reel-to-reel recorder parts and service.

Another important idea that you should have communicated to your readers is to realize the need to continually support suppliers of parts and service for older pieces of equipment by giving us more of your regular business. We realize that "shopping for price" is sometimes a good thing, but we resent being only used for the parts that cannot be gotten anywhere else! We need the profit margin (that dirty word) across the full spectrum of our inventory to justify the large investment we have made in supplies and materials.

It is not cheap to specify ABEC-7 precision bearings or matched and balanced pairs for capstan motors. It is not cheap to specify full current contacts on relays. It is not cheap to specify audio-tape pots instead of linear. Ballistically correct VU meters are not the same as economical LED peak reading displays. And, of course, equipment cannot perform at full level if the parts used are not of "original or better" quality. It is the silk purse/sow's ear problem.

Somehow the message needs to be sent: Support your suppliers, or they will not be around when you do need those hard-to-find parts, or help with that impossible-to-fix service problem.

*Mel Crosby
Sequoia Electronics
San Jose, Calif.*

RIVEN REVISION

I read with interest the May 1998 article on Sound Design for Riven by Robert Thomure and would like to make a correction regarding the sound design credits. I was the sole sound designer for Riven's predecessor, *Myst*, and it became clear to me during Riven's development that sound design could not be a one-person undertaking. For that reason, we at Cyan Productions employed two sound designers: O'Donnell/Salvatori, based in Chicago, and Tim Larkin, an employee of Broderbund. Though

the *Mix* article identifies Larkin as lead sound designer, there was no such designation assigned by Cyan to that effect. The original Riven CD packaging erroneously credited Larkin as "Lead Sound Designer," which is Broderbund's internal title for him. We have since corrected the credits, which now read "Tim Larkin: Sound Designer."

Riven required a total team mentality; all those who participated on the project, including the programmers, the artists, and the sound designers, had to act as a unified body. Without that team focus we never could have accomplished such a massive undertaking. I am very grateful to everyone on the Riven development team.

*Chris Brandkamp
vice president of operations
Cyan Productions*

IDENTITY CRISIS

In the article "DVD-Audio: Format in Search of an Identity" in the February '98 issue, Denny Purcell says, "Good enough is not good enough for me, and I think that people who listen for a living have to keep their standards high no matter what the consumer begins to accept."

Who does this guy think he is? It should read "...listen for a living have to keep their JOBS." A 24-bit 96kHz mix is going to sound the same in my '70 GTX as a 16-bit 44.1kHz mix. People like this are scared of what a consumer can buy to record his/her own music, not what they begin to accept as a format! A simple Pro Tools setup in creative hands starts the demise of guys like Denny Purcell. I was content with half-inch 2-track mixes at 30 ips. But who am I?

*Ed Warrin
LCS
warrin@worldnet.att.net*

Send Feedback to Mix, 6400 Hollis St. #12, Emeryville, CA 94608; fax 510/653-5142; or mixeditorial@intertec.com.

Capricorn.

"The most fun I've had with my clothes on!"

Roger Nichols, *producer/engineer*
EQ Magazine

"My first sessions on Capricorn at Chung King Studios, New York City, were the most fun I've had with my clothes on.

"Do you like the EQ before the dynamics, after the insert, before the fader, or EQ on the dynamics sidechain? No sweat.

"I could easily toggle between mixes to compare them. At one point I also kept everything from my current mix but recalled the drums from the final mix of another tune. The recalls were exact, sample by sample.

"The Capricorn mixes sounded so much better than what we'd mixed already, I wanted to remix the tracks done on other consoles."



Full surround-sound
format flexibility
24-bit audio

Digital First



AMS
NEVE

HEAD OFFICE - AMS Neve plc - Billington Road - Burnley - Lancs BB11 5UB - England - Tel: +44 (0) 1282 457011 - Fax: +44 (0) 1282 417282 - LONDON - Tel: 0171 916 2828 - Fax: 0171 916 2827
GERMANY - Tel: 61 31 9 42 520 - Fax: 61 31 9 42 5210 - NEW YORK - Tel: (212) 949 2324 - Fax: (212) 450 7339
HOLLYWOOD - Tel: (818) 753 8789 - Fax: (818) 623 4889 - TORONTO - Tel: (416) 365 3363 - Fax: (416) 365 1044
e-mail: enquiry@ams-neve.com - http://www.ams-neve.com

CIRCLE #006 ON PRODUCT INFO CARD
World Radio History

CURRENT

WELCOME TO SUMMER NAMM!

Summer NAMM occurs July 10-12 in Nashville at the Nashville Convention Center and Nashville Arena. More than 18,000 music industry and audio professionals are expected to attend, and exhibits will number more than 500. For more information call 760/438-8001 or visit www.namm.com.

GIBSON BUYS OPCODE

Gibson Musical Instruments of Nashville, Tenn., purchased Palo Alto, Calif.-based Opcode Systems. Opcode, best known for its Studio Vision Pro software and line of MIDI hardware products, will be run as an independent subsidiary. Chris Halaby will remain as the company's president, a position he has held since 1988, and will serve on Gibson's Board of Directors. Halaby feels it's a perfect match: "Opcode's relationship with Gibson represents a milestone event for our company. The merged organization will have the agility and ingenuity of a start-up and the size, strength, brand recognition and leadership of a company that has been serving musicians for over 100 years."

Gibson has owned stock in Opcode systems since 1995, so the move was no surprise to either company. And according to Opcode Marketing Communications VP Paul de Benedictis, "Being part of a company of Gibson's size allows Opcode to develop technologies and products with a longer view than most music software companies. In fact, we already have projects in the works looking out two to five years and beyond and plan to create some exciting new technologies." Both companies agree the merger will provide for a significant investment in Opcode research and development.

MULTICHANNEL MUSIC CONFERENCE

More than 200 producers and engineers gathered at the Doubletree Hotel in midtown Manhattan on May 2 for a one-day seminar on multichannel music mixing, hosted by the Music Producers Guild of the Americas in conjunction with Solid State Logic, *Pro Sound News* and Quad Recording. Sponsors includ-

ed DTS, Dolby Labs, JBL, Sony Pro Audio, Studer U.S. and Warner Music. The day concluded with a tour of Hit Factory's scoring stage, which now has 5.1/7.1-channel monitoring capability on its newly installed SSL 9000 J Series console.

The day began with a producer/engineer panel chaired by Ed Cherney, president of MPGA, and including Alan



L to R: Nile Rodgers, Chuck Ainlay and Elliott Scheiner

Parsons, Chuck Ainlay, Phil Ramone, Nile Rodgers, Elliot Scheiner, Al Schmitt, Larry Hamby and Michael Bishop. While the panelists each had worked in the format and displayed obvious enthusiasm for the projects they had worked on, lack of a standard and concern about translation into home theater-based systems added a note of caution to the proceedings. Most of the concern centered, not surprisingly, on the center channel and the ability to fold down a 5.1-channel mix into stereo. Most panelists suggested that for

now, a phantom center does just fine. And most agreed that any spec must include a single inventory, so that the consumer unit can decode, according to producer-mandated data, the appropriate mix from a single disc.

After a lunch break, attendees were treated to a series of seminars and demonstrations a short block away at the three-room Quad Recording, where owner-host Lou Gonzales opened his facility for demos by SSL, JBL (playing a multichannel instrumental project by Parsons), Dolby (demonstrating AC-3), Warner Music, Studer and DTS.

Back at the Doubletree for the afternoon session, engineer/producer George Massenburg proved a marvelous host for the technical panel on "Multichannel Today, Multichannel Tomorrow." With representatives from DTS, Dolby, Working Group 4 and Sony Super Audio, along with Rolf Hartley of SSL and Bob Ludwig of Gateway Mastering, all of the major formats with an interest in the 5.1 spec were on hand to answer questions. Massenburg kept the discussion lively and focused, and though countless questions remain (awaiting, no doubt, the expected June announcement of the DVD-Audio spec), attendees were able to ask about compression schemes, copy protection and other issues. It was, perhaps, the most public airing of Sony's proposed Super Audio CD technology, based on Direct Stream Digital.

—CONTINUED ON PAGE 16

OPENING NIGHT PARTY AT AES

The San Francisco Bay Area Audio Manufacturers and the Audio Engineering Society announced a joint party to be held at San Francisco's Yerba Buena Center for the Arts on Saturday, September 26, 1998 from 8 p.m. to 11 p.m. Coinciding with the 1998 AES Convention (September 26-29), the party will feature entertainment, food and drink, as well as access to the complex's various gallery exhibits. Attendance is expected to number up to 2,000.

Admission will be strictly limited to ticket holders. BAAM Party tickets will be distributed by BAAM member companies to their guests and also will be available for sale from the AES. For more information on ticket sales, contact Donna Vivero at the AES; 212/661-8528.

For further information about the event, contact Christen Pocock at 510/653-3307. ■

We'd Like To Thank The Academy...

We don't actually set out to win awards for ourselves. Instead, we endeavor to build the finest microphones in the world so that YOU win the awards. In fact, many artists have already brought home the gold for performances captured with this incredible microphone. Combining the best of our classic designs with the most advanced modern electronics has resulted in a microphone that even our most demanding customers call "stunning." Try the M-149 Tube and hear the magic for yourself. Neumann...the choice of those who can hear the difference.



SEE US AT NAMM BOOTH #1529

Neumann USA

One Enterprise Drive • PO Box 987, Old Lyme, CT 06371 Tel: 860.434.5220 • FAX: 860.434.3148
West Coast: Tel: 818.845.8815 • FAX: 818.845.7140
Canada: Tel: 514-426-3013 • FAX: 514-426-3953 • Mexico: Tel: 52-5-639-0956 • Fax: 52-5-639-9482
World Wide Web: <http://www.neumannusa.com>

CIRCLE #007 ON PRODUCT INFO CARD
World Radio History

HR824 ACTIVE NEAR FIELD

■ UNFLINCHING ACCURACY.

We've claimed it. Reviewers and power users are confirming it: the HR824 is the most accurate 8-inch 2-way near field monitor you can buy. It lets you hear exactly what was recorded — from microphones right through to your mixdown deck. You'll suddenly discern fine nuances of sonic texture, dynamics, equalization and stereo perspective that were sonically invisible before. As one owner put it, "I am correcting a lot of mixes I have made in the past."

Because the HR824 is active, we can precisely match each transducer's actual output. During final assembly, each HR824 is carefully hand-trimmed to ± 1.5 dB, 39 Hz 20kHz. As proof, each monitor comes with its own serialized, guaranteed frequency response printout.

■ EXTREMELY WIDE SWEET SPOT.

Instead of a traditional, narrow "sweet spot" directly between the monitors, you'll discover that the HR824s have a wide, "sweet zone." They maintain a wide, coherent, stereo panorama that lets you move from side to side — and share what you hear with others.

Again, *Mix* magazine...

"[HR824s] also have a wide off-axis listening range, due to the high-frequency dispersion of the waveguide...the mids and highs were tightly focused, and the stereo image well defined."

■ **EXTENDED LOW FREQUENCY RESPONSE** (sub woofer is built in*). The HR824 has the lowest frequency response of any 8-inch near-field

monitor. It really IS capable of flat, accurate, articulated response below 39 Hz and usable response to 30Hz — low frequency accuracy that simply can't be achieved with passive speakers. Bass notes start and stop instantly, without

*A large honeycomb composite piston mounted on the back of the cabinet couples with the front woofer, acting as a subwoofer.

overhang, distortion or "tubbiness."

Mix further states...

"The HR824s handled the ultra-low bass remarkably well... Mackie asserts that the HR824s are smooth from 39 to 20k Hz (± 1.5 dB), and our tests corroborated the claim. This is no mean feat for monitors this size, and at this price."

■ BRING ON THE HR824s. HOLD THE ICEBERGS.

Simon Franglen and his cohorts worked on the blockbuster hit *Titanic* at Castle Oaks Studio in Calabasas, CA. The studio was equipped with expensive studio monitors (one each for left, center and right) and a matched sub

woofer. When Simon received three Mackie HR824s, he immediately did a series of rigorous listening tests against the old monitors. The unanimous decision: replace the studio's previous near field monitors with the HR824s.

"The difference was extremely pronounced," explains Simon. "Three HR824s gave us better bass response than the larger monitors with a sub woofer. The HR824s were louder, had more dynamic response, and the imaging throughout the room [was incredible]." Simon says the HR824's sweet spot is much larger, which made listening to things easier, "when you were off to the side of the room." "Apart from very expensive speakers," says Simon, "I've not come across any other speakers that sound as good. They absolutely tell me what I'm putting on tape."



■ **One person who's taken Mackie to heart is British-born synth player/producer SIMON FRANGLEN.** You may not know his name, but you most certainly know his work. Simon Franglen's curriculum vitae includes work with Grammy winners Eric Clapton, Madonna, and Celine Dion (including the single from the blockbuster movie *Titanic*), rockers Yes and Crash Test Dummies, and legendary performers such as Michael Jackson and Barbra Streisand. Simon's done work in the movies, too, including *Titanic*, *The Client*, *Dances With Wolves*, *Mission Impossible*, *Seven*, and *Contact*. He's won seven Clio

Awards for his work in television commercials—his clients have included Nike and Lee Jeans. His talents as a session synth player and programmer, as well as producer, are well-known throughout the entertainment world. With such credits, you'd think the guy was using incredibly esoteric, expensive gear. How else could he get such award-winning results? Well, Simon will be the first to say: you don't have to spend wads of money to get tough, quality sound gear. Not with Mackie.



HR824

According to *Mix* magazine's recent field test of the HR824...

"Frequency response was the flattest we have measured so far... there can be no question... they speak the truth."

"The HR824s performed admirably, allowing us to distinguish very fine shades of tonal color and to establish subtle timbral and harmonic relationships between sounds. When the mixes were played on other monitors, including some that cost more than twice as much, they translated very well. The overall imaging was extraordinarily clear and detailed."



AC power and input connectors (1/4" & XLR) extend directly from the bottom of the amplifier down, allowing the cabinet to fit flush against any surface.

MONITOR—WELL WORTH DISCOVERING.

How much is unflinching accuracy worth to you?

As we talk to more and more professional engineers who have converted to Mackie HR824s, one

thing is becoming especially apparent — our near field monitors can uncover nuances that other speakers miss. In fact, one Very Prestigious Major Los Angeles Studio Complex has now installed HR824s in its Quality Control

Department — because our monitors can uncover miniscule audio flaws that were undiscovered during the tracking and mixdown process on “big studio monitors.” When you value the quality of your creative product, HR824s should be in your studio, too.

HUMBERTO GATICA, TRIPLE GRAMMY AWARD-WINNING ENGINEER/PRODUCER

Being at least nominally humble we thought it would take years for mixing/producing legends like Humberto Gatica to publicly admit — much less proudly proclaim — to prefer our HR824 near field monitors.

We're delighted the esteemed Mr. Gatica proved us wrong. After being turned on to HR824s by Simon Franglen, Humberto now uses them at his private facility and has carrying cases for a second pair so he can get the same accuracy in studios that haven't yet become HR824 converts. Talk about a traveling ad!

Humberto's stellar ear for mixing has served him well as a producer: Grammy awards and nominations for engineering (Chicago, Michael Jackson, Streisand) led the way to a Grammy for producing Celine Dion's "Falling Into You" and mixing/producing her 18X platinum album "Let's Talk About Love."

Mix Magazine quotes from Mix Magazine Field Test by Barry Cleveland, April 1998. Reprinted by permission. And this isn't the only glowing review we've gotten. Check out the February 1998 issue of Recording Magazine, beginning on page 30; the April issue of Pro Audio Review, page 16; and the October 1997 issue of Audio Media, page 46.

©1998 Mackie Designs Inc. All rights reserved. All specifications subject to change. "Mackie" and the "Running Man" figure are registered trademarks of Mackie Designs Inc.



WOODINVILLE, WA USA
800/898-3211
www.mackie.com

INDUSTRY NOTES

Dave Smith and Roger Linn announced the formation of a new San Francisco-based company, **Rave & Dodger**, which will create innovative audio and musical software products for the PC. Smith is president at Seer Systems and Linn currently designs drum machines for Akai. Visit Rave & Dodger at www.RaveAndDodger.com...**Otari Corporation of America** (Foster City, CA) announced the expansion of its direct sales office in Los Angeles with the addition of two staff members: **John Hart**, previously with Euphonix, and **Chris Minto**, who was last with Westlake Audio. Otari also appointed **Wayne Freeman** to head the newly established Otari SA sales division, responsible for sales in South America and the Caribbean...**Mike Gerutto**, president and CEO of CipeX International (Bell Canyon, CA) launched a new manufacturing and distribution company called **LAX Sonic Solution**. The main office headquarters are in Bell Canyon, with regional offices and warehouses in Switzerland and Hong Kong...**UK-based TL Audio** announced its new digital division, which will specialize in the development and marketing of high-end digital audio products. The launch coincided with the company's announcement that it had acquired from Penny & Giles the rights to design, develop, market and sell the Audio Multiprocessor System...**Independent Audio** (Portland, ME) was appointed exclusive U.S. distributor of the Calrec RQ Series Outboard Audio Units...**Culver City, CA-based Fairlight USA** announced the appointment of **Comprehensive Technical Group (CTG)** in Atlanta as its independent distributor in the Southeastern U.S....**SEK'D America**, formerly Hohner Midia, has moved. Ucik Inc. (doing business as SEK'D America) is now located at 407 Stony Point Road, Santa Rosa, CA 95401. Phone is 707/578-2023; fax 707/578-2025; e-mail info@sekd.com.

com...**Sennheiser** (Old Lyme, CT) named **Main Line Marketing** of Melbourne, FL, its 1997 Rep Firm of the Year. Sennheiser also recently announced its distribution of **Televic n.v.** language interpretation systems in the U.S. and Latin America...**PMI** (Torrance, CA) announced its appointment as the exclusive distributor for **CLM** in North and South America. CLM is a startup company based in Dundee, England...**Balanced power proponents Equi=Tech Corporation** (Selma, OR) formally established a board of directors and named **Bruce Shomler** as chairman; the company also recently added **Western Audio Sales** of Burbank, CA, to its roster of manufacturer's representatives...**Jeff Alexander** was appointed brand manager at **D.A.S. Audio/USA** (Old Lyme, CT). Prior to joining D.A.S., Alexander was marketing manager at **Crest Audio... Modular Sound Systems Inc.'s** (Bag End Loudspeakers) P.O. Box 488 closed as of May 1. All mail should be forwarded to 22272 N. Pepper Road Unit D, Barrington, IL, 60010...**Sales Force & Associates**, a south Florida pro audio rep firm, signed on to represent the full **Summit Audio** (Carmel, CA) product line for Florida, Puerto Rico and Caribbean markets...**Duke Ducoff** was appointed vice president of sales and marketing at Austin, TX-based **White Instruments**...**Symetrix Inc.** (Lynnwood, WA) announced the promotion of **Steve Kawasaki** to the position of director of sales; **Mark Zyla** was named national sales manager...**Azden Corporation** (Franklin Square, NY) promoted **Wayne Alonso** to vice president of sales/video division and **David Olivier** to vice president of sales/pro sound division...**Farmingdale, NY-based Group One** announced it will no longer be the U.S. distributor for **Garwood** products. **Garwood Ltd.** will shortly be announcing a joint venture agreement with a major international company. ■

—FROM PAGE 12, CURRENT

All in all, more questions were raised at the conference than were answered. But it was an extremely positive forum for the people who put together the hits to meet and air concerns. Hats off to the MPGA for kick-starting a professional dialog on audio's future.

—Tom Kenny

UPCOMING SHOWS

The Society of Professional Audio Recording Services announced that its Biz Tech '98 conference will be held July 9 in Nashville. For more information, contact the SPARS national office at 516/641-6648.

The Audio Engineering Society show returns to San Francisco this fall, with the 105th convention taking place September 26-29 at the Moscone Convention Center. The AES last met in San Francisco in 1994; this year's full program of technical papers, seminars, workshops and other events is in the works. For more information, visit the AES Web site at www.aes.org, or call 212/661-8528.

NEW WEB SITES

The Music Network USA Web Directory is located at www.mnusa.com, and offers powerful search features to navigate through countless links of music industry resources.

MARS, the Music and Recording Superstore, recently launched its new Web site at www.marismusic.com. The site features information about career opportunities, sales and installation of professional audio systems, along with a vintage instrument section.

Calrec's Web site, www.calrec.com, features comprehensive details about the company's product range, contact details for Calrec's distributors, press releases and job opportunities.

Hate sending in warranty cards? Visit www.neumannusa.com/registr.htm to register your microphone warranty online.

Omnimount Systems' recently launched Web site includes a technical information section that illustrates the construction of its mounting systems and provides architectural and engineering specifications with schematics of each product. Visit www.omnimount.com. ■

CHECK OUT THIS MONTH'S
MIX ONLINE!
<http://www.mixonline.com>



Plug-In Envy.

It's OK...

We understand.

There are other digital audio workstation manufacturers boasting about Plug-Ins these days. Don't let their inflated claims fool you. Inside, they suffer from deep feelings of inadequacy.

We don't blame them. Plug-Ins running on any platform other than Pro Tools leave a lot to be desired. After all, Pro Tools offers the world's most powerful DSP processing and integrated mixing environment, plus great sounding Plug-Ins you won't find on any other platform. Our exclusive TDM technology delivers sample accurate automation, total recall of all Plug-In and mixing parameters, and dedicated hardware performance that'll never let you down. With more than 100 Plug-Ins by Digidesign and our Third-Party

developers, including the best names in the business — such as Focusrite, Drawmer, Dolby, Aphex, and Lexicon — you can choose from Plug-Ins for every application, from pitch processing to EQ to audio delivery on the net.

There's only one surefire way to prevent Plug-In envy: Plug-In to Pro Tools. You'll never regret it.

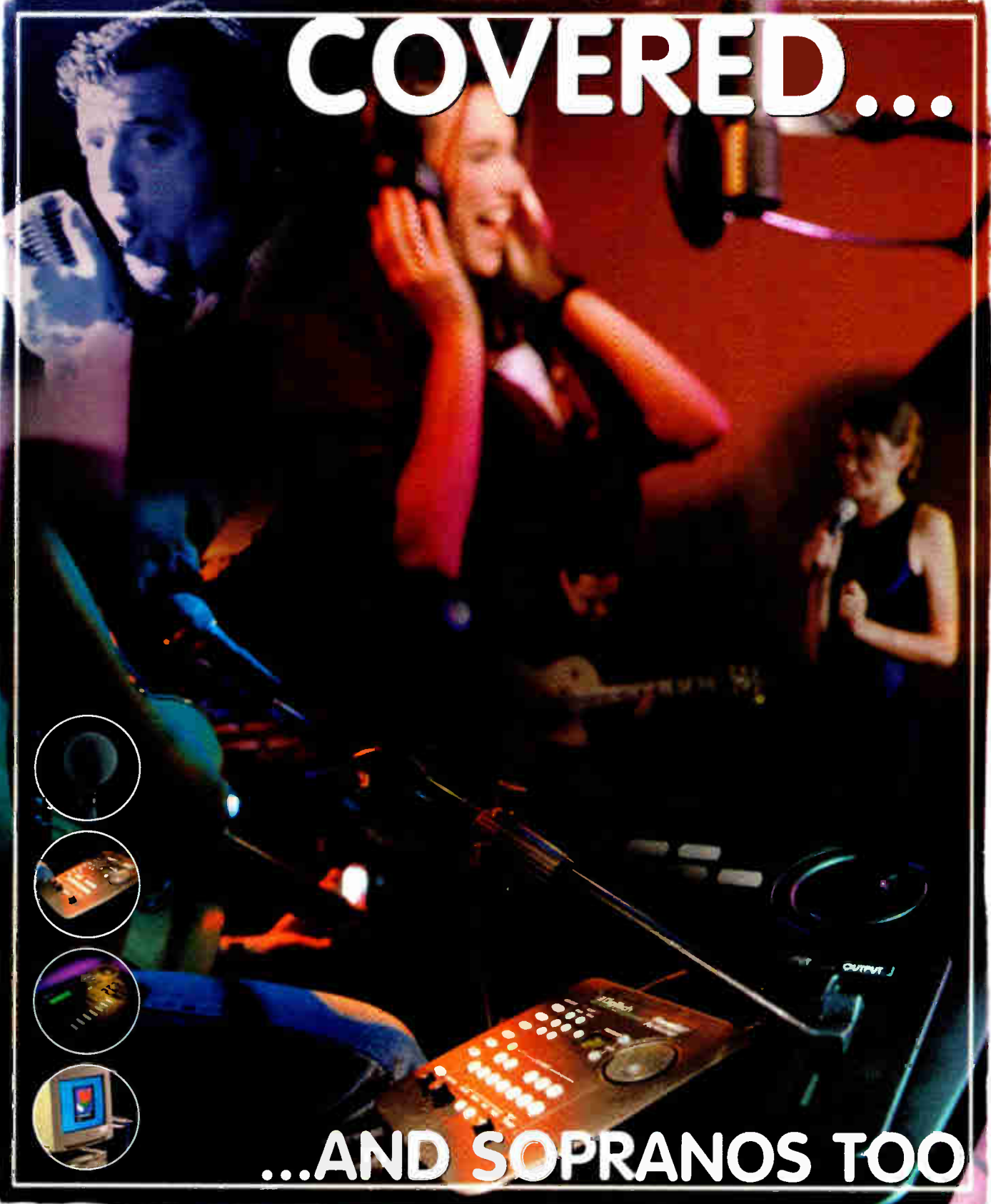
For professional help, call Digidesign at 1-800-333-2137 ext. 373 (to learn more about Pro Tools and the platform, order a free video, or to schedule a free demo).

Digidesign distributes Pro Tools Plug-Ins and Compatible Software by the following companies:
Dolby • Drawmer • Focusrite • Line 6 • QDesign • TC|Works • Synchro Arts

© 1998 Digidesign, a division of Avid Technology, Inc. Pro Tools is a registered trademark of Digidesign. All trademarks are the property of their respective holders.

CIRCLE #009 ON PRODUCT INFO CARD

WE'VE GOT ALL YOUR BASSES COVERED...



...AND SOPRANOS TOO

World Radio History

THE VOCALIST HARMONY SERIES

SEE US AT NAMM BOOTH #15



VOCALIST PERFORMER

Affordable and easy to use, Performer is a natural sounding 2 voice vocal harmonizer with reverb. Performer does not require MIDI control and comes with a handy micstand mount for live performance.



VOCALIST WORKSTATION EX

The ideal tool for musicians, singer/songwriters and MIDI/project studios, the Vocalist Workstation EX lets you create up to 4 harmony voices that have fully editable MIDI parameters, reverb and effects. The Workstation's built-in mixer can be controlled easily from the front panel faders and the desk-top format makes editing a snap.



STUDIO VOCALIST EX

With its 4 voices of harmony, The Studio Vocalist EX is the flag ship of the line with an array of harmony, effects and editing features mounted in a sturdy 2U box. Features such as the 5 independent XLR outputs, 40V phantom power, genderbender (formant shifting) and the digital I/O option make the Studio Vocalist EX the best choice for the discerning professional.



VOCALIST ACCESS

New to the Vocalist family, Access is a great solution for musicians, producers and engineers who rely on MIDI for control. Access gives you the same great 4 harmony voices, reverb and effects neatly tucked in an attractive 1U package.

Your voice is uniquely yours. It's your instrument, your signature. Your voice might be proud and strong or soft and sultry. Your tone may be raspy, bluesy or sweet and clear. But no one else in the world sounds quite like you. Singing is part of your soul.

DigiTech now offers you an entire family of vocal harmony and effect processors tailored to your individual needs. You may be a live performer with a need for simple, on-the-fly operation, a songwriter with a MIDI/project studio or a high end recording facility with professional demands.

Each member of the Vocalist family has the same outstanding sound quality with different features for different applications. One product is not better than another. They are simply designed with your specific requirements and budget in mind. Whether you want a plug-and-play approach to harmonies and effects or fully editable parameters, pitch correction and digital I/O options there is a Vocalist for you.

So what are you waiting for? Define your voice. Visit your local DigiTech dealer today to find out which Vocalist is the right one for you.

NEW

...DEFINE YOUR VOICE

TIPS FROM SPACE...

AND BEYOND



ILLUSTRATION WAYNE VINCENT

I have been designing analog audio circuitry for so long that in my early solid-state designs, we had to make our own transistors out of tin foil, grains of sand and silver paint. I'm not even going to talk about my vacuum tube designs before that.

I have been manufacturing these designs for commercial sale for almost as long. And I have been recording audio for even longer.

I have a history of tearing apart every piece of gear I owned so that I could learn, experiment, modify, improve and occasionally kill said equipment in the interest of eking out that last dB or Hz.

It turned out that certain things I learned reliably improved performance of audio gear in real-life studio operations. Over the years, these mods have held up, and I still do them today.

These mods are not elaborate, theoretical procedures that will slightly improve the numbers on a test bench, but basically straightforward hacks that solve real-world problems. While some are stupidly simple, some are a bit more involved, even a little violent. All are inexpensive. None requires buying exotic replacement parts. Cheap and dirty is this month's theme.

DISCLAIMER

I pass these little secrets on to you as a personal contribution to your studio, but as some of these suggestions are chain-saw surgery, you are hereby notified of the following: These modifications are being offered on an as-is basis. There is no implied warranty of suitability or performance. In fact, there is no

warranty of any kind. The author, *Mix* magazine, Harley Davidson and Lamborghini are not responsible for any damages, including burned fingers, shorted rails, getting fired, termination of warranty, lost profits or other incidental or consequential damage that may result from attempting these hacks. Smoke will get in your eyes. With reasonable care, smoke should not, however, fill your studio. If you are not qualified to destroy equipment in the name of science, have a tech with experience in soldering try it.

Okay, here we go.

TWISTED TWEEZE

Here are today's extreme analog tips for improving performance of some of the stuff in your studio. Finally!

First, unbalanced MI and semi-pro gear. The little op amps that

BY STEPHEN ST. CROIX

—CONTINUED ON PAGE 225

This will be the most imitated speaker on the market.

Again.

Eighteen years ago, Meyer Sound rocked this industry by introducing the most sophisticated loudspeaker yet - The UPA-1 featuring the first trapezoidal cabinet (US patent # 271,967) and the first professional loudspeaker with dedicated control electronics*. It was eventually imitated by almost every other loudspeaker manufacturer.

Today, the Self-Powered UPA-P radically improves upon its classic predecessor by perfecting every aspect of loudspeaker design: High SPL, low distortion, high efficiency, linear response, precise coverage, consistent performance, and unbeatable convenience.

The new UPA-P is a revolution. Only the progressive thinking and uncompromised engineering of Meyer Sound could produce a system this powerful, this flat, this compact.

Flat phase response +/- 35 degrees from 600Hz to 16 kHz. Great response for a studio monitor, unheard of in a high power PA product... until now.

An integrated, powerful 2-channel amplifier for over 1000W peak power (350 Watts/channel). No amp racks, no complex and costly wiring, less truck and storage space, faster installation time.

133 dB peak SPL at one meter.

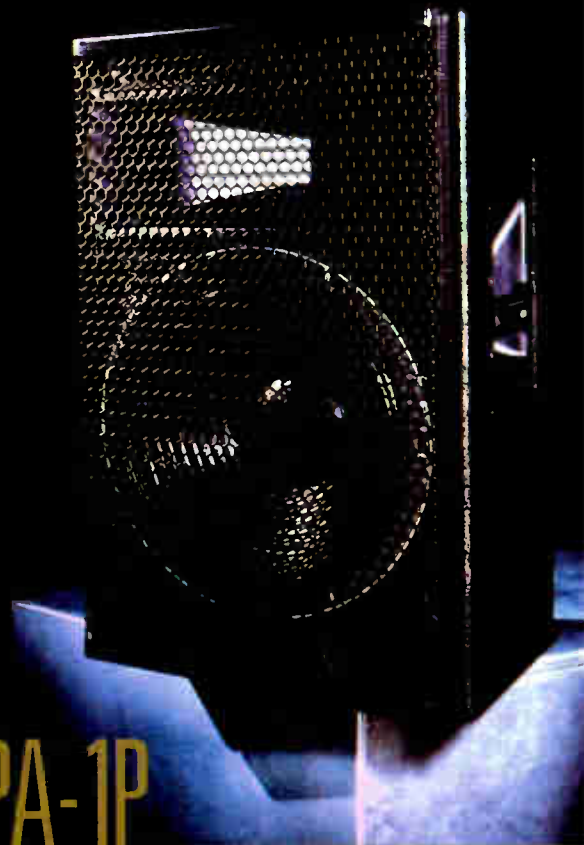
A new constant directivity CQ™ horn, the culmination of years of research in our own anechoic chamber, guarantees the most accurately defined high-frequency coverage (Pat. pend.)

Only 77lbs total weight.

An Intelligent AC™ system that automatically adjusts to the operating AC line voltage from 80 to 265 VAC.

CE and UL Approval.

Do the math. The Self-Powered Ultra Series is surprisingly affordable and costs substantially less than conventionally amplified systems.



UPA-1P

The Self-Powered Ultra Series

*You owe it to yourself
and your business to hear this system.*



CIRCLE #011 ON PRODUCT INFO CARD

Meyer Sound Laboratories, Inc. - 2832 San Pablo Avenue - Berkeley, CA 94702-2204 - (510) 486.1166 - fax (510) 486.8356 - www.meyersound.com

*John Meyer holds numerous patents including a low distortion driver/horn combination which is utilized in the UM-1P, and one for the perfectly aligned phase response through crossover (zero-pole crossover) utilized in both the UPA-P and UM-P.

World Radio History

328

Spirit 328 represents a REVOLUTION IN LOW COST PROFESSIONAL AUDIO, bringing all the functionality and sonic excellence of digital mixing to a brand new audience. With its unique CONSOLE BASED INTERFACE, 328 finally bridges the gap between analog and digital mixers, retaining the SPONTANEITY AND EASE OF USE of an analog console yet providing all the advantages of digital, such as INSTANT TOTAL RECALL, MOVING FADER AUTOMATION and ONBOARD LEXICON EFFECTS.

Quite simply, Digital 328 is the most advanced analog 8 bus you'll ever drive combined with the easiest digital console you've ever used - check it out for yourself!

42 Input/8 Bus Configuration

For a mixer with such a small footprint, Digital 328 packs an extraordinary number of inputs. 16 full spec. analog mono mic line channels - each with its own balanced XLR connector, dedicated insert point and access to phantom power - come as standard, along with 5 stereo inputs. With the addition of 16 digital tape returns on 328's TDIF[®] and ADAT[®] optical interfaces, a maximum of 42 inputs are possible. Every input is fully routable to any of the 8 groups and has access to the full complement of 328's parametric EQ, signal processing, onboard effects and auxiliaries.

As Easy to Use as your current analog console

Although other digital mixers offer an amazing array of functions, it can often be a nightmare to access them.

In contrast we've designed Spirit 328 to operate like your old analog 8-bus console and not like a computer with faders, so that you can take it out of its box and get started without even opening the manual. Unlike other digital mixers, there's instant access to any channel, group or master feature with one button press, and you can see that feature's status from the front panel without having to rely on an LCD display.

The key to it all is Spirit 328's unique "E-strip", the lighter-colour bank of encoders and switches that runs across the center of the console. Simply select a channel and the E-strip immediately becomes a "horizontal input channel" with instant access to all that channel's EQ, aux sends, channel pan and routing. Alternatively, press any button in the rotaries section above the E-strip and the encoders change to become a channel pan, auxiliary send, or Lexicon effects send for each channel.

Select a fader bank to display mic line input faders, tape return faders, or group and master faders and that's it; no delving through level after level of LCD menus to find the function you want, no delays in making alterations and no need to study complicated EQ curves. With 328, everything you need is immediately accessible from the front panel of the console - giving you the freedom to let your ears decide.

If you want the functionality of a digital console but the usability of your old analog 8 bus, then Spirit 328 is for you.

All the Digital I/Os you need as standard

Most digital mixers don't include digital multitrack I/Os, which means that to get digital recording and mixdown you have to buy extra, expensive I/O options. In contrast, Digital 328 includes two Tascam TDIF[®] and two ADAT[®] optical interfaces as standard, allowing you to record 16 tracks entirely in the digital domain, straight out of the box. As you would expect, we've also included a pair of AES EBU and SP DIF interfaces assignable to a wide range of inputs and outputs, including group and auxiliary outs, as well as for use as mix insert points with digital signal processors. In addition, a dedicated auxiliary optical output allows you to send a signal digitally to an effects unit.

2 Onboard Lexicon Effects Units

Only 328 can offer the world's premier name in studio effects on board - Lexicon. Two separate effects units are included, offering a full range of reverbs, choruses, delays, and flanges as well as dual effects such as chorus plus delay - all with fully editable program and parameter settings.

Onboard Dynamics

Digital 328 includes two mono or stereo signal processors which can be assigned to any input, output or groups of ins or outs. Each processor provides a choice of compression, limiting, gating or ducking.

Comprehensive EQ

All of 328's mic line, tape return and stereo inputs have access to 3 bands of fully parametric EQ, designed by British EQ guru and co-founder of Soundcraft, Graham Blyth. A man with over 5 million channels of his EQ designs in the field, Graham has brought 25 years of Soundcraft analog EQ circuit experience to bear on Digital 328. If you want the warm, musical sound of real British analog EQ, look no further.

Unparalleled Sonic Spec

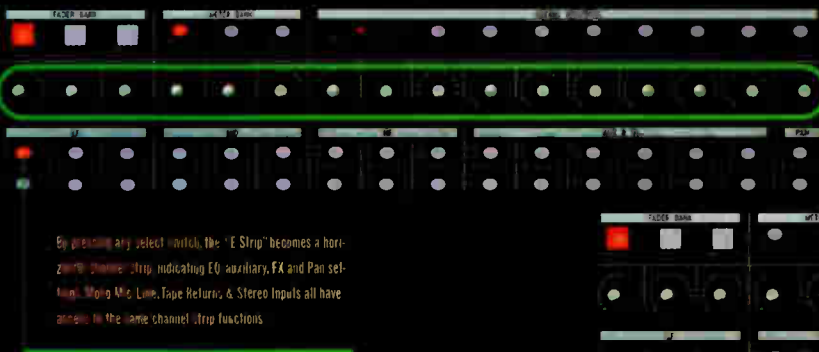
Rubbish in, Rubbish out! It doesn't matter whether the console is digital or analog - if you have poor mic preamps, your sound will be compromised. That's why 328 includes Spirit's acclaimed UltraMic+™ padless preamps, giving your input signals the cleanest, quietest start of any digital mixer on the market. With 66dB of gain range and a massive +28dBu of headroom, they offer an extremely low noise floor and are virtually transparent. Spirit 328 is 24-bit or better throughout; your signal hits the digital domain through state-of-the-art 24-bit ADCs with 128 times oversampling, guaranteeing that it maintains its clarity, while 24-bit DACs on all main outputs equal this sonic integrity should you wish to return your signal to the analog world.

Moving Fader Automation

All of Digital 328's 100mm faders (including the master) are motorised to allow current channel, tape return, group and aux master levels to be viewed at a glance.

DIGITAL 328

By pressing AUX1 in the rotaries section, the E-strip indicates Auxiliary Send 1 levels for each channel. The Fader Bank section indicates whether Mic/Line or Tape Return levels are being shown.



In addition to level automation, every other digital parameter of 328 is instantly recallable, allowing snapshots of the entire console's status to be taken. Up to 100 of these "scenes" may be stored internally and recalled either manually, against MIDI clock or against MTC or SMPTE. Alternatively, every console function has been assigned its own MIDI message allowing dynamic automation via sequencer software.

Easy to edit - direct from the control surface

The majority of 328's input and routing parameters may be edited from the control surface without resorting to the console's LCD. Settings and levels may be copied and pasted from one channel to another with just two button presses and, using 328's query mode, the routing or assignment status of every channel on the console may be viewed instantly simply by selecting the function (such as Group 1 or Phase Invert) you

located in the master section, editing is entirely non-destructive, allowing you to compare new EQ - and other settings - with previous ones.

Grows with your needs

Two Digital 328s may be digitally cascaded, giving you up to 84 inputs at mixdown and 32-track digital recording capability

Full Metering and Monitoring Options

All of the Mic/line inputs, Tape return inputs, group and master levels may be monitored per bank via Digital 328's 16 10-segment bargraph meters. Additionally, 328's onboard dynamics processors may be monitored using the console's master meters. Any input may be solo'd using AFL, PFL or Solo-in-Place.

Timecode and Machine Control

Digital 328 reads and writes MTC and reads all SMPTE frame rates, with a large readout display instantly indicating current song position. Store and locate points are accessible from the console's front panel, with 328's transport bar controlling a wide range of devices including Tascam and Alesis digital recorders.

digital

three two eight

Add-On Module Options

To meet the needs of a variety of users, there are several module options:

8 Channel Analog I/O Interface

Connecting to the TDIF* ports, 16 phono connectors provide 8 analog group or direct outs and 8 analog inputs for tape returns 17-32. Two interfaces may be connected, allowing 16 track analog recording or access to 16 more-sequenced keyboard or sampler inputs.

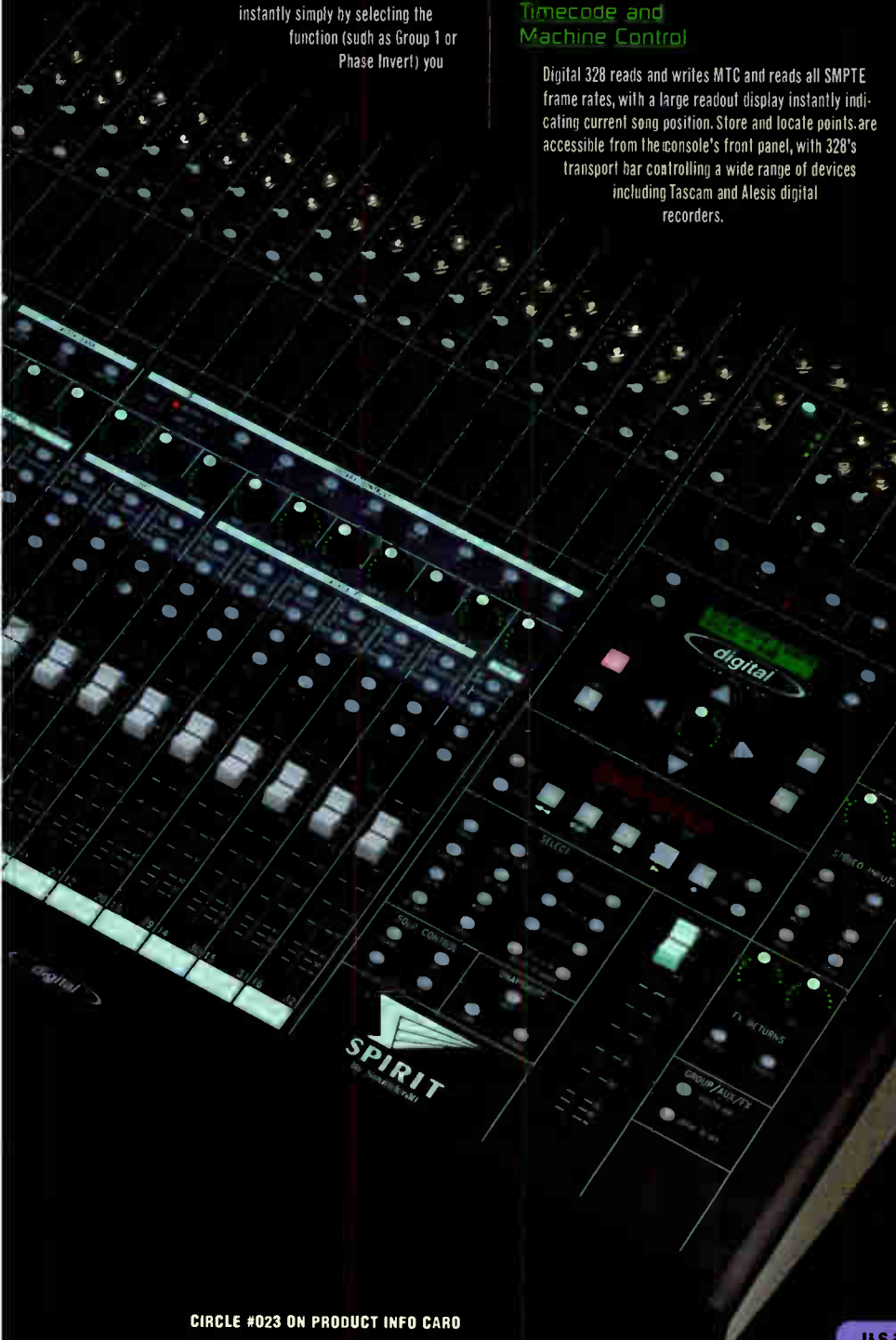
AES/EBU interface

4 pairs of AES/EBU connectors allow optional digital interfacing to hard disk production systems such as Pro Tools*. A maximum of two interfaces may be connected.

Mic Pre-Amp Interface

Each interface provides 8 XLR mic ins with Spirit's acclaimed UltraMic+™ preamps and gain control, plus 8 analog outs. Connecting two interfaces turns 328 into a 32 mic input, 8 bus mixer for PA or theater applications.

SEE US AT NAMM BOOTH #1519




SPIRIT

by Soundcraft


Spirit by Soundcraft™,
Harman International Industries Ltd.,
Cranborne House, Cranborne Industrial Estate,
Cranborne Road, Potters Bar,
Herts EN6 3JN, England.
Tel: +44 (0)1707 665000 • Fax: +44 (0)1707 665461

Spirit by Soundcraft™ Inc.,
4130 Citrus Avenue #9, Rocklin, California 95677, USA.
Toll Free (888) 459-0409 • Fax: (916) 630 3950

CIRCLE #023 ON PRODUCT INFO CARD

 This equipment complies with the EMC

World Radio History
*ADAT is a registered trademark of the Alesis Corporation. TDIF is a registered trademark

 A Harman International Company

usa: www.spiritbysoundcraft.com
uk: www.spirit-by-soundcraft.co.uk

DO NOT COLLECT 200...POUNDS?

WHEN MONOPOLY ISN'T A GAME ANYMORE



ILLUSTRATION RANDY POLLAK

One of the first things I did when I moved to Massachusetts, just over 20 years ago, was to open a checking account. I found a little bank within walking distance of my new home: a low-key, friendly, cooperative bank that offered free checking with a minimum balance and a minimum of nonsense. It called itself, I kid you not, HomeTown Cooperative Bank.

Not long after that, I started writing articles for magazines in England and Canada. These publications paid me, not surprisingly, with checks (or “cheques,” as they prefer) in English pounds and Canadian dollars. My little HomeTown bank couldn’t cash these items by itself—the checks would be sent to a “co-respondent” bank, a big, commercial downtown institution that would charge exorbitant fees for the privilege of handling my money,

take six weeks or more to credit my account, and inevitably give me an exchange rate far inferior to that I saw published every day in the financial section of the newspaper.

One day, a vice-president at my homey little bank suggested that if I were to open an account at the big commercial bank just to cash these checks, it would save me money and time. I found it remarkable that any bank would encourage me to put my money somewhere else, but I followed his advice—I opened a savings account at the big bank with a balance just large enough to avoid any service charges, and I funneled my meager offshore assets through it. The exchange rate was a little better; the fee, while it still existed, was much more reasonable; and the account was credited

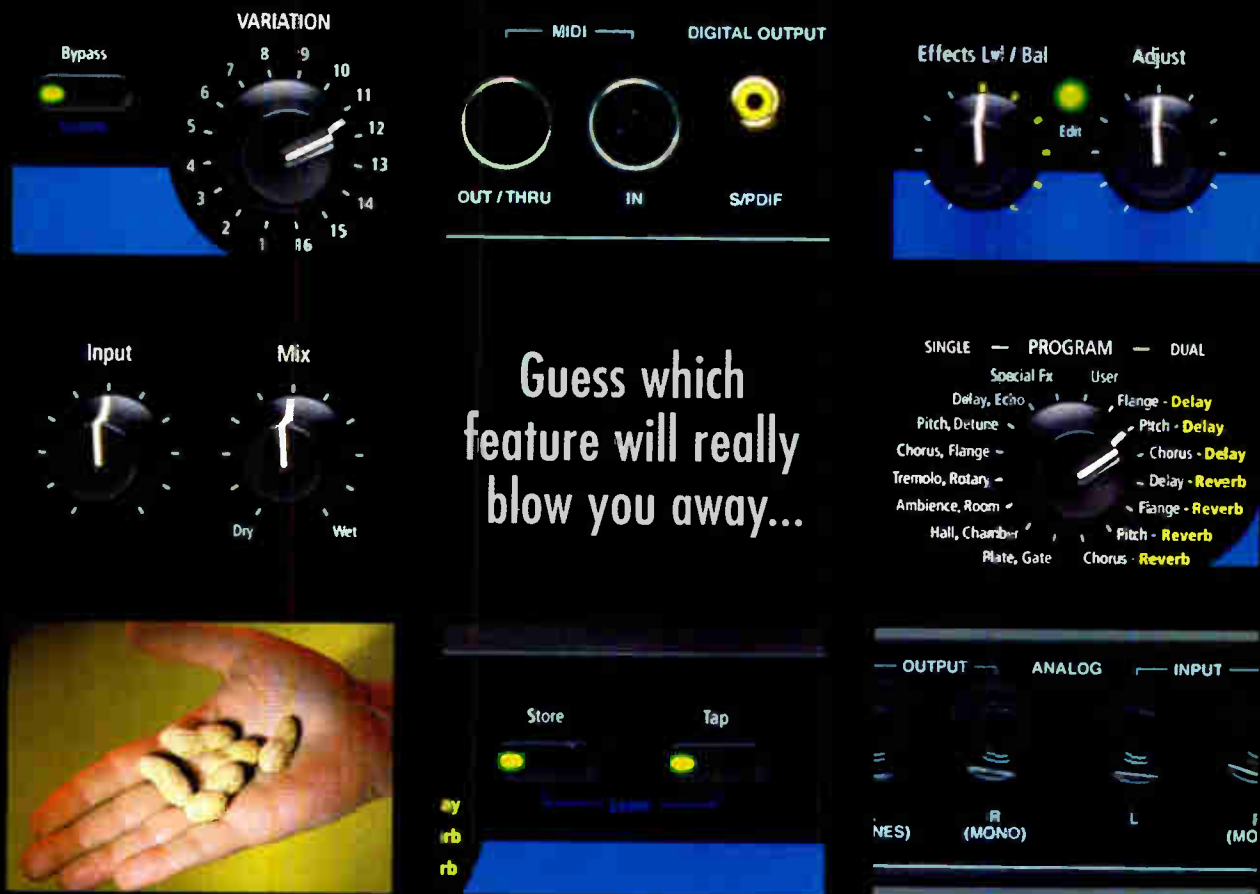
in a week or two.

Then, the big bank changed its policies. It decided it wasn’t making enough money on various types of transactions, including foreign-check cashing. It raised its fees to the same level that my little bank had been forced to charge, and it started taking longer to transfer the funds. At the same time, my stake in the situation got bigger: not only was I selling articles in foreign countries, but I had by now produced a couple of records for a British company—a subsidiary of EMI, in fact—and they were handling the publishing royalties. So now I was getting checks quite regularly, and some of them were fairly substantial.

When the bank raised its fees a second time, so that they were higher than they had ever been anywhere, I paid a visit to the branch manager. I explained my situation as a small businessman

BY PAUL D. LEHRMAN

The New MPX 100 Dual Channel Processor



Guess which feature will really blow you away...

\$249⁰⁰ • Dual Stereo FX; 5.7 Sec Delay • 24-bit Internal Processing • 240 Presets; 16 User Programs



The MPX 100 is a true stereo dual-channel processor with 24-bit internal processing, 20-bit A/D-D/A and S/PDIF digital output for a very affordable \$249. Powered by a new version of Lexicon's proprietary *Lexichip*,™ the MPX 100 has 240 presets with classic, true stereo reverb programs such as *Ambience*, *Plate*, *Chamber* and *Inverse* as well as *Tremolo*, *Rotary*, *Chorus*, *Flange*, *Pitch*, *Detune*, 5.7 second *Delay* and *Echo*. Dual-channel processing gives you

completely independent effects on the left and right channels.

A front panel *Adjust* knob allows instant manipulation of each effect's critical parameters and an *Effects/Balance* knob lets you control effect level or the balance of dual effect combinations.

An easy *Learn* mode allows MIDI patching of front panel controls. In addition, tempo-controlled delays lock to *Tap* or MIDI clock, and *Tap* tempos can be controlled by audio input, the front panel

Tap button, dual footswitch, external MIDI controller or MIDI Program Change. Other features include dual, 2-stage headroom indicators, a headphone output, a software-selectable MIDI OUT/THRU port, pushbutton or footswitch selection of dry or muted audio output and a 20Hz to 20kHz ±1dB Frequency Response.

With all this, the price is a nice surprise but the feature that will really blow you away is the superb audio quality you can only get from Lexicon.

Heard In All The Right Places

Lexicon

A Harman International Company

world radio history

SEE US AT NAMM BOOTH #34

3 Oak Park, Bedford, MA 01730-1449
Tel: 781-280-0300 Fax: 781-280-0499
Email: info@lexicon.com Web: www.lexicon.com

CIRCLE #013 ON PRODUCT INFO CARD

AnthroCarts!®



AnthroCarts are *so* flexible. You have **dozens of shapes and sizes** to choose, plus over **50 accessories** to configure your cart exactly the way *you* want.

And they have a **Lifetime Warranty!** Made of steel and high density particle board, these AnthroCarts are as tough as nails.



See them all in our catalog, then call us direct to order. We'll ship to you the very next business day!



Call for your free catalog:

800-325-3841

6:00 AM to 6:00 PM PST, M-F


ANTHRO®

Anthro Corporation®
Technology Furniture®

Tualatin, OR 97062

Fax: 800-325-0045

www.anthro.com

In Japan, call 03(Tokyo)-3947-2735

Since 1984. Prices from \$299. For a lower cost line for the home, ask for our Compacta catalog. GSA contract. Available for OEM applications. Anthro, AnthroCart and Technology Furniture are registered trademarks of Anthro.

INSIDER AUDIO

trying to compete in the global economy (well, it sounded good!). I noted that they were very actively painting themselves in full-page color ads in the local papers as "players in the global economy," and told him that if they were sincere about this, they needed to handle their customers' international transactions better. I pleaded, I cajoled and finally I threatened. I said I would remove all my money from the bank if they didn't do something about this policy. He was adamant. I was outta there.

Actually, I wasn't. Because in the ensuing years, my little cooperative bank had been bought by another bank, and then another, and now was being sucked up by the very same big bank I was grappling with. So as I was noisily pulling my savings account out of the bank, my checking account was quietly coming into it.

And I still had some large British checks to cash. So I got in touch with all the major banks in the area and miraculously found one that still had a reasonable approach to foreign exchange. I opened a new savings account there and was back in business.

Well, not quite. Each time I would go into this bank with sterling in hand, I would be treated as if I had just dropped in from outer space. The poor clerk behind the counter (and there was a different one each time) had no idea why someone in Anurrica would be carrying around this weird foreign money, and invariably, after I had waited in line the requisite 15 minutes, would turn me over to a manager, who would make me wait another 15 minutes. Then I would have to show the manager how to fill out the form—which invariably had to be done twice, since the first time he or she would unthinkingly write "dollars" instead of "pounds," thus ensuring me the worst exchange rate since the War of 1812.

By the time I had gone through this ritual a few times, however, I felt I had achieved a kind of truce with this institution. I held onto my checks, letting them build up until just before their expiration date, then took the bunch down to the bank, making sure I had an empty hour in my schedule for the chore—unless I couldn't avoid going during lunch or on a Friday, in which case two hours were required.

But like many shaky truces, this

—CONTINUED ON PAGE 246

HOW DOES SWEETWATER SOUND GUARANTEE YOU THE BEST VALUE on Music and Recording Equipment?

1. Convenience: Shop from your phone — no racing all over town to noisy stores! Choose from a huge selection. Get professional assistance from an experienced music technology specialist to select the right products — without high-pressure hype. Your gear is shipped direct to your door! What could be easier?

2. Savings: Our exclusive "ProNet Direct Pricing" can save you thousands! We buy in tremendous quantities so we always get the lowest price and pass the savings directly on to you! Why spend a penny more?

3. Service: Our in-house tech and service department supports all brands of gear with one call! We don't pass the buck — we make your rig sing! Why go it alone?

4. Respect: Shouldn't shopping for equipment be fun and exciting, rather than a hassle? Wouldn't you enjoy old-fashioned courtesy? We'll do everything we can to make it easy for you to create and record great music! Why settle for any less?

- ✓ All the top microphones and preamps.
- ✓ Your choice of recorders, from tape-based to hard disk.
- ✓ The leading mixing consoles for studio or stage.
- ✓ Versatile reverbs, effects and dynamics processors.
- ✓ The best selection of MIDI keyboards and modules.
- ✓ Powerful drum machines and electronic percussion.
- ✓ Music software for sequencing and recording.
- ✓ The best monitors and amps for studio and stage.
- ✓ Premium guitars, basses, amps and pedal effects.
- ✓ Every imaginable stand, accessory and more!

There's never been a better time to own the gear you've always wanted. Features and sound quality are way up in every category, while prices are way down. An investment in your musical equipment has never gone farther than it will today.



MUSIC TECHNOLOGY DIRECT AND THE BEST VALUE — GUARANTEED!

Why not call right now to find out why Sweetwater is your Premium Direct Music Technology Source? We think you'll find there's simply no better way to shop!

Sweetwater
SOUND INC.
www.sweetwater.com

(800) 222-4700

(219) 432-8176 • FAX (219) 432-1758 • sales@sweetwater.com
5335 BASS ROAD • FORT WAYNE, INDIANA 46808

Win **FREE GEAR!** Monthly giveaway on our website!
Go to www.sweetwater.com/contests right now for more info!

The TM-D8000 Works As Smart As You Think



FAXBACK document # 8000

World Radio History

TASCAM engineers have done their homework so you don't have to

The TM-D8000 sets a new world class standard in digital mixers! No digital mixer in its class looks or feels this good—intuitively and ergonomically the “smartest” mixer on the planet. There isn't another mixer in this price range that even comes close.

Bigger than it looks! The TM-D8000 is compact. But don't let the compact design fool you. 40 full routs, world class phantom-powered mic preamps and 6 stereo returns won't steal valuable studio space. It makes no difference how you use the inputs or tape monitors—it's 40 channels of pure digital.

The built-in display screen becomes your visual control center! Your eye scans quickly to the back-lit LCD display window for all the mixer information you need. You always know exactly where you are in the mix, at all times.

The TM-D8000 has intelligence built-in! Just touch any channel fader and the screen instantly switches to the fader you've just moved. Any way you look at it, the TM-D8000 has the smartest moves.

No Multiple layer screens! All functions on every channel, (EQ and AUX sends) are on one screen, not in multiple layers; so you never worry about where the faders are or if a function is buried inside a screen.

The TM-D8000 has you surrounded! Whatever your production style, surround mixing couldn't be simpler, faster or more automatic. You can fly between any of the surround panning modes with a single button. Select 5.1, 2+2, 3+1 or stereo in real time. No refresh required means no time wasted. This mixer understands 5.1 surround like no other mixer. Check stereo integrity instantly. One move, one button and the mixer already knows you want 6 busses. It automatically disconnects the stereo monitoring and assures the integrity of both the 5.1 and stereo mix.

You define the exact position of the “Sweet Spot!” Not only can you take any channel and put it any place in the mix, you can control the “Sweet Spot.” Control separation between speakers, front-to-back, side-to-side, as focused or as wide as your heart desires as you view it on the display screen.

Total control! The transport control center offers seamless machine control over DTRS recorders, MIDI machine control devices and Sony P2 protocol, all from the front panel. A Control Pod of virtual controllers made up of soft rotary controls and soft switches are assignable to pan, trim, frequency select, etc. View all parameters and critical mix data on the display screen.

World class standard! Everything you need is built-in! Everything is where it should be! While the TM-D8000 excels as a stand alone unit, an optional computer can provide off-line editing of data and cue list information and expand the capabilities of the system's automation and graphical user interface (GUI). TASCAM engineers have done their homework so the DIGITAL experienced is the way it should be... simple!

See your TASCAM dealer today and get your hands on the TM-D8000 Digital Mixer

TASCAM
CHANGES EVERYTHING

SEE US AT NAMM BOOTH #403



ACOUSTIC ENSEMBLE RECORDING

TIPS FROM NASHVILLE'S BEST

T

BY RICK CLARK

here is nothing quite like the sound of the well-recorded musical interplay of an ensemble of acoustic instruments. Long before "unplugged" became part of the pop culture lexicon, Nashville was mastering the art of recording the great acoustic country and bluegrass groups that rolled through town. Capturing the unique characteristics of each instrument and understanding how to present the chemistry of the overall band sound requires skill as well as sensitivity to the special dynamics of the players.

Mix rounded up a handful of Music City's finest players and producer/engineers to discuss their thoughts on how to capture the sparks on tape. Thanks to the participants and also to Ellen Pryor and Elliot Scheiner for their support.

CHUCK AINLAY

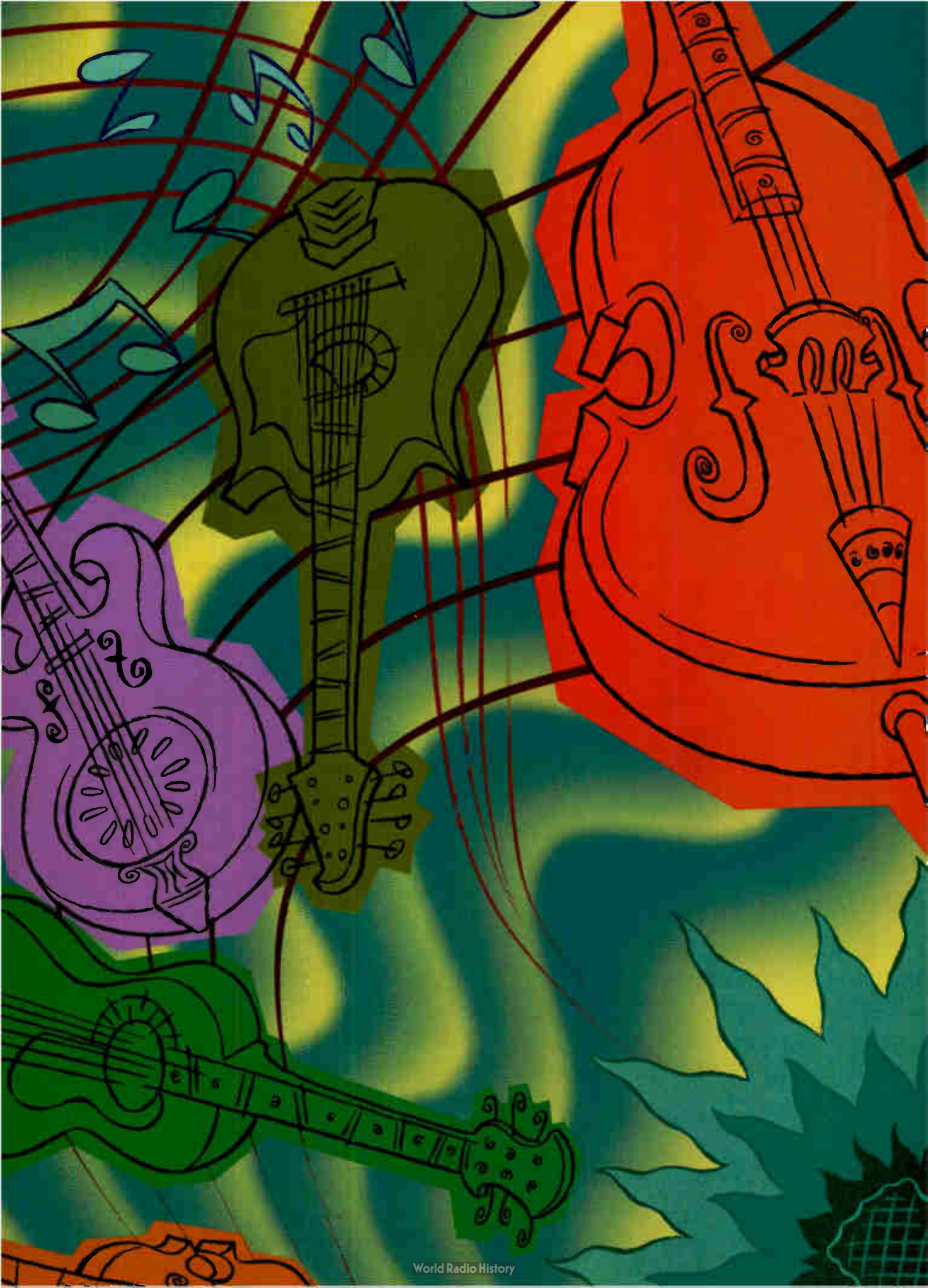
If you were searching for the personification of the consummate engineer with a really great vibe, it would be Chuck Ainlay. Ainlay's credits, which include heavyweights like Mark Knopfler (solo and with Dire Straits), Trisha Yearwood, Vince Gill, Steve Earle, Lyle Lovett, Wynonna and George Strait, are enough to give most people an attitude. Ainlay, however, is absolutely unpretentious, easygoing and approachable. In fact, he could just as easily get enthused about going out on his boat as discussing the new surround sound mixing room he and Denny Purcell are setting up in Nashville. Ainlay is currently co-producing with Mark Knopfler on Knopfler's next

solo effort, among many other projects. (For an in-depth interview with Ainlay, see this month's "Mix Masters" column, page 78.)

"For Vince Gill's previous album, *High Lonesome Sound*, we used Alison Krauss' band for the title cut. They played on the country version with drums and everything, and we also did another

ILLUSTRATION
BY KELLY ALDER

For just pure strumming, a lot of people have gone to kind of cheap guitars: What you're really looking for is a percussive, rather than a filled out acoustic sound. —Chuck Ainlay





version, which is bluegrass. Both versions are on the album. If you're talking about bluegrass, the players really like to hear and watch each other. That's how they perform live. So when we did the bluegrass version, I basically used baffles laid out like a spoked wheel, where the baffles were radiating out from the center like the spokes. This created compartments where each person could look toward each other in the center, and the mics would be back sort of closer to the center pointing toward each player. That way, you could use the directional characteristics of the cardioid microphones to reject the other instruments of the other players at other areas in the other spokes. Cardioid is generally what I use. I rarely ever use omni microphones. Also, you don't want to get the mics too close to

any sort of wall, because that would change the character of the microphone, too. So they're not right into the point of the pie, so to speak. I used baffles because I wanted a real clean, tight sound with not a lot of ambience from the room.

"Generally, for tracking the acoustic guitar, I'll usually use one mic sort of near the 12th fret, out maybe six inches from the guitar. Then I'll have another mic, generally shoulder height and out maybe two feet from the guitar, probably kind of above the bridge or the general vicinity. If I then decide to double the acoustic guitar, I usually forego the far mic because it is just too big. The doubling already gives you that extra warmth.

"I love a KM56 or KM54 on an acoustic. That is usually my choice of a close mic. They have a nice top end, and the bottom end is rolled off pretty well on them. I will also use a Neumann KM84. For the second mic, the one that may be located about shoulder height, I would start with maybe a U67. U67s are great on acoustics, if you're going for that bashing acoustic guitar sound. If you're using a Gibson acoustic that is being played hard, you

can take a U67 and mike it farther away from the guitar, just straight out from the hole of the guitar, and get a great sound. Naturally, it all depends on what the player is doing.

"On Vince Gill's acoustic, I will use an AKG 452 because the isolation is better. The polar pattern is tighter, so I can get away with using that microphone and still use the tracking acoustics. The problem with those microphones on acoustics is that sometimes they can be too brittle-sounding, so you add some warmth to them in the midrange area. Yet you will need to roll out on the bottom, because when you have a vocalist, you have to mike close.

"The quality of the guitar also makes a lot of difference. For just pure strumming, a lot of people have gone to kind of cheap guitars like Takamines, because they don't have a lot of bottom end and a real rich character to them. What you're really looking for is a percussive strumming, rather than a filled-out acoustic sound.

"For fiddle, I really like the [AKG] C-12; it works great. Mark O'Connor, who is one of the greatest fiddle players, always carried a C-24 with him, which is the stereo version of the C-12. For up-

We've told you about the AD-8000.



"I stopped a mix [on Prince of Egypt] to use the AD-8000 because it sounds so much better."
—Alan Meyerson, engineer with Hans Zimmer.

"If you're doing any recording whatsoever on to digital, the AD-8000 is a prerequisite."
—Simon Franglen, music producer on the movie Titanic.

"Nothing else I've used sounds so much like analog... I've never heard another digital system like it."
—Don Was, producer.

If you've ever needed convincing, there has never been a better time.

Pro Tools is a registered trademark of Digidesign, a division of Avid Technology Inc.

Apogee Electronics Corporation, 3145 Donald Douglas Loop South, Santa Monica, CA 90405, USA

World Radio History

right bass, I use two microphones. Usually there is one microphone about a foot-and-a-half away from the double bass about bridge height, and then the second mic is usually closer to the bass, maybe about eight to ten inches looking at the left shoulder of the bass. That way you get the percussive wood 'plunk' from the bass there. You get your bottom end from down near the bridge. Sometimes, depending on the bass, you have to get it closer to the F hole; though some basses will have certain notes that really stick out if you get too close to the F hole. I like to put the upright bass in a separate room, because it's not a very loud instrument. You still want to have control, and you're going to get leakage with it.

"For mandolin, I rarely mike with two mics; it's just too small of an instrument. But it all depends on the mandolin. Some mandolins are richer and warmer than others. Generally the favorite position is near the F hole. But getting too close to the F hole can be too thick. If you're looking for that 'woody' sound, that is where it comes from.

"In general, I don't think that there is anything all that special that we do. I

always like to point out that it comes from the musicians and the music. I can't tell you how many times I've sat there and pulled up levels and it just sounded like crap, and I'm tweaking knobs like crazy, trying to get it to sound good. Then all of a sudden it sounds good, but it isn't because I

tweaked the knobs like crazy. It's because the performance came together, and all of a sudden everybody was listening to each other and playing tight. I think we are important people in not ruining this and making it comfortable for the musicians, but it still gets down to the players."

JERRY DOUGLAS

Multi-instrumentalist/producer Jerry Douglas has produced dozens of albums featuring acoustic ensembles and artists, including many for Barry Poss' North Carolina-based Sugar Hill

record label. *Life* magazine named Jerry one of the "Top Ten Best Country Musicians of All Time," and his *Hop, Skip and Wobble* project (with Russ Barenberg and Edgar Meyer) made *Guitar Player's* Essential 100 CD collection list. Douglas has taken home six Grammy Awards and six

I don't erase anything. I don't punch into live tracks. I do adjacent tracks for instruments.

—Jerry Douglas

IBMA Dobro Player of the Year Awards. His latest effort on Sugar Hill, *Restless On The Farm*, is classic Douglas and well worth checking out.

"I like the live performance vibe and keeping everything as organic as possible going down on tape. I always like first takes, because that's when all the energy is up and it's the scariest for everybody. I don't erase anything. I don't punch into live tracks. I do adjacent tracks for instruments.

If we need to fix something, then great. But if there is a chance of leaking, then we do another take or another

For these people, there's no turning back.

"It's the sound of the AD-8000 we like most of all: we're using it on all our projects!" —Marty Frasu and David Newman, Oscar-nominated for the music to Anastasia.

"The AD-8000 is a massive improvement: it makes Pro Tools sound like a 2-inch tape machine!" —Juan Patiño, producer with Lisa Loeb.

The AD-8000 24-bit, 8-channel digital audio conversion system. From your Apogee dealer.

SEE US AT NAMM BOOTH #1523

Apogee ELECTRONICS
www.apogeedigital.com

Contact your nearest Apogee dealer for a demonstration.
Tel: +1 310/915-1000 Fax: +1 310/391-6262 Email: info@apogeedigital.com. Or visit our Web site.

Circle #016 on Product Info Card

Greg Goldman



Photo: Luca Studio: Brooklyn Recording

ON BASF *tape*

"BASF 911 captures the depth and nuances of the music I'm recording... The consistency and tape pack are superb. That's why I count on BASF tape whenever I record a new album."

Producer/Engineer Greg Goldman's credits include **Melissa Etheridge, The BoDeans, The Rolling Stones, Eric Clapton, Bruce Springsteen, and From Good Homes.**



911's wide dynamic range, low noise and low print-through make it an ideal choice for multitrack sessions. Outstanding phase and level stability, along with specially formulated binder make 911 the tape of choice for recording and long term archiving of important masters.

EMTEC Magnetics



Distributed in North America by EMTEC Pro Media, Inc. © US 1-888-295-5551 Canada 1-800-205-0070 or visit our web site at www.emtec-usa.com

© 1997 World Radio History



er edit possibly. This is because you don't want the chance of 'ghosts,' which is something you get a lot in acoustic music. When you overdub, you run the chance of still hearing the old part off of someone else's track. So it's worth doing another take.

"When I'm working with a bluegrass act, like Del McCoury for instance, whose band plays really dynamic bluegrass, I try to cut live without much isolation and get some tight mics on everybody. I like to sit them so everyone can hear and see each other and not be completely dependent on headphones, but use them if they want to. We often use these big foam baffles. It's amazing how much isolation you can get from one of those things. Then it becomes easier to replace parts if something goes wrong.

"For picking out the mics in this kind of situation, I would shy away from the bigger-diaphragm microphones. It's a give and take situation, because I love the old, big-diaphragm microphones for when these instruments are isolated, because they capture the whole sound of the instrument and not just a spot on the instrument.

"Bass and fiddle are kind of hard to track in the room. Fiddle sometimes just takes off all over the room, and bass goes to the floor and shows up in the strangest places. I try to isolate the fiddle out of the room, like I would the vocal, too."

MARK O'CONNOR

Nashville-based violinist Mark O'Connor has enjoyed a career that has en-

abled him to follow his artistic muse from bluegrass to jazz/rock fusion to more classically oriented undertakings. O'Connor has recorded on projects like *Will the Circle Be Unbroken #2*, Michael Brecker's Grammy-winning album *Don't Try This at Home*, James Taylor's Grammy-winning album *Hourglass* and the Linda Ronstadt-Emmylou Harris-Dolly Parton *Trio* album. As a solo artist, O'Connor has been nominated for seven Grammy Awards, and won a Grammy for Best Country Instrumental Performance in 1992, for his album *New Nashville Cats*.

"When I've done bluegrass recordings, often people will want the option to replace their solos and fix parts. Obviously, it's harder to do that in recording sessions where you're all playing in

What the soloist does on the overdub is not a complete musical communication. Editing is actually more musical, especially if the energy and intensity match up.

—Mark O'Connor

NOW EVERY ARTIST IN THE STUDIO CAN HAVE A PERSONALIZED HEADPHONE MIX...



Furman's new Headphone Distribution System provides custom headphone mixes to up to eight artists for recording or rehearsal.

This innovation is designed for critical listening, yet it's affordable enough for home studios. Here's how it works:

The rackmount HDS-6 (above) connects to a mixing console and provides the interface and amplification to drive a chain of HR-6 Personal Headphone Mixers.

The HR-6 mixer clamps to a mic stand, and connects to the HDS-6 with included cables. One HR-6 with clamp and cables comes with your HDS-6 Distribution System, and additional HR-6's and cables are available separately.

Now here's what's *very* cool...

The HR-6 mixing station has five level controls: four mono and one stereo. The mono pots let you mix four console channels or busses. You can use the stereo pot for the control room mix, stereo effects returns from the console, or two more monaural channels from your console.

The HR-6 also has a "Submixes Included/Excluded" button, which mutes the four mono channels so you can hear the stereo source only, without touching your mono settings.

Get a perfect headphone mix, every time. Contact us for a free data sheet.

FURMAN

FURMAN SOUND, INC.

1997 South McDowell Blvd. • Petaluma, CA 94954

Tel: (707) 763-1010 • Fax: (707) 763-1310

e-mail: info@furmansound.com

Web: www.furmansound.com

CIRCLE #018 ON PRODUCT INFO CARD



the same room. So when you do a democratic project, such as [the group] Strength In Numbers, you want to leave the studio knowing that you got what you wanted on tape. As a result, it made sense to be isolated. So before we were done with the song, we got the solo we wanted on there and we left and that was it. End of story.

"When I did the *New Nashville Cats* album, I put everybody in the same room and said, 'Trust me. I'm going to edit together pieces from different takes.' I'm a much greater fan of editing, because [as the artist and producer] I can listen to takes and find out the parts that have the best musical energy. If the players got a really great solo section, but they completely botched the last head, then I can have the freedom to experiment with editing on a head

from a different take, for instance.

"That kind of flexibility is actually more musical than overdubbing. When you overdub, the other instruments are not playing with you anymore. They are playing to another solo. So what the soloist does on the overdub is not a complete musical communication. So even though to a novice recording musician the editing might sound harsh in approach, it is actually more musical, especially if the tempos are fine and the energy and intensity match up. Then you can interchange between takes. That is what I do on most of the things that I do. But it depends on how complex the music is. I think the more complex the music is, the more that you have to rely on editing.

"I've recorded most every solo performance I've done for years, trying to get better and better with it. When I finally realized that I was ready to record an album of these performances for real, I picked one of my favorite places I've performed solo—the old Shelton Hall in St. Louis, which was built in 1875. I rented it out and got the great mics up—my old M49 Neumanns and the old AKG C-24—and played in front of a live audience and really did it right.

For the *Midnight on the Water* recording, I used my two old Neumann M49s in a stereo configuration. (The C-24, I've found, is very good for close miking but not as much for accurate ambient miking, whereas the M49s are almost like the human ear.) So when I recorded my solo performance, I was actually achieving the instrument sound and the sound of the hall all at one time with those two mics. It really worked out.

"I also used the M49s on my *Heroes* album, so I could have completely matched sounds between me and the other guest violinists. The only difference that you were hearing between the violin sounds was the actual player and the instrument and not the way it was recorded. So each violin had one M49, each of which were evenly matched from the same vintage year.

"Temperature changes the sound, and it changes the instrument. My violin is very sensitive to humidity. My violin sounds better in a warmer, humid climate. There are some violins that start to sound muddy or like they are stuffed with socks in a warmer, humid climate, where mine just sounds lush. Whereas when I get in too dry of a climate, it



IVORY SERIES





5001 4 Channel Tube Mic Pre-Amp



5013 2 Channel Tube Parametric EQ



5021 2 Channel Tube Compressor



5050 Mono Tube Mic Pre-Amp & Compressor

5051 Mono Tube Voice Processor

- Tube Mic Preamp: Variable gain; 48v Phantom power; Low cut filter; Tube drive and peak LED's
- Tube EQ: Same as EQ1 - 4 bands with 4 frequencies per band; Bypassable & switchable pre or post compressor
- Tube Compressor / Expander Gate: Fully variable threshold, ratio & gain makeup; 4 attack / release times; Side chain insert
- Master Section: Output level control; VU meter reads output or gain reduction; stereo link

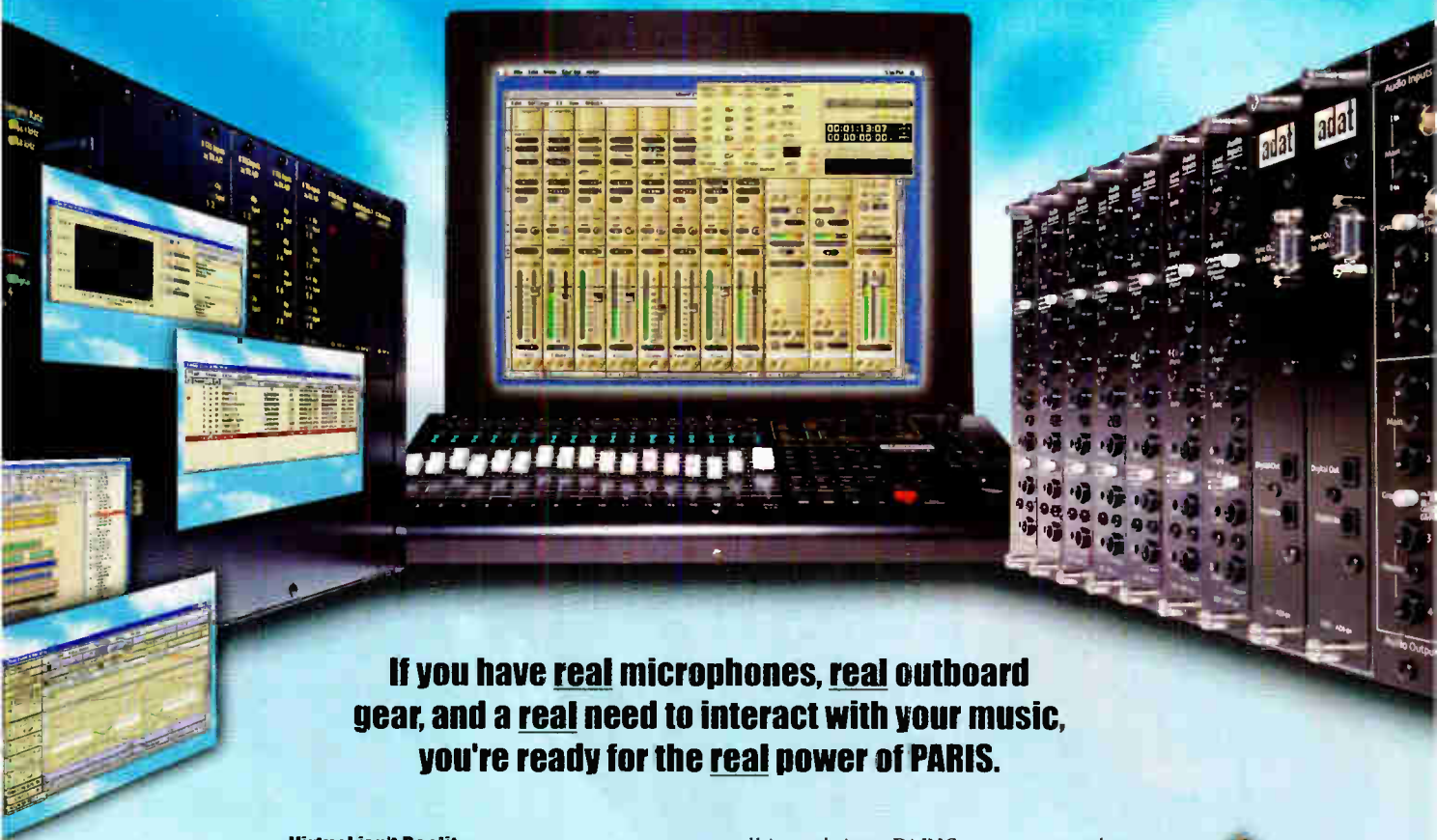
\$699



Phone- (905) 827-9740 Fax (905) 469-1129

http://www.sascom.com E-mail: sales@sascom.com

Software vs. Hardware: A PARIS Perspective



If you have real microphones, real outboard gear, and a real need to interact with your music, you're ready for the real power of PARIS.

Virtual isn't Reality ...

Software DAWs fall short when they perform in the real world. PARIS gives you all the advantages of an expandable computer-based recording and editing system. *But there's more.* PARIS adds extensive hardware options, 24-bit inputs and outputs, 100mm faders, and world class signal processing to a single, integrated studio. Combine all that with pedal-to-the-metal *Intelligent* software, and you have the most effective integrated audio workstation in the world.

In with the MEC (Modular Expansion Chassis) ...

PARIS stands out because it fits in. The Interface MEC gives you more ways to expand your inputs and outputs than any other digital audio workstation – all with the addictive sound of 24-bit resolution. With all of these ins and outs, you can track live music, mix with outboard effects, import and export to digital tape

– all in real time. PARIS connects to what you have – now, and in the future. It fits in.

Out with the Mouse ...

How much control could you possibly muster with one measly mouse? **Never enough.** PARIS includes a dedicated control surface that lets you mix your music with all 10 fingers, as nature intended. Put yourself back in control.

A Final Perspective ...

One reality you can bet on – PARIS is, by far, *the* most complete integrated studio on earth. *And it's available today!* Compare for yourself. Who else is shipping a 128 track, Mac and PC compatible system, with real-time effects and a dedicated control surface? **No one.**

PARIS – It's time to get REAL!



Download a demo version of PARIS from the PARIS website:

www.ensoniq.com

ENSONIQ™

LEADING THE WORLD IN SOUND INNOVATION

INTELLIGENT DEVICES



Get a hands-on demo of PARIS today at one of the new PARIS Display Stations at select ENSONIQ dealers, worldwide.



JUDGE with your EYES

Proprietary Dynamic Engine Allocation™
24 Bit Double-Precision Effects Resolution
20 Bit A/D - D/A Audio Conversion
Four Discrete Inputs and Outputs
Two Independent, Discrete Stereo Processors
All-New Effects Algorithms
Never Before Available Effects
Over 5 Seconds of Delay Time
100 User Preset Locations
Twin Stereo, Discrete 4, Cascade and Stereo Routing
Fully Programmable
Performance MIDI™

DECIDE with your EARS

Quadra/Fx

TWIN 24 BIT STEREO ENGINE DIGITAL MULTI-EFFECTS PROCESSOR



All the specs in the world matter only if the processor they describe sounds equally incredible. A R T's new Quadra/Fx gives you all the top-flight specs that you demand AND real advances in sound quality, available only through our all-new proprietary digital effects platform.

Lose yourself in lush waves of our most heralded reverbs to date. Create volume-dependent stereo rotary speaker simulations. Model the most sought-after vintage phaser (without the noise). Or do it all at once - that's the power of having two discreet stereo processors in one box.

Unleash your every creative urge with our ingenious dynamic performance features and operation enhancements. The flexibility of 4-in/4-out routing inspires unlimited creativity, while Dynamic Engine Allocation™ technology guarantees the best possible effect quality at all times.

Visit your A R T dealer today to HEAR what our specs are saying. Because in the end, hearing is believing.

SEE US AT NAMM BOOTH #426

APPLIED RESEARCH AND TECHNOLOGY, INC., 215 TREMONT STREET ROCHESTER, NY 14608
Vox: 716/436.2720, Fax: 716/436.3942, <http://www.artroch.com>

CIRCLE #021 ON PRODUCT INFO CARD
World Radio History

A R T
APPLIED RESEARCH AND TECHNOLOGY



sounds too trebly and scratchy and squeaky and it just drives me crazy.

"In most studios, you don't have to worry about the humidity or lack of it too much. But in concert halls, it's a consideration. The biggest thing is to make sure that you can play your best. If the climate is changing, but you're in a place where you feel you can play your best, then that more than compensates for the problem."

BIL VORNDICK

Bil VornDICK is one of Nashville's finest engineers for understanding what it takes to make great recordings that feature acoustic instrumentation. Among his many credits are albums by Mark O'Connor (including *New Nashville Cats*), Jerry Douglas (since the early '80s up to his latest record and Grammy-winner *The Great Dobro Sessions*), Edgar Meyer, Béla Fleck, Doc Watson, James Taylor, Alison Krauss (the Gram-

records because they feel good.

"A good example: I had a Number One song on a group called III Time Out, and the B string was out of tune. But the person who was singing the lead vocal was playing the guitar at the same time. That was his best performance, and we couldn't re-do the guitar because of the leakage. Quite a few people have come up to me and said, 'The B string was out of tune.' I would say, 'Yeah, we cut it quite a few more times, but the feeling and emotion wasn't there.' I went with the best-feeling performance, which had the emotion within that helped sell the song. It still went to the top of the charts. There are some people who would go re-do the vocal and the guitar and do other things to deal with the B string on the guitar.

"Currently, there is a successful acoustic artist, whose roots were in bluegrass, cutting tracks with a click and then going back and replacing everything. As a result, you've got all of the nuances that originally went on with the little inner licks and dynamics of the song disappearing in order to be precise.

"Most of the albums that I've done that have won the Grammys are all albums recorded on budgets between \$10,000 and \$25,000. These are not quarter-of-a-million-dollar albums. Alison Krauss' first Grammy-winning

**I want as many pieces of the puzzle
working with each other and playing off each
other as possible, instead of starting with
a click track. —Bil VornDICK**

my-winning *I've Got That Old Feeling*) and Del McCoury. He produced a new Ralph Stanley record called *Clinch Mountain Country*, featuring an all-star cast including Bob Dylan, George Jones, Vince Gill, Patty Loveless, Hal Ketchum, Marty Stuart, Ricky Skaggs, Junior Brown and Diamond Rio, to name just a few.

"I like to pick the musicians for the song, instead of just working with a normal rhythm section. I like everybody to be going down on tape at the same time. I want as many pieces of the puzzle working with each other and playing off each other as possible, instead of starting with a click track. I go for the overall feel of a take. I'm a guy who still believes that people buy

record cost, I think, \$12,500.

"I mike everything in stereo normally, so that within those two mics I have a depth perspective on each instrument. I'm a pretty hardcore analog guy. You get the whole waveform in analog, and in digital there are still quite a few overtones that the sampling rates are not catching. I can still hear them, but a lot of people don't give a damn. I normally cut at 30 ips with no noise reduction at plus 9. If I can get into a facility that has SR, I like to cut at 15 ips with SR. Digital may be cheaper, but analog is still the art form for me." ■

Contributing editor Rick Clark is a producer, songwriter and writer based in Nashville.

Acoustic-X™

Acoustic X

THE ULTIMATE ROOM OPTIMIZATION SOFTWARE

Design, Layout & Optimize Your Own

- Recording Studio
- Project Studio
- Video Edit Suite
- Home Theater
- Critical Listening Room

For Stereo or Surround-Sound Monitoring, or just to learn more about acoustics

You Will Believe Your Ears

With Acoustic-X software you are the **eXpert**

Acoustic-X™ Software Corporation

376 Queen Street East
Toronto, Ontario, Canada
M5A 1T1
Phone: (416) 868-0809
Fax: (416) 861-0620
WWW: pilchner-schoustal.com
E-Mail: acoustic@idirect.com

Inquire about a Demo at a music store near you

CIRCLE #022 ON PRODUCT INFO CARD

Playing for 100,000

screaming fans

could only be

a stones

throw away.



System 2000™, designed for those who demand serious concert-quality sound in a lightweight package you can carry. Equipped with our exclusive Ring Mode Decoupling (RMD™), the breakthrough technology developed for X-Array™ touring systems—for unrivaled fidelity and performance. Enormous sounding and incredibly flexible, Sx500 and Sx300 two-way speakers can be stacked, pole-mounted, flown or arrayed. The sophisticated PSX2000 console has more power, more effects and a ton of “extras” for extraordinary versatility. System 2000™, the future of portable sound can be heard now at your nearest EV dealer.

Until then, carry on.

System 2000
EQUIPPED WITH **X-Array**™ CONCERT SYSTEM TECHNOLOGY

Get with the system.



Electro-Voice 600 Cecil Street Buchanan, MI 49107 616/695-6831 800/234-6831 In Canada: 613/382-2141 www.electrovoice.com
© Telex Communications, Inc.

CIRCLE #012 ON PRODUCT INFO CARD

EMMYLOU HARRIS

A FEARLESS LIFE ON COUNTRY'S EDGE

Throughout a career that has spanned more than 25 years and as many albums, Emmylou Harris has created a body of work that has become synonymous with artistic integrity. Always a bit of an outsider in the world of country music, and virtually ignored by country radio in recent years, she is nonetheless one of the genre's most respected interpreters—a singer who has effortlessly linked the Carter Family, George Jones, the Stanley Brothers, the country-rock Flying Burrito Brothers and dozens of other greats into a glorious whole. Her distinctive soprano—a picture of vulnerability one moment, hauntingly ethereal the next, but always expressive—has aged beautifully and taken on an indefinable wisdom that clearly comes from true understanding and experience.

Unlike most country artists, who rely on hired session guns for their recordings and then put together separate pickup bands for the road work, Harris has helped ensure a solid concert following for herself (while earning the respect of many musicians) by consistently assembling one great band line-up after another for her records and tours. Those who have performed in her groups include Rodney Crowell, Sam Bush, Emory Gordy Jr., Hank DeVito, Glen D. Hardin, Albert Lee, Steve Fishell, James Burton, Ricky Skaggs, Barry Tashian, Mickey Raphael, Ron Tutt and Tony Brown.

By continually changing musicians and, in recent years, producers, she has challenged her artistic vision, choosing to grow rather than stagnate with a 'sound' that commercially works on radio. In fact, Harris' most audacious release is probably her most recent album, *Wrecking Ball*, which was produced by Daniel Lanois and features an unusual blend of cover material by everyone from Jimi Hendrix to Bob Dylan to Lucinda



PHOTO: BRUCE GREGORY/REDFERNS ARCHIVES

Williams. While a number of her fans were puzzled by this direction, it was hard to deny the soulful focus and instinctive intelligence of the material and performances. The fact is, Harris and her latest band have attracted many new listeners.

After her two-year "Wrecking Ball" tour (with her band Spyboy), Harris returned to Nashville in hopes of taking some restorative time off. Not surprisingly, though, she's immersed herself in a number of projects around town, including the assembly of a "Wrecking Ball" tour live album and working as executive producer (and performer) on a tribute project to her one-time mentor, Gram Parsons. When she hasn't been working on those projects, she's found inspiration dropping in (along with Lucinda Williams and others), watching and occasionally jamming with The Es-

quires (Gillian Welch, Dave Rawlings and David Steele), who play at a hot little East Nashville spot she loves called The Radio Cafe. It's a wonder the ever-gracious and good-humored artist could find the time to chat with *Mix*.

A number of us at Mix are big fans of yours, so when it came time to discuss who should be interviewed for this Nashville issue, there wasn't a lot of debate.

I'm honored. I'm not very technically oriented, so I still say things to my monitor guy like, "It sounds like I'm in a well." [Laughs] They have learned to interpret me over the years.

At least you aren't saying that you want it to sound a little more orange.

Oh, I understand that completely. [Laughs] No.

I gather you're working on a Gram Parsons-themed project.

BY RICK CLARK



“I demand results...”

Teddy Riley – Grammy winning, multi-platinum Artist and Producer.



...and I'm used to getting them with Logic Audio.”

Multi-Platinum artists need complete and reliable solutions. That's why more professionals use Logic Audio Platinum than any other digital audio sequencer.

The most comprehensive integrated feature set available: multiple hardware

support, a myriad of plug-in options, real-time DSP, high powered MIDI sequencing, quality scoring, and the list goes on...

Logic Audio is the advanced choice for those who demand the best. Available at finer music stores worldwide.

Emagic Inc.
Tel. +530.477.1051 E-mail: info@emagic.de
Fax +530.477.1052 http://www.emagic.de

All rights reserved. Logic™ and Logic Audio™ are Registered Trademarks of Emagic®.

CIRCLE #032 ON PRODUCT INFO CARD

emagic

Technology with Soul.

PRO AUDIO REVIEW *Flux* Long, June 1998
“At a cost of \$479, the Drawmer MX30 is a jaw dropper... a budget minded easy-to-use piece of equipment that sounds like a million bucks.”

The Drawmer MX30
Gate/Comp/Limiter MSRP \$479

Drawmer

Transamerica Audio Group Inc.
2721 Calle Olivo • Thousand Oaks, CA 91360
Phone (805)241-4443 • Fax (805)241-7839 • e-mail: transamag@aol.com • www.proaudio.co.uk/drawmer.htm

In Canada • GenAudio Distribution Inc. • Phone (888)462-8345 • Fax (888)462-8345 • www.genaudio.com • www.gerr.com

World Radio History

PROGRAMME ADAPTIVE GATE
Makes isolating what you want easy and fast. This sets the gate threshold.

DRAWMER AUTO COMPRESSOR
Sets at what level you want compression to begin.

GATE METER
Above and Below Threshold indicators.

RELEASE TIME
Alters release time of the adaptive gate to slow or fast.

CIRCLE #030 ON PRODUCT INFO CARD

THE MIX INTERVIEW

Yes, we're working on a Gram Parsons tribute. Oh God, I hate that word. When they first approached me, they said, "Well it's not a tribute." I said, "It's people doing Gram Parsons' songs. It's a tribute album." I think that we're overwhelmed with those, but I finally agreed to do it for several reasons. I really like Paul Kremen, who put this thing together. I like his energy and where he's coming from. I figured that somebody was going to eventually do one, and perhaps I could direct traffic and steer this in a direction that hopefully was interesting. Also, in a sense, it's not so much a tribute record, and it

either peers of Gram's or have openly said they admired or were influenced by him and will do interesting interpretations. I've actually ended up singing on a few things.

Gillian [Welch] and David [Rawlings] are going to be on it. Elvis Costello has completed something. The Cowboy Junkies are doing something, as are Steve Earle and Chris Hillman. Chrissie [Hyndel] and I have done a duet. "She." Beck has done something for this, too. *Beck has synthesized so many musical elements in a way that reveals an awareness of great music from decades ago, and yet he contextualizes those elements with a fresh approach that uniquely expresses his own artistic*

Stones, and thank God we have the Rolling Stones, because they have taken that a step further. We are always moving upward in the footsteps of other people that have gone before us. What we have to do is constantly be reinventing ourselves musically and poetically.

I think the only real sin in music is mediocrity and just recycling the same thing over and over again. That's always going to happen, but thank goodness we are always going to have people who are innovators and will somehow emerge from the muck of mediocrity.

I think that being fearless is one of the most important things that an artist has to be. You have to take chances,

THE MIX INTERVIEW

[Laughs] Which to me sounds like the same song sung over and over again by the same musicians, by the same singer. That may be a bit cruel, but for the most part, it's just too much for me in my time in life to wade through. Hopefully, I will hear the good stuff through friends or whatever. For the most part, country radio is just not a place where you're going to hear fearlessness.

It's wonderful that Johnny Cash won Country Record of the Year, but only the Grammys would recognize something like that. The country music establishment never really played that record at all. They never acknowledged it.

You mentioned that Chris Hillman is involved in this Gram tribute project. Didn't Chris introduce you to Gram?

There are so many interpretations to the story, and I don't remember exactly how it happened. The Burritos were playing in town, and Rick Roberts and someone else in the band came into the club and they brought Chris [Hillman] the next night to hear me play. Chris probably knows the story better. When they went up to Baltimore to play the next night, Gram just happened to

show up at the show and was talking to Chris about the fact that he was going to do a solo record and he was looking for a girl to sing traditional type of George [Jones] and Tammy [Wynette] country duets. Chris said, "We heard this girl in D.C., but I don't know how to get in touch with her."

Well, it just so happened that the girl

I think the only real sin in music is mediocrity and just recycling the same thing over and over again.

who babysat for my daughter was backstage with them. She said, "I know her. I babysit for her daughter, and I have her phone number." [Laughs] If that's not one of the strangest things. So I get this call from Gram Parsons, and I had no idea who he was. He wanted me to

come up to Baltimore and I said, "I'm sorry, but I'm playing tonight. Some of us have to work for a living." [Laughs]

Did you really say that?

No. But I remember thinking that I couldn't just drop everything and come up to Baltimore. I said, "It's 50 miles! I have to work." He said, "Okay, I could come down there." I said, "Well you could take the train and I could meet you." And so I did. I met him and he came to the show. That was at Clyde's. It was a rainy Monday, and I think somebody actually rear-ended me on the way to the station in my little Pinto. I'm surprised that my gas tank didn't explode, and then you wouldn't be talking to me today. [Laughs]

Wasn't Mary Martin [legendary A&R person and one-time manager for Van Morrison] involved in all of this early career development?

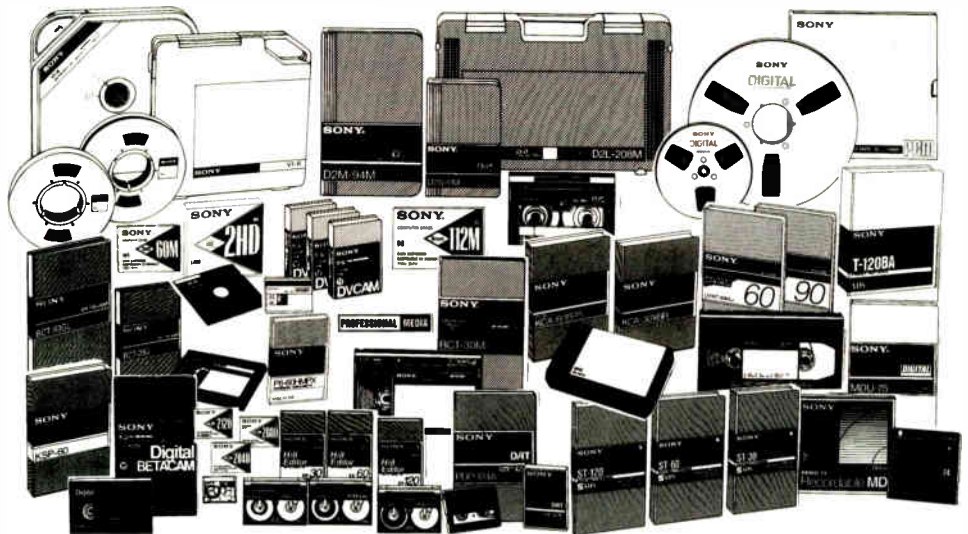
Yes. Mary Martin was very instrumental in everything happening. Eddie Tickner, who managed Gram and then managed me, brought Mary Martin to see me in a little club in Washington in either late '73 or early '74. She came to see me and was quite impressed. She came to see me again and brought Brian [Ahern] to this place called the

Call or Fax for FREE CATALOG!

Inquire about products & brands not listed.

USA 1-800-331-3191

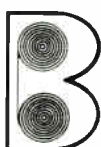
NYC Area: 516-678-4414 Fax: 516-678-8959



Visit our Website: <http://www.burlington-av.com> • E-mail: sales@burlington-av.com

At Burlington We Have All The Media So You CAN Record! Shipped From Stock • Priced Right

• Immediate Delivery •



Burlington A/V Recording Media, Inc.

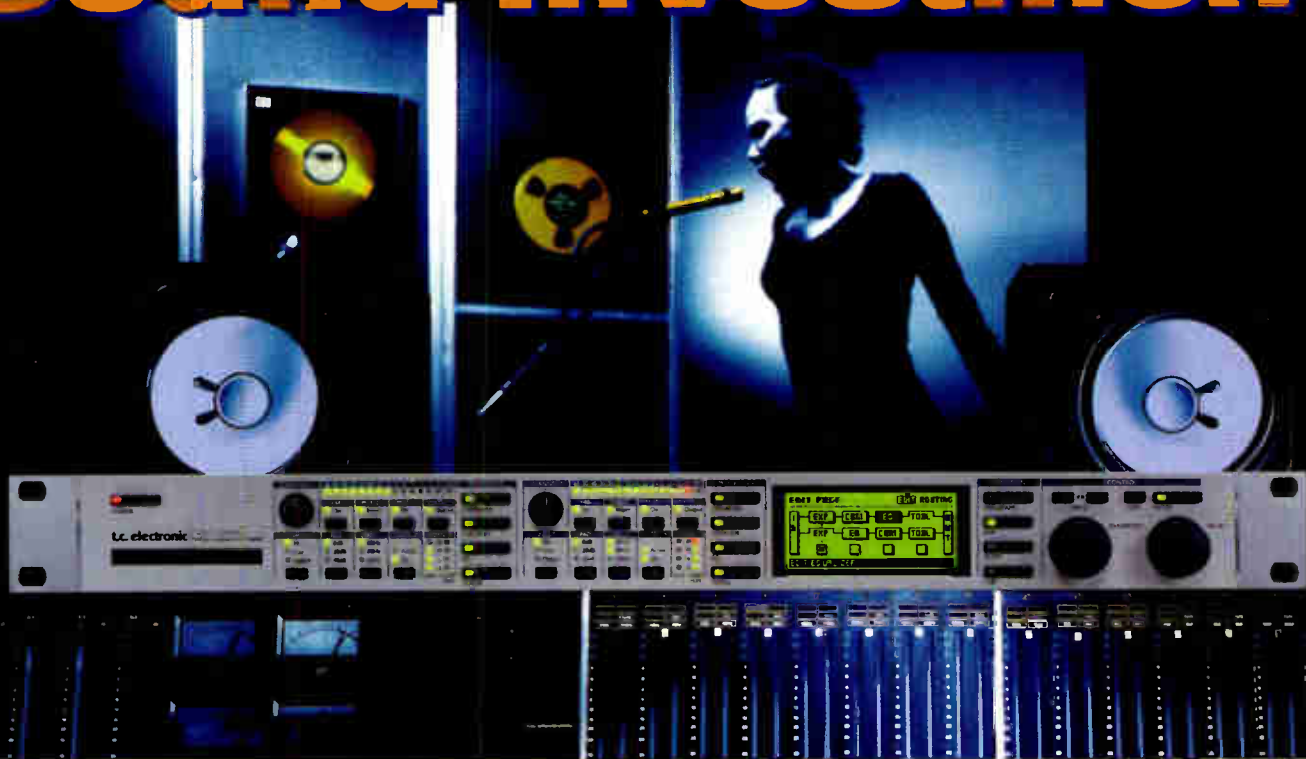
106 Mott Street • Oceanside, New York 11572



CIRCLE #027 ON PRODUCT INFO CARD

World Radio History

Pure Gold Sound Investment



**THE ULTIMATE
SOLUTION TO
DIRECT-TO-DIGITAL
RECORDING**



HIGH-END
TWO-CHANNEL MIC. PREAMP

CUTTING-EDGE
24 BIT AD/DA CONVERSION

POWERFUL
48/96 KHZ DIGITAL PROCESSING

INPUT

- ◆ STEREO/DUAL MONO MIC PREAMP
- ◆ TRUE 48V PHANTOM POWER
- ◆ 24 BIT AD CONVERTERS
- ◆ LO CUT FILTER
- ◆ SOFT LIMITER
- ◆ AES/EBU
- ◆ S/PDIF
- ◆ ADAT™

PROCESSING

- ◆ 48/96 KHZ INTERNAL DYNAMICS PROCESSING
- ◆ EXPANDER/GATE
- ◆ COMPRESSORS
- ◆ EQs
- ◆ DE-ESSER/DYNAMIC EQ
- ◆ DRG™ DIGITAL RADIANCE GENERATOR
- ◆ MICROPHONE TIME ALIGNMENT DELAY
- ◆ M/S ENCODING/DECODING

OUTPUT

- ◆ 24 BIT DA CONVERTERS
- ◆ AES/EBU
- ◆ S/PDIF
- ◆ ADAT
- ◆ ANALOG XLR
- ◆ Simultaneous Analog and Digital Outputs

RECALL THE MAGIC: VERSATILE FACTORY PRESETS AND CUSTOM USER BANKS ENABLE YOU TO SAVE THE EXACT SETTINGS FROM YOUR FAVORITE RECORDINGS AND RECALL THEM AT WILL, SAVING YOU HOURS OF WORK IN THE STUDIO.

t.c. electronic
ULTIMATE SOUND MACHINES

SEE US AT NAMM BOOTH #1243

TC ELECTRONIC INC., 790-H HAMPSHIRE ROAD, WESTLAKE VILLAGE, CA 91361, USA · PHONE: (805) 373 1828 · FAX: (805) 379 2648
EMAIL: INFO@TCELECTRONIC.COM · HTTP://WWW.TCELECTRONIC.COM

TC ELECTRONIC A/S, SINDALSVEJ 34, DK-8240 RISSKOV, DENMARK · PHONE: + 45 8621 7599 · FAX: + 45 8621 7598

CIRCLE #028 ON PRODUCT INFO CARD

World Radio History

*Just another
1,327-hit wonder.*



“Before Record Plant, I was only nominated for Grammys.”

— Kenneth “Babyface” Edmonds

“I can walk around Record Plant all day without shoes and at night my feet are still spotless. Their floors are clean—but their sound is even cleaner.”

— Don Was

“I always feel like I’m walking into some ultra-hip cosmic spaceship—but with cooler people, great music, bizarre social combos, better food and our very own Wendy-bird Rose, manning the helm. Thank you Record Plant for all those journeys to the great beyond”

— Bonnie Raitt

“I, Luther Vandross, love Record Plant. Because when I, Luther Vandross, start to make a Luther Vandross recording, I say to myself, ‘Luther Vandross, when you’re in LA where should you record?’ And of course the answer is unquestionable—Record Plant!!!!
The place to be, sho’ nuff!”

— Luther Vandross

“Like most people in this business, we have a choice as to where we work. I work at the Record Plant because it is simply the best of the best.”

— David Foster

“...it is, in my opinion, probably the best studio and staff to record with anywhere.”

— Slash

“Why do I find myself at Record Plant? Simple—it’s the perfect environment for creating chart toppers.”

— Tetsuya “TK” Komuro

“Right off the top, if I need a studio to jump, my first call is to Record Plant. The sound systems are always stately.”

— Perry Ferrell

RECORD PLANT
RECORDING STUDIOS

1968-1998
..the first
30
years

Those who can go anywhere, come here.

Red Fox Inn, which I played once a week. It was a bread-and-butter gig. We got \$200 for the night and there were five of us, so that was \$40 apiece that we could count on.

Didn't Brian record that first night that he saw you play?

Yeah, he did, with his little Braun tape recorder. Brian was very interested in doing a record, and once Mary got Brian interested, she was able to get me a deal with Warner Bros. She needed to put me with a producer who had a good track record, and Brian was very successful at that point with Anne Murray.

Of course I had people saying, "You're going to work with the guy who produces Anne Murray? Are you crazy?" I thought Brian showcased Anne in a beautiful way. Even though she was very much a pop singer of what you might call AC music, he made beautiful, very folk-tinged records. I liked Anne Murray, but I knew she was different from me. It was like apples and oranges. There is this thinking that, if you're a producer, then every record you're going to make is going to be exactly the same, and that just isn't true.

Brian really taught me how to be a recording artist. I didn't have a clue before. Brian has a total respect for the artist, and he was very nurturing in a way that was not very obvious. Knowing that he was in charge, Brian allowed me to be very creative. As we got to know and trust each other, or as I got to sort of be aware that I could have as much say as I wanted, I knew that whenever I came up with an idea, he was going to weigh it. Even if the idea didn't work in that particular context, it was really good for me to voice that idea and know that it might work some place else in another situation. So Brian really allowed me to become an active participant in the making of the records. **Besides Brian, you also worked with a handful of other fine producers.**

Brian did the lion's share of the records. Paul Kennerley produced the *Sally Rose* and the *Thirteen* album. He wouldn't take any credit for it, but he initiated the *Angel Band* recordings. Then Emory [Gordy] finished them and did the production and made it into a record. Ultimately, it was Paul's idea to get us over to his little house that he had and record some stuff there live. Then I worked with Richard Bennett, and Richard and Alan Reynolds also co-produced *Brand*

New Dance and *At The Ryman*. I also did the *Trio* record [with Linda Ronstadt and Dolly Parton] with George Massenburg. Of course, I did the record with Daniel [Lanois; *Wrecking Ball*].

It was difficult to move away from working with Brian. We were pretty much joined at the hip. We were married, so I had to not only move away from a creative relationship, but an emotional relationship. So working with a



Harris with picker extraordinaire Albert Lee, late '70s.

producer that was just a friend was also different for me. I had to move from working with Brian to working with Paul, who I was involved with and married, and then I had to work Richard, a producer who was just a producer. [Laughs] So that is different, even if you want to tell yourself that it isn't. It is different. It's a different kind of intimacy.

It was great being around Richard. Richard is so enthusiastic about music. He would turn me on to so much different music. It was a musical education. We really were kind of fearless, trying lots of things, and that kind of cut me loose, too.

Paul Kennerley is not only a producer, but a great songwriter, too.

Our main involvement was the writing of the songs for the *Sally Rose* album. Paul helped me bring that baby into the world; he co-wrote that entire album with me. He really understood the songs and the concept and how that had to be presented to the world, because he also had the experience of his two concept albums, *Jesse James* and *White Mansions*. He really understood

how *Sally Rose* had to flow as a piece.

It was so important for me to write that record. I was at a crossroads, where I had the song ideas and I had to finish them. I had to stop thinking that it was just going to happen by itself without me putting the time and effort into finishing it.

I don't know if I will ever be just a songwriter. I will always rely on my abilities as an interpreter, but I'm also at a crossroads where I feel that I now have to do some writing, because it's a hat that I have worn, and I should continue to wear occasionally. For better or worse, I have written some good songs. Therefore, I have to put time into that, no matter how difficult and painful it is.

I've been listening to "Boulder To Birmingham" [from her first album, *Pieces of the Sky*] because we recorded it live. I think, "God, I repeated that word! I don't believe I repeated that word! How did I ever let that go?" But you know, there is nothing wrong with that song. It's a very good song. I remember thinking at the time I wrote it that there were lines that I thought didn't work, and then there would be people who would later come to me and say, "That's my favorite line." If Brian had really liked that song and suggested that we record it, I would've probably set it on the shelf or edited it down to a point where it would've lost something it needed to be the song that it is.

It's a natural thing for artists to want to over-edit the magic out of their work. This is true. That's why a good producer is so important. I've never been comfortable in the role of producer. I produced one record, which was the Delia Bell record. I will always be an active participant in every record I'm making, but I never care about wearing that producer's hat. I don't need that kind of credit. I know how involved I am; I know how important and how hard a producer works, and the more invisible they are they harder they are working. [Laughs] An artist should be very vocal and very active, but there is a certain line that you cross when you decide to put on that producer's hat and decide to be a co-producer or produce yourself. I prefer not to have that, because I work better without that pressure.

Many of the songs you have chosen to record over the years still sound so timeless.

I'm basically a song gatherer. I was able to do that on *Wrecking Ball*. I know

The Missing Ingredient Has Always Been the Amplifier!

The engineers at Hafler have gone to great lengths to mix the perfect ingredients. Our Trans•nova/DiAMOND amplifier will deliver the accuracy and transparency your music deserves. These circuits combined with our proprietary high frequency waveguide and low frequency transducer will deliver a smooth response and create an undeniable depth of field.



Hafler
the standard

Go hear the TRM8 Trans•nova Reference Monitor

"The TRM8 is a true synergy between speaker and amplifier, something rare in pro audio"

"The low distortion lets you listen without fatigue, yet enables you to hear precise detail"

"At \$2400 a pair, they are a real bargain"



Tom Jung

Technical consultant for
Pro Audio Review **Hafler**

President and recording
mastering engineer of Digital
Mastering Products (DMP)

Tempe, AZ 85281 USA • 888-HAFLER1 (phone) • 602-894-1528 (fax) • www.hafler.com

CIRCLE #026 ON PRODUCT INFO CARD

©1998 Hafler

that everybody says that it was a huge change, but the difference was Daniel. He obviously brought a sonic thing—that combination of the technical and the organic. He brought a pulse and power into the rhythm section that was very different and inspiring.

Take a song like "Orphan Girl," which could've been done so many different ways. I never in a million years envisioned the power that song had with the way Daniel brought it out of the womb, so to speak. And without a bass. There is no bass on there at all. I love everything on *Wrecking Ball*, but that song was a real eye-opener. He took a traditional song to a completely different place. Where do you categorize that? What do you say that is? It's just music.

There were some people who thought you had gone too far out there with Wrecking Ball. I thought that was a courageous record in many ways.

Country radio was gracious enough to play me in the beginning, but I never even expected airplay. My first record came out at a time when pop and country were a little more lenient, so I

basically got a radio audience and gradually, as pop narrowed, there was a time when I was played more by country radio. I gradually wasn't played by anybody, but I had enough of an audience that I could survive without radio. So I didn't have the restrictions that a lot of these young artists have today, where if they don't get a Top Ten country hit, they're gone.

I'm so grateful that I'm not starting out right now. I think it's a real killer for a lot of artists. However, I believe that if you've got the goods, and you stick to your guns, that you're going to find an audience. So there is part of me that doesn't have a lot of sympathy for young artists who sell their souls out for a Top Ten hit and then wonder why they've hit the end of their career. You have to build a constituency that has to be written in blood. You have to put yourself on the line for it.

I appreciate the fact that you think is was courageous, but for me it was never any question. When I had an opportunity to work with Daniel Lanois, I would've been crazy not to do it. There was never a question in my mind.

You could say, "I don't know how it's going to turn out," but at least it is

going to be interesting. I mean, look at the records this guy has made. Everything he's done has been brilliant. The Bob Dylan album Daniel did [*Oh Mercy*] is just a masterpiece.

So if you're a musician, and you love music, it's an opportunity to just see what we're going to come up with. Of course, I think never in my wildest dreams would I have ever conceived *Wrecking Ball*, although I never felt out of place or in foreign territory. Oddly enough, I felt right at home, because I was so pumped by what was going on. I had a lot of input about the songs, and I loved the musicians he had put together. I was singing in a big room, I could see the musicians and hear the musicians, and I had somebody in charge who was getting great sounds on tape. He was giving me something that I love and was inspiring me to be able to give him live performances. I was just comfortable singing, and if I'm comfortable singing, then I'm a happy camper.

If you can get live performances vocally, you're more than halfway there. I'm really getting into that now. If you can get that, then everything else is gravy.

Many of the singers on classic record-

Dolby's got the gear you need for DVD and DTV.



Dolby Digital is a standard audio format for DVD-Video worldwide and for ATSC DTV adopted by the U.S., Canada, and South Korea. To produce and broadcast programs for these hot new media, you'll need Dolby Digital encoders and decoders in your facility.

Dolby has just the gear you need—multichannel and two-channel encoders, plus reference decoders for monitoring both Dolby Digital and Dolby Surround programs.

For product information, including the name of your nearest Dolby authorized dealer or distributor, contact Dolby Laboratories. And for Dolby Digital technical and implementation info, visit www.dolby.com.



Dolby DP562: Multichannel reference decoder for Dolby Digital and Dolby Surround.



Dolby DP567: Two-channel Dolby Digital encoder.



Dolby DP561B: Multichannel Dolby Digital encoder.

Dolby Laboratories Inc. 100 Potrero Avenue, San Francisco, CA 94103-4813 Telephone 415-558-0200 Fax 415-863-1373
Wootton Bassett Wiltshire SN4 8QJ England Telephone (44) 1793-842100 Fax (44) 1793-842101 www.dolby.com
Dolby and the double-D symbol are trademarks of Dolby Laboratories ©1998 Dolby Laboratories Inc. S98/11801/12040



CIRCLE #031 ON PRODUCT INFO CARD

The compressor that forgives, but never forgets...

dbx digital

IT FORGIVES

• New dbx technology, the TYPE IV™ Conversion System with TSE (tm) (Tape Saturation Emulation) gives you the pleasant overload characteristics of analog tape without the harsh distortion of most digital input systems. No more dancing around with the input levels to protect the integrity of your audio.

• Ultra-wide dynamic range 24 bit A to D converters with TYPE IV™ make your signal sound better than you ever thought possible. Capturing the full dynamic range of your analog signal and coupling it with the powerful dynamic range of this patent-pending dbx process, TYPE IV™ will make your digital signal sound like it came from the quietest high-quality analog source you could imagine.

• With the extensive metering of the DDP, you can see EXACTLY what is going on with ALL parts of your signal: input, internal processing, and output, with peak and VU, as well as gain reduction for both sides of the stereo image.

• And speaking of stereo, you can work in stereo with dbx's True RMS Power Summing™ for phase-coherent tracking, or in dual mono mode, without the two channels interacting at all, making the DDP a great processing value.

IT NEVER FORGETS

• The DDP works right out of the box. It comes with 50 factory setups that are guaranteed to knock your socks off. There are presets for every application you can think of, and then some. dbx engineers are musicians and recording engineers. We know what a compressor is supposed to sound like, and we know it better than anyone else. We invented compression. We eat, sleep and breathe compression.

• Want to duplicate that perfect compressor set-up? Each processor in the chain has all the parameters you would expect. After you set the parameters the way you want them, save it as a processor preset, available to be recalled any time. These building blocks allow you to save entire setups just for the way you like to work. It doesn't matter that you are doing a live gig one night, then mixing the tracks in the studio the next night, the DDP will be there, just the way you left it.

• When you save a preset, you also save the information that makes it work behind the scenes, too. Digital output (optional), sample rate performance, MIDI setup, as well as any of the other utilities, like sidechain setup and monitor, EQ settings, and SysEx functions.

• When you make changes to any parameter, you can see where your adjustments are affecting the signal, simply by looking at the Hi-Res graphical display, which shows the processing curve in real time as you make your adjustments.

Check out the DDP at your local pro audio outfitter, and experience DIGITAL performance you'll never forget.

Gate

Click on the gate. Set parameters for threshold, ratio, attack, hold, release, and output gain. See the effect of your settings on the graphical display, as well as on the gain reduction and audio level meters, they all interact in real time with your manipulation of the parameters. Click on a secondary setting of silver (left) to clear off the noise in between the vocal takes. You can save your final gate settings as a "gate preset" building block and recall it into any other preset you do.

Compressor

Click on the compressor. The effects of the gate settings are still visible on the graphic display, so let that help you determine where to set your compressor threshold. The parameters you change here will also affect the use on the graphical display in real time. Move through all the regular parameters, like threshold, ratio, attack, release, and output gain. For vocals use a threshold of about -25dB, a ratio of about 3:1 or 4:1, and a slow attack and fast release for the most natural sounding effect. Your compressor settings can also be saved off as a building block to be called up into any other preset.

Limiter

Click on the limiter. Changes you make to the limiter settings are also seen in the graphical display. Adjust the level up or down to suit your needs. The flat top of the display moves up and down as you adjust the level. You can also set the speed at which the limiter lets go of the signal as it goes below the threshold. This is truly smooth limiting, with patented dbx PeakMax™ algorithms. So rest assured that when you set your threshold level your tape will not distort, and your signal will not get butchered as it goes across the threshold. And like the other parts of the processor, your limiter settings can be named and saved for later recall.

De-esser

De-essing works the same way: use the effects of your settings displayed in the DDP. Parameters here are the common ones: threshold in frequency, 800Hz to 8kHz, and amount in percent. Other available processing includes EQ, both in path and sidechain, for special-effect types of processing. When you are doing any of the building blocks, its icon is visible on the display and the parameters are shown in the graph, so it's always easy to know where you are. Parameters are easy to save in this page driven operating system. When it's as complex as this, it's nice to know somebody was thinking when it was put together.

and More

Use the 20kHz to 10kHz, G, ±12dB, and GC/Monitor. Also use the 20kHz to 10kHz, G, ±12dB, and GC/Monitor. Also use the 20kHz to 10kHz, G, ±12dB, and GC/Monitor. Also use the 20kHz to 10kHz, G, ±12dB, and GC/Monitor.

Save The Planet It's the Only Planet We've Got.

dbx Professional Products • 8760 South Sandy Parkway • Sandy UT 84070 USA
Phone (801) 568-7660 • Fax (801) 568-7662
email: customer@dbxpro.com • URL: <http://www.dbxpro.com>

© A Harman International Company

dbx
PROFESSIONAL PRODUCTS

CIRCLE #024 ON PRODUCT INFO CARD

World Radio History

THE MIX INTERVIEW

ings that have influenced you did straight or close to straight performances. There wasn't the kind of sonic micro-managing with computer editing that seems to dominate a lot of country and pop productions these days.

I can't say that I haven't been guilty of that. You have the technology and you're so horrified that one note is going to sound out of tune, or you had this vision of how you wanted to sing something and you didn't sing it that way.

Also, the way everybody records, they are so separated and everybody is so afraid things aren't going to sound clean; everybody is in their own little booth and they can't see each other. I really don't want to record that way anymore.

I also just finished doing this record with Willie Nelson where I was the girl singer on just about everything. That was pretty great. That was totally live. Daniel Lanius produced it, and he put together this interesting little band with a couple of drummers and no bass player; he basically showcased Willie's guitar playing and some interesting

rhythms behind Willie's playing and singing. It was just extraordinary.

For Willie, we were in this big old movie theater that was made into a studio. It was a huge, cavernous place. It was in Oxnard, California, where Daniel and Mark Howard have built a studio. Everybody could hear and see everybody, and it was like sitting in this huge living room. There are people there who know how to get the sounds and aren't worried about the separation of this and that.

Willie is a live singer and performer, and he wants to do two or three takes of something and then move onto something else. Everybody was in that spirit, and everybody was into the thing of where there might be a little fix here or there, but basically it was all live, and what went on tape is what is going to be on the record.

Then again, it's wonderful that we have the technology to process sounds and do interesting things. Ultimately, the song and the singer are the jewel and the production has to be the setting for the jewel. There were a lot of interesting things done on *Wrecking Ball*, but the vocal was sacrosanct. You have the passion of the basic core band per-

formance and the vocal, and then you could go back and mess with things. That is a wonderful combination. I think that Daniel does that so well, combining the technical with the organic in a way that is just breathtaking.

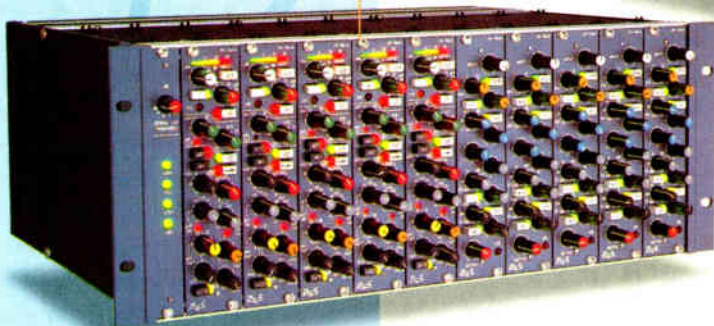
I'm going to put out a live album of this last tour. I've been listening to it over and over, trying to make decisions on particular versions of songs. I'm looking forward to when I can move on to listening to somebody else besides myself. [Laughs] The thing that has kept me going through this whole thing is listening to my fantastic band.

Like Bill Monroe and John Mayall and a few others, you have a reputation for picking band members who eventually go on to their own substantial career paths. Among them, you've had Ricky Skaggs, Rodney Crowell, Albert Lee, Vince Gill, Emory Gordy, Richard Bennett, Sam Bush, and Tony Brown, who later became head of MCA Records Nashville. How does that make you feel? It's been a great ride. I got so much from working with these people, and I think they got something while working with me. It was a real musical marriage. So however or *uh* however, here I am today. I have had a good life. ■

Legendary music products

V-RACK

rack-mounting DYNAMICS AND
EQUALISER MODULES



33609/J

PRECISION STEREO LIMITER/COMPRESSOR

1081 CHANNEL AMPLIFIER

REBIRTH OF CLASSIC NEVE MIC AND EQ AMP



HEAD OFFICE - AMS Neve plc · Billington Road · Burnley · Lancs BB11 SUB · England

Tel: +44 (0) 1282 457011 · Fax: +44 (0) 1282 417282

NEW YORK - Tel: (212) 949 2324 · Fax: (212) 450 7339 HOLLYWOOD - Tel: (818) 753 8789

Fax: (818) 623 4839 TORONTO - Tel: (416) 365 3363 · Fax: (416) 365 1044

e-mail: enquiry@ams-neve.com - http://www.ams-neve.com

Toll Free: (888) 388-6383

CIRCLE #033 ON PRODUCT INFO CARD

World Radio History

Introducing Cakewalk® Pro Audio™ 7

NEW! Put the power of a professional mixing console on your desktop. The new Console view enables you to record, edit, and mix all your MIDI and audio tracks from a centralized window.

NEW! Get more help with online tutorials, context-sensitive online help, and a redesigned User's Guide.

NEW! Access the Yamaha DSP Factory's on-board, real-time effects processing.

NEW! Open and edit multiple files simultaneously. Share MIDI and audio data between projects with ease. Simply drag and drop from one file to the next.

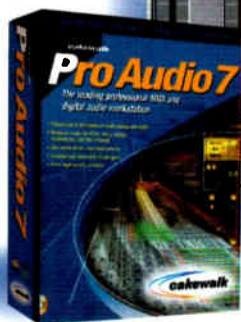
NEW! Produce higher-quality audio mixes with 32-bit, floating-point effects processing. Supports up to 128 simultaneous effects, including DirectX audio plug-ins.

NEW! Real-time control of MIDI track properties like port, bank, channel, and patch assignments; plus effects.

NEW! Perform final audio mixing with master stereo effects and faders for each audio channel output.

NEW! Apply real-time effects to multiple tracks with auxiliary sends and returns.

NEW! Increase productivity with an easier-to-use interface. Includes dockable toolbars, streamlined menus, faster access to editing windows and other enhancements.



The #1-selling MIDI and digital audio software is now hotter than ever. With more recording and effects processing power. New editing tools. New online tutorials. And an enhanced interface that lets you produce music and sound faster and more efficiently.

Introducing Cakewalk Pro Audio 7, the newest edition of the world's top solution for CDs, film and video soundtracks, multimedia applications, game titles, live stage productions, and Internet content.

Whatever the application, Cakewalk Pro Audio 7 is for you. Pick it up today at the music or computer store nearest you.

UPGRADE ONLINE!

Upgrade today at incredibly low prices. Save even more when you upgrade online. Check out other great Web specials. Visit www.cakewalk.com or call 888 CAKEWALK.

SEE US AT NAMM BOOTH #151

Key Features

- Up to 64 simultaneous tracks of audio; 256 tracks of MIDI
- Up to 128 simultaneous real-time effects
- Supports DirectX audio plug-ins, including Cakewalk Audio FX 1 dynamics processing effects and QTools/AX 3D audio effects
- Control and automate studio gear
- Supports multi-channel audio cards and hard disk recorders
- Fast, flexible notation editing and printing
- Advanced MIDI and audio editing commands
- Chase-lock MIDI and audio to film/video via SMPTE/MTC
- Save MIDI and audio tracks in RealMedia format for streaming on the Internet
- Native support for Windows 95/NT

Also available—
Home Studio 7 and
Professional 7.
Visit our web site
or call for details!



Future Music
Platinum
Award



Post Magazine
Professional's
Choice



Mix Magazine
Technical
Excellence and
Creativity Award



Music and Sound
Award



Boot Magazine's
Kick-Ass Award



New Media
Awesome Award



World Radio History
CIRCLE #034 ON PRODUCT INFO CARD

All product and company names are trademarks of their respective owners.

Sound Stage Studios

After more than 20 years in business, Nashville studio Sound Stage is thriving. The facility (originally the Mercury Records studio) began as a one-room operation, but since the mid-'70s, owner Ron Kerr and staff have continually expanded and added services. Still in its same prominent Music Row location, Sound Stage now offers three recording studios, two mastering rooms and a transfer room, in addition to operating

ing such luminaries as Dolly Parton, Clint Black, Alan Jackson, Patty Loveless, Wynonna, Jewel and Shania Twain) who are attracted by its emphasis on the basics. The studio sticks to music recording and offers solid 24-hour support and maintenance. Rhoades (who's been with Sound Stage for six years and is also a part-owner) illustrates the studio's thoughtful approach to business when asked about 5.1-channel

M5000s, Roland 330s, Lexicon 224s and 480s, UREI LA-2As and 1176s, and Tube-Tech, API and GML EQs and mic pre's. But engineers here also tend to bring in a lot of their own their stuff. We try to supply good consoles, amps and rooms."

Of the studio's three SSL-equipped recording rooms, the crown jewel is Front Stage, with its 9000 J Series console. The room was designed by George Augspurger and includes a Hildley-Kinoshita monitoring system and an array of analog and digital multi-tracks. It opened four years ago, and the 9000 J went in last year. The board was a hit right away (the first session on it was Mindy McCready with engineer Kevin Beamish), and since it was installed, Rhoades says, business has been up markedly. Of course, there are other 9000s in Nashville, so what is it that makes Sound Stage's 9000 room such a big draw? "The 9k was so immediately successful here because we actually had operators that knew how to run the console," Rhoades says, "which made it much easier for the engineers. Even if the engineer had their own second with them, we at least always carried somebody here who knew the console and the automation. They wouldn't have to call SSL; we would have the answer.



PHOTO: STEPHEN L. ROEBUCK

In the Front Stage (L to R): Chuck Ainlay, Tony Brown and Vince Gill, mixing Gill's MCA release *The Key*.

equipment repair and rental businesses.

"We have several different income sources," says chief engineer and head of operations Warren Rhoades. "You can't build a \$4 million room [Front Stage, on this month's cover] and get \$2,000 a day for it and make the bill. That's ludicrous. Sound Stage is the mothership that floats about 12 other companies. They're small companies, but they're still income sources. That's Ron's and my idea: If you're recording in Nashville, hopefully you're gonna be using either our repair business, maybe one of our tape machines...that's the philosophy."

Over the years the studio has played host to an impressive clientele (includ-

ing: "We thought about it, but we're going to wait until it's actually feasible to do it and make money at it. In my opinion, the format is just not there yet; I think we're three or four years away, and I'm not gonna go throw money at it just to say I have it. I like to stand around and watch everybody else who builds rooms and pay attention to what they're doing and how they're doing. I don't like to be in the forefront. We like to be cautious in what we buy and how much we spend, because we want to be here awhile. It's so easy in this business to get excited about a new format—it's a very excitable business. You can't let your emotions get too involved because financially it could wreck you."

In terms of equipment, Rhoades adds, "In Nashville, there's a certain amount you need to have—for example our outboard includes EMT 250s, TC

"That's a key to Sound Stage," Rhoades continues. "We're one of the only facilities in Nashville to actually provide people to help you with a session. There was more of that in town, but due to competition, studios have been cutting back, and the first place they start is their staff—usually they get rid of the second engineers, next it's the maintenance guy. We tend to keep people a long time; it's not unusual for second engineers to work here for three or four years. If you can hold on to good people through tight times, you're going to win in the end, because your facility will always have good maintenance and support. That's what keeps people coming here."

And keep on coming they do: Recently in mixing in Front Stage have been Vince Gill, Lila McCann and Ricochet. ■

"I knew it could be all over one day...

...until I used the
Aphex Dominator."

As a musician, you've got to take care of your ears, which is why I always insist on guaranteed protection for our in-ear monitor systems - for myself and my band."

The Dominator allows the audio to hit an exact maximum point above which the level does not go any higher. Other devices may effectively limit the signal, but the resulting sound may not be a faithful reproduction of the original. If you're looking for complete protection, as well as true fidelity, the Aphex Dominator is the only choice for ear monitors. Don't gamble with your ears - they're your most precious instruments.

Clint Black



CIRCLE #035 ON PRODUCT INFO CARD

APHEX
SYSTEMS

Improving the way the world soundsSM

11068 Randall Street, Sun Valley, CA 91352 U.S.A.
818-767-2929 • Fax: 818-767-2641 • <http://www.aphexsys.com>

World Radio History

FILM SNAPSHOTS

Armageddon's Asteroids

by Kim Wilson

Jerry Bruckheimer does not make small films. As producer of such 1990s action movies as *The Rock*, *Con Air* and *Crimson Tide*, he has shown a penchant for spectacular effects—both visual and aural.

For *Armageddon*, Bruckheimer's hotly anticipated summer release from Touchstone Pictures, supervising sound editor George Watters and his sound design team had to create the sound of a giant asteroid, the size of Texas, hurtling toward Earth. "Not only is there this gigantic asteroid," says Watters, "there are tons of smaller rocks and debris following it. We had to come up with the sound of the asteroid field, as well as the individual asteroids flying through space."

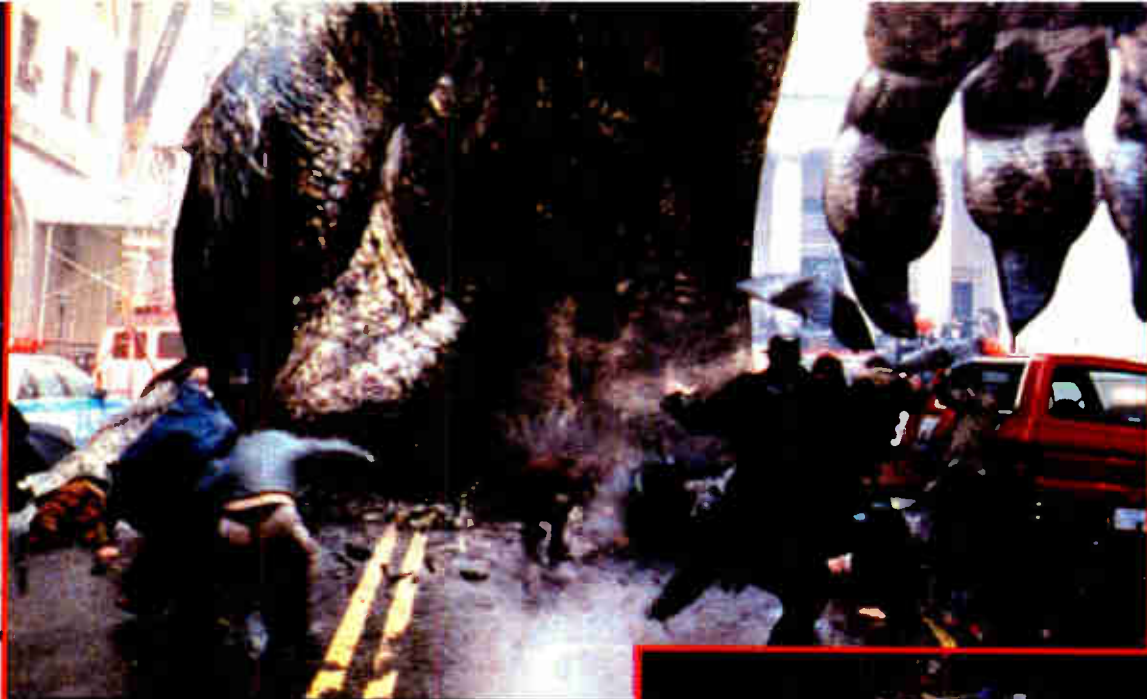
Oscar-winning sound designer Chris Boyes (*Titanic*) went on location to get many of the sounds needed. "He got several rounds of big artillery-type ammunition and shot them in the air," recounts Watters. "He miked them almost at the spot where they would be coming down, so he could get these great whiz-by sounds. Then he brought them back to the studio and started playing with the sounds by changing the pitch, adding EQ, and attaching other elements, such as wind, low-frequency rumbles, gunshots, rocket and Doppler effects, along with animal growls. Much of these effects were created for the rocks that swish through the frame at extreme speeds."



PHOTO: TOUCHSTONE PICTURES AND JERRY BRUCKHEIMER

Left, Bruce Willis leads the troops on their way to battle the asteroids. Below, supervising sound editor George Watters pauses for a brief moment at the final mix.





Godzilla puts his foot down in the middle of Manhattan mayhem. At right, Wylie Stateman, left, and Per Hallberg discuss the mix.

PHOTO: CENTROPOLISEFFECTS/COLUMBIA TRISTAR

During the course of the movie, many of the smaller rocks bombard Earth, and one scene has the space shuttle going through a rock storm where asteroids bounce off and smack into it. "For this storm, we needed crunching sounds and rocks of various sizes hitting metal," describes Watters. "We hired a company to bring us something like half a ton of various size rocks, and we just started making all sorts of different sounds. We rolled rocks over old cars, and we took these large shovels and threw rocks onto pieces of metal. We have a wide assortment of rock-hitting-metal sounds, from small- to medium-sized rocks to huge single hits. In the end, it sounds like we have millions of rocks pounding these shuttles.

"From a sound standpoint, nobody knows what a rock storm in space is supposed to sound like," muses Watters (after all, space is a vacuum with no air for sound to travel through). "Our version of outer space is probably the exact opposite of what it really sounds like, but we are going to fill the frame with 100 percent sound because that is what audiences love. Ultimately, our astronauts land on the largest asteroid and we have to create the sound of an asteroid. There are fissures and earthquake rumbles constantly going on all around them. It's windy, with major dust storms and, occasionally, gas pockets exploding from the center of the asteroid. Rock storms are belting the astronauts. This is what's so great about working on films like this—nobody can tell you what something is supposed to sound like, and you can just create it from your own imagination."

All of the rock sounds were recorded on location to DAT and Nagra recorders. This library, chock full of different size rocks whizzing through space and striking metal was compiled on a 24-track Pro Tools workstation. "Essentially, there was a lot of layering," says Watters. "Some of the shots you see are immense single rocks, turning over side by side, with smaller rocks



shooting by real fast."

The premix of the sound effects, as well as the final dub, took place at the Cary Grant Theater on the Sony lot in Culver City, Calif. Re-recording mixers were Kevin O'Connell and Craig Russell.

Godzilla Returns

by Kim Wilson

The sound effects ante for summer releases just keeps going up. Bigger, more complex and, all too often, louder, *Jurassic Park*, *Independence Day* and now...No movie better reflects just how huge these summer blockbusters have gotten in scope and size than the gargantuan remake of *Godzilla*. The key in these giant action films, however, is to provide balance, to pick the moments to let effects carry the picture.

With more than 800 effects shots of this latest *Godzilla*, the accompanying sound effects were biblical in size, according to co-supervising sound editor Wylie Stateman of Soundelux, who shared duties with Per Hallberg.

"The job of the sound designer is to create a sense of reality with these extraordinary images," says State-



Kevin O'Connell, right, and Greg Russell mixed some of this summer's biggest actioners, including *Godzilla* and *Armageddon*, on the 244-input Harrison MPC console at Sony Pictures Studios.

man. "The sheer magnitude of a creature 200 feet tall meant we had to scale up all our sound effects. *Godzilla* is in sequences composited with attack helicopters and jet fighters in a very dramatic visual presentation. The sound we created for our creature had to be equally, if not more, exhilarating without cluttering the soundtrack. We had to be very selective and discriminating in what we were playing and what frequencies they occupied in the total bandwidth."

One such effect is *Godzilla's* voice, which was based on the original roar. "We wanted to maintain that recognizable vocal signature yet modernize it," Stateman says. "We analyzed the orig-

inal roar for several weeks. It starts with a blatty kind of honk and transitions into a lot of twisting metal sounds with scraping, scratching and fiery kinds of sounds. It ends with sort of a whoop."

After the analysis, fresh material was created from a combination of several elements, both organic and fabricated. An extensive sound effects library with musical instrument samples, real animals (elephant, camel and gorilla) and scraping metal were used. All the elements were configured so they had the same kind of rhythm and pattern as the original *Godzilla* voice. The vocalizations were then edited on a 24-track WaveFrame system, and several premixes were created of the screams and roars to pinpoint the various moods of the beast.

For the breathing, sound designer Mark Lopez built a giant bellows fabricated out of 4x8 plywood, with a diaphragm that produced very large air rushes. "We called this contraption The Lung," Stateman jokes. "We figured a 200-foot beast would have a huge lung capacity and could move a lot of air."

"Since this is a Sony picture, the first format we mixed for was the 8-channel SDDS system and then we

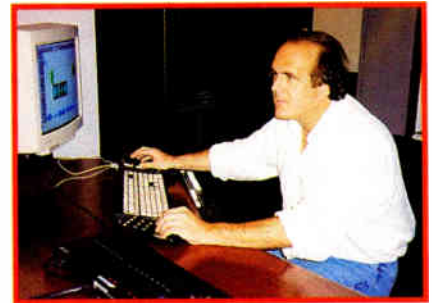
folded down to DTS and Dolby Digital," says Stateman.

All dubbing, including predubs, was performed by Kevin O'Connell and Greg Russell at the Cary Grant Theater on the Sony lot in Culver City, Calif.

Small Soldiers WHEN TOYS ATTACK

by Kim Wilson

When a misplaced shipment of GI Joe-type toy soldiers equipped with special intelligence chips comes to life in a small town, the mayhem and fun begin. These 18-inch soldiers are a combination of Stan Winston's animatronic models and CGI animation being developed by Industrial Light &



Above, co-supervising sound editors Mark Mangini, top, and Eric Lindemann prepare big tracks for *"Small Soldiers."*



Magic. As co-sound supervisors for the Dreamworks feature *Small Soldiers*, Mark Mangini and Eric Lindemann of Weddington Productions (North Hollywood) handled the bulk of the sound design elements that bring the toys to life.

"There are two distinct groups, the soldiers and their arch enemies the Gorgonites," says Mangini. "The soldiers seek and destroy, while the Gorgonites run and hide. We'll bring our talent into an ADR stage, record them and then process their voices in such a way that it sounds like the voice is

PHOTO: TM & DREAMWORKS

STUDER D950

Let Us Introduce You to The Future.

The STUDER D950 Digital Mixing System opens new vistas in digital audio using a revolutionary new digital signal processing architecture.

The extraordinary flexibility of this mixing system allows you to design your specific console for each project within seconds.

Extensive surround sound capabilities make the D950 the most exciting Digital Mixing Console for today and tomorrow.



Experience the Future of Digital Mixing

STUDER
PROFESSIONAL AUDIO EQUIPMENT

STUDER Professional Audio AG, Allmendstrasse 30, CH 8105 Regensdorf-Zürich, Switzerland, Telephone +41 1 870 75 11, Telefax +41 1 840 47 17

For more information please contact:

Austria: +43 1 806 54 0

France: +33 1 45 11 47 86

Germany: +49 30 72 39 340

U.K.: +44 181 207 50 50

or your local representative

Canada: +1 416 510 1847

Japan: +81 3 34 65 22 11

Singapore: +65 225 51 15


USA: +1 615 399 21 99

 A Harman International Company

CIRCLE #036 ON READER INFO CARD

SOUND IDEAS
SCI-FI SERIES
8000

4 CD's
500 Sound Effects



New

The Sound Effects of
ROCKY
 AND
BULLWINKLE
 AND
FRIENDS

Exclusively
 Distributed By



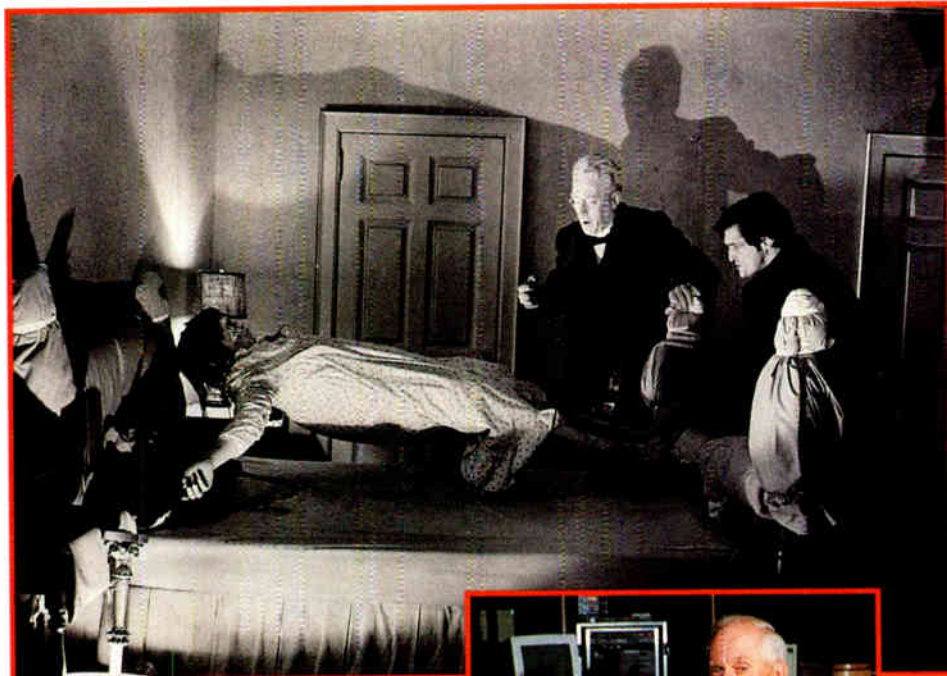
SOUND IDEAS

105 WEST BEAVER CREEK ROAD, SUITE #4
 RICHMOND HILL, ONTARIO, CANADA L4B 1C6
 TEL: (905) 886-5000 FAX: (905) 886-6800
 U.S. 1-800-387-3030 Cdn. 1-800-665-3000
 E-MAIL: info@sound-ideas.com

<http://www.sound-ideas.com>

© 1998 Ward Productions, Inc. All Rights Reserved

CIRCLE #037 ON PRODUCT INFO CARD



Above, Regan first levitated 25 years ago.
 At right, Buzz Knudson reprised his Oscar-winning
 mixing role on the new Neve DFC digital film
 console at Todd-AO (see story, next page).



actually coming out of the toy.

"To achieve this, we can't just apply standard console or highpass EQ to their voices," continues Mangini. "I plan to do some experimenting to find the perfect combination of speaker and microphone placement to create the desired effect."

At the time of this interview (mid-April), the majority of visual effects hadn't been completed. With an expected arrival of the opticals from ILM in late June, Mangini and Lindemann were anticipating a full and hectic schedule right up to the July 10 release date.

"We don't know what the soldiers' or toys' attitudes, actions or movements are like, so we can't record anything until we get a copy of ILM's opticals," explains Mangini. "What's more, there are a lot of theories and ideas still bouncing around about what they should sound like and what talent we need to acquire. The only cast member set in stone is Tommy Lee Jones, who will be a voice of the lead soldier, Chip Hazard."

With the voices of the animated characters still in development, Mangini and Lindemann were focusing on weapons and machinery. "What we were going after was a certain level of realism that allows you to accept these toys as military weapons and vehicles, yet they must still sound like toys," clarifies Lindemann. "For instance, I created the sounds of a Huey helicopter with different wind and jet

sounds. The motor sound started with a recording of a handheld drill. Then I applied a Doppler effect using a special TDM plug-in for Pro Tools.

"Then there was Chip Hazard's Humvee," continues Lindemann. "This toy is about three times the size of the other toys, so we wanted it to sound huge by comparison. My concept is this toy has a little electric motor, probably battery-powered, but it has some tiny sound chip generating a Humvee motor sound over little speakers to make it sound big and loud. I mixed together several toy-like sound elements alone with a virtual Humvee sound so it seems like a big truck motor is inside this little toy."

According to the storyline, many of the weapons and machinery are manufactured by the commandos using tools in a garage. "We started out by recording a lot of different tools like drills and saws right here in the studio, then changed their pitch and applied some other processing," describes Mangini.

"Another example is this nail gun they use," adds Lindemann. "We needed it to sound like a machine gun, but we needed to also give the impression it

was just a tool that has been adapted as a weapon. The real challenge was to make it somewhat comedic."

It seems that developing the sound effects was not their only concern. In order to obtain a G rating, the toys needed to be threatening enough to the onscreen live action characters to make the scenes believable, yet they couldn't be so vicious as to scare small children.

"We were faced with very delicate design decisions in terms of how we crafted these sounds," concludes Mangini, who started off his career at Hanna-Barbera. "We tried to incorporate a comedic aspect to remove the warfare aspect. All the toys are kind of funny-sounding but sort of dangerous, too." Assisting Mangini and Lindemann in the creation of sound effects for electromagnetic fields, weapons and vehicles was sound designer John Pospisil.

Small Soldiers will be released in all three digital sound formats, plus Dolby SR optical. Initially, it will be mixed for the 5.1-channel format, then the final version will be expanded into 7.1 channels for SDDS. Robert Litt, Elliott Tyson and Mike Herbeck are dubbing *Small Soldiers* in Stage A at Warner Hollywood Studios.

The Exorcist Returns

BUZZ KNUDSON'S SOUNDS OF SILENCE

by Dan Daley

It's been 25 years since director William Friedkin ratcheted the horror genre up a few gruesome notches with *The Exorcist*, and while the 1973 Best Picture gave pea soup a new significance in contemporary culture, it also raised the stakes for film sound.

"The most powerful parts of the sound of that movie were its silences, which set the stage for the next sound effect or piece of music," says Buzz Knudson, who picked up one of the film's Academy Awards for Best Sound. The audio was very stark for that movie, and that was part of its overall power."

Watching the opening sequence of *The Exorcist*—a remixed version of which is in general release this month for the movie's silver anniversary—in the recently renovated Todd-AO Studio One on N. Seward Street in Hollywood, the contrasts that Knudson strived for

SEE US AT NAMM BOOTH #830

- ▲ Sound Absorbers
- ▲ Sound Barriers
- ▲ Sound Diffusors

BASIC ACOUSTICS
from **ACOUSTICAL SOLUTIONS INC.**

ALPHASORB FABRIC-WRAPPED WALL PANELS
SONEX FOAM
ALPHA PYRAMID FOAM
SKYLINE DIFFUSOR
AUDIOSEAL SOUND BARRIER

FREE Catalog & Sample
(800) 782-5742
www.acousticalsolutions.com

CIRCLE #038 ON PRODUCT INFO CARD

In Your Dream... you're producing a session while reclining leisurely on a stack of goose-down pillows, surrounded by agreeable musicians with golden, perfectly-tuned instruments and super models who feed you fresh tropical fruits, fan you with palm fronds and massage your feet...and any piece of professional audio or midi equipment you could possibly desire can be rented day or night, and delivered to almost anywhere in the world and in perfect working condition...

Oh, did we mention we're nice people, too, sensitive to your tight budgets and deadlines? Call us on it. You'll think you'd died and gone to heaven.

Dreamhire
PRO-AUDIO RENTALS

New York City: (212)-691-5544 / (800)-234-7536 Nashville: 615-321-5544 / (888)-321-5544 London: 011-44-181-451-5544

CIRCLE #039 ON PRODUCT INFO CARD

are immediately evident. For starters, he had minimalist audio elements to work with—Friedkin decided to scrap the film's score during mixing and go with sound effects and prerecorded music.

"The sound of that film was basically the weird, musical noise effects that Jack Nietzsche was making in his studio up in San Francisco, and what we picked up down at the local record store," says Knudson, who began his career in audio post-production in 1953 as a recordist at RCA's sound facility before moving to Todd-AO in 1960. At Todd, he mixed milestone films including *Close Encounters of the Third Kind*, *Cabaret* and *E.T.* Today, he holds an executive emeritus position.

Trips to the record store produced Mike Oldfield's *Tubular Bells* record, which has become forever associated with the film. (The record was created completely independently of the film, though released on Virgin Records in the same year; the title track was chosen as the film's theme song.) Sound effects, created by Nietzsche and based on dailies, came in to Todd-AO on 1/2-inch tapes, which were transferred to 35mm mag for editing.

"There weren't that many elements

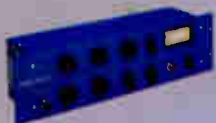
to work with, but without a score, placement of them was critical, as were the relative volumes of the sounds," Knudson recalls. "That movie goes from loud to zero over and over again—very dynamic." To deal with the analog noise that would suddenly fill the silences, Knudson recorded his predubs at higher than normal levels, so that when the sounds were final-mixed, the overall noise floor was reduced. "Dolby noise reduction didn't really come in to play for another couple of years, though we did use a Dolby CAT 43 card, which helped some," he says. "We also tried to keep tracks as clean as possible. Billy [Friedkin] was very particular about noise, so we tried to minimize the number of transfers we did."

The console for the original mix was a custom behemoth recently upgraded from rotary pots to P&G mono faders. For the anniversary edition, Friedkin asked Knudson to supervise as Todd-AO president Chris Jenkins remixed on Studio One's newly installed three-position AMS Neve Digital Film Console. However, says Jenkins, "It wasn't long before I turned to [Buzz] and said, 'Here, you do this.' He

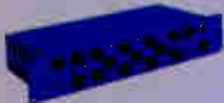
was reluctant at first—he hadn't mixed in seven years—but the next day he came in and said, 'I slept better last night than in the last seven years.'"

A digital console gave Knudson more dynamic range, which infused the eerie silences with even more power. The Neve's automation also helped move the project along considerably faster than the 15 weeks the original required. "Today, the sound leads the audience," says Knudson, in an oft-heard criticism of the density and volume of film audio. "We used to be able to play the dialog [levels] the same way we played the other sound elements. But today the dialog competes with the other sound elements. Directors don't try to 'clear' the dialog like they used to, to keep it clearly audible. Now they have to try to push it over the noise of everything else to the point where it becomes unreal. It would have been nice to have had a digital console back in 1973—it was fun to do the mix again on one. But the original mix was great because when it was all done, it really felt like an accomplishment, like we'd given Billy exactly the feel he was looking for." ■

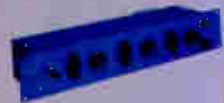
True Tubes



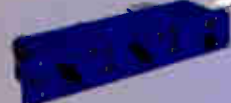
CL 1 B - Compressor



EQ 1 A - Equalizer



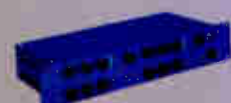
ME 1 B - Midrange Equalizer



MP 1 A - Microphone Preamp



PE 1 C - Program Equalizer



LCA 2 B - Stereo Compressor and Limiter



Tube-Tech MEC 1A Recording Channel Microphone and DI preamplifier

True to Tube-Tech's heritage the MEC 1A Microphone & DI preamplifier has 100% transformer-coupled circuitry.

Without altering the sound of your source the Tube-Tech delivers the unmistakable warmth of high quality vintage equipment.

The Tube-Tech MEC 1A is a one channel unit featuring Microphone & DI preamp, Equalizer and Compressor.

It boasts the best technical specifications such as a Frequency response of 5 Hz to 50 kHz and a Noise Level of less than -82 dBu.

Exclusively Distributed and supported by:

t.c. electronic
ULTIMATE SOUND MACHINES

CIRCLE #040 ON PRODUCT INFO CARD

SEE US AT NAMM BOOTH #1243

Take Charge with Layla

LAYLA

by **ECHO**
20-BIT MULTITRACK RECORDING SYSTEM

From Multitrack Recording to CD Mastering

- Professional Balanced +4dBu Ins & Outs (selectable -10dBV/+4dBu per channel)
- 10 x 12 Full-Duplex Operation
- Fully Expandable (Need more I/O? Just add more Laylas)
- 20-bit AD/DA, 24-bit Digital I/O, 24-bit Internal Signal Path
- Complete MIDI Implementation (including lock to MTC and support for all software and hardware controls and commands, with no additional IRQ required)
- Rock Solid Digitally Synthesized Clock Circuit (no Phase Lock Loop instability)
- Full Word Clock/Superclock Read/Write with Format Translate
- Multichannel Compatibility with Windows® 95 Digital Audio/MIDI Applications, Including Software from Cakewalk, Steinberg, Syntrillium, SEK'D, and IQS (never again be locked into a proprietary, closed-end system)
- Includes Complete Versions of Sonic Foundry's CD Architect and Sound Forge XP 4.0 (\$395 value) *Absolutely Free*
- Includes Syntrillium Software's Cool Edit Pro—Special Edition Multitrack Recording/Editing Software



Available Now

at All the Best Music Stores.



P.O. Box 4189
Santa Barbara, CA 93140-4189
Voice: 805-566-7777
Fax: 805-566-7771

Layla requires PCI BIOS 2.10 or higher running on a Pentium computer with minimum 16MB RAM (32MB or more highly recommended).
Layla is designed and manufactured in the U.S. by Echo Corporation, an Event Strategic Partner.

Is your PC ready for Layla? Download The Echo Reporter™ system analysis software from www.event1.com

Small-Format CONSOLES

A Selection Of Compact, Location And Utility Mixers

Enhance Your Rack,

Record Your Track,

Ease Your Back

BY CHRIS MICHIE

As in other fields of work, sound engineers tend to lust after the biggest and most expensive items of equipment. But there are times when size is a liability, not an asset; it makes no sense to set up a 56-input mixer for a five-mic panel discussion. For many live sound and location recording jobs, a small-format console (16 inputs or less, rackmountable or smaller) is the sensible choice.

In addition to functioning as primary mixers, small-format consoles are useful as submixers and emergency backup devices. Though many star FOH engineers might resist the notion, it is usually possible to replace a large-format console with several smaller boards (something to think about next time you hear about a main console going into failure mode minutes before a show). And one or two compact mixers in inventory can help turn an otherwise idle concert system into several smaller subsystems, all capable of generating rental income.

For this survey, we asked manufacturers about current analog 2-/4-bus mixers that are rackmountable or smaller—digital consoles, powered models and 8-bus mixers were excluded. As with most surveys, this one is less than all-encompassing. Some small-format console manufacturers were left out because they offer only line-level mixers—MIDIman, Speck Electronics and Summit, for example. And some companies had products in the works that weren't ready at press time—ATI/Audio Toys Inc. is set to debut a new 16-input/stereo rackmount unit, and Sony was showing a new compact mixer at NSCA.



Allen & Heath WZ14:4:2



Alesis Studio 12R



Ashly Audio MX508



Yamaha MX12/4



Sound Tech ST1602



PreSonus M80

Listed alphabetically, here are brief descriptions of 32 small-format consoles. Many of the companies listed offer several additional models, but we chose to highlight only one product from each vendor; be sure to check out comparable models from other manufacturers.

The **Alesis Studio 12R** is a 12-channel rackmount mixer, with eight mono mic/line inputs and two stereo line inputs, all bused to stereo outputs. Channels 1 through 8 have balanced XLR mic ins (with phantom power), balanced TRS line ins and balanced TRS inserts. Channels 9/10 and 11/12 offer balanced left/mono and right TRS inputs. Front panel channel controls include mic gain/line trim, 2-band EQ, pan and pre- and post-fader aux sends. The output section has a 60mm stereo fader, phones monitor level control, output/tape monitor switch and a stereo aux return-to-mix level

control. Outputs are +4dBu balanced TRS, and there are -10dBV RCA stereo tape sends/returns. Metering is via 10-segment LEDs, with channel peak signal LEDs. Retail: \$449.

The rackmount **MixWizard WZ14:4:2** from **Allen & Heath** has ten mic/line ins and two stereo line ins, all of which may be selected to four mix buses and/or a stereo master output. Inputs feature phantom power, 4-band EQ (sweep mids) with in/out select, highpass filter, six pre/post switchable aux sends, PFL and mute. All channels and bus masters have 100mm faders. Four stereo returns may be routed to aux sends and master outputs. Additional features include talkback plus a 2-track replay facility. Retail: \$1,495.

API's 3124M PLUS is a one-rackspace unit with four mic/line ins and stereo and aux outputs. Transformer-



API 3124M PLUS

coupled input and output sections use the API 2520 op amp. Each mic/line input has an XLR input, front panel Hi-Z direct input and a balanced XLR direct output. Controls for each input include mic gain, pan, aux send and output level control; push buttons engage a

-20dB pad, polarity reverse, phantom power and mic/line input select. A 7-segment LED display monitors channel output level. The output section includes L/R level controls, aux master send and an aux return or line input control. Master outs are unbalanced TRS; balanced transformer outs are optional. Retail: \$2,795.

Ashly Audio offers the MX508, an 8-

input stereo rackmount mixer with balanced XLR mic and TRS line inputs. Each input features a +84dB, high-gain/low-noise preamp, -20dB pad, switchable phantom power, 3-band EQ with sweep mids, mic/line switch, clip indicator, two aux sends (one pre-EQ/level), mute and pan controls. L/R balanced outputs are both XLR and TRS, along with pre-master subgroup and RCA stereo tape outs and a stereo tape/CD input. Line sources can be inserted

Mixers to Go!

A Selection of DC-Powered Consoles

Location mixers are generally intended for film and video sound recording and electronic news gathering (ENG) applications. But their generally excellent noise specs also recommend them for music recording and live sound applications.

The **Audio Developments** AD245 Pico Mixer is a high-quality battery-powered location stereo mixer available in 6-, 8- and 10-input models. Input strips feature 48V and 12V phantom power, mic/line select, polarity reverse and high-pass filter (90/150 Hz) switches. Three-band EQ and pan are via rotary pots; faders are 100mm Penny & Giles. The VU or PPM Stereo output bus meters also monitor PFL and battery levels. Two integral output bus limiters (7:1 ratio) may be linked for stereo; limiter action is indicated by LEDs. Inputs are RF-protected and outputs are electronically balanced. Stereo tape returns include trim pots. Additional features include internal 1kHz/10kHz oscillator, slate and talkback facility, summed mono output, headphone monitoring of mix or tape return. Normally powered by eight "C" cell batteries, the mixer may also be used with a 12-15VDC power supply. Call for price.

Audio Technologies Inc. (ATI) offers the MXS100 3-input stereo field mixer as part of the company's Nanoamp™ series of miniature mixers. The unit provides three XLR inputs (mic/line switchable) with front panel concentric pan and level controls; a single rotary pot controls stereo output level. Features include phantom power, individual switched low-cut filters, switchable peak limiting on the outputs, 10-segment bar graph metering, oscillator and slate, and headphone out. Stereo tape in/out connectors are provided, and 4-channel mic and line input expander units are available. The MXS100 runs on 24VDC and may be battery-powered. Retail: \$549.

ATI MXS100



The Micromix MkII from **Electro Acoustique Appliquee (EAA)** is a 4-channel portable mic/line stereo mixer in a rugged metal case. Each channel features a transformer-balanced XLR input with line/mic switch, and 12V/48V phantom power. Front panel controls include channel level pots, 80Hz low-cut switches and peak LEDs on each channel. The master output has a switchable limiter, VU metering, a mono test button to sum left and right signals, and L/R outputs on balanced and unbalanced XLRs. Additional features include stereo monitor input (5-pin XLR), headphone control, meter light, battery indicators, internal oscillator and 9-pin connectors for linking multiple units. The unit can be powered via 10 AA cells or externally. Retail: \$4,785.



Furman Sound MM-3

Furman Sound's MM-3 mic/line mixer is a 4-input stereo mixer in a half-rackspace. Three balanced mic inputs (TRS or optional XLR) are supplemented by a stereo line input (RCA). Channel levels are controlled via front panel pots with a mono/stereo switch for the line input. Output section features rotary controls for Bass and Treble EQ and master stereo output level. Outputs are RCA (balanced XLRs optional), and the unit can be linked directly to the Furman SM-3 (a similar three stereo line, one mic input mixer) via a standard 5-pin DIN cable. The MM-3 is powerable via batteries or an external 12VDC power supply. Retail: \$199.

The **Intelix** MC Series 8002MCB is an 8-input mic/line mixer in a single rackspace. Connectors are balanced XLR, each with a mic/line input switch and trim control. Each channel is selected to either or both of the main or aux buses via front panel DIP switches, and level is controlled with a rotary pot. A 120Hz low-cut switch is the only other input control. Main and aux output buses have master rotary controls, and a selectable stereo master compressor/limiter offers adjustable ratio and threshold controls. A 7-segment LED meter indicates output level (internally switchable to monitor the aux output bus) and output may be padded 50dB. Other features include phantom power,

—CONTINUED ON PAGE 70

WE AVOIDED COMPROMISE SO YOU WOULDN'T HAVE TO.

VX2



Introducing the VX2, a dual valve, dual transformer, dual diaphragm condenser microphone which delivers phenomenal audio performance. Be enveloped by the rich transparent wide frequency response with a computer optimized design that results in an extremely low noise floor. Experience the full bodied harmonic content which provides a silky audio texture and detail with an absolutely huge image . . . as expansive as space itself. Take advantage of the optional 24 bit, 96kHz digital output (120 dB dynamic range) and expand your performance with our exclusive Optema Series™ with interchangeable capsules tailored to your diverse applications. Compare the VX2 to any other tube microphone, at any price, and any vintage. We are sure you will agree that CAD has once again reduced the cost of excellence, without sacrificing quality, innovation or performance.

- Dual Valve Design (separate tube head amp & tube output circuits)
- Dual custom wound humbucking output transformers
- Exclusive Optema Series™ capsule with 1.25" diameter, proprietary polymer 3 micron thick gold sputtered diaphragms
- Multi-pattern (cardioid, figure 8, and omnidirectional)
- Detachable capsule/ screen assembly for alternative capsules
- 8 and 16 dB non-capacitive pad
- 80 Hz high pass filter
- Includes ZM-2 shock mount
- Equivalent noise level: 13dB Equivalent SPL, A weighted, cardioia



PROFESSIONAL MICROPHONES

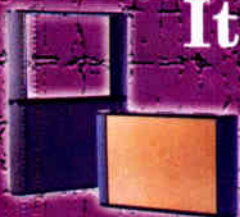
CAD • 341 Harbor Street • Conneaut, OH 44030 • Audio (440) 593-1111 • Fax (440) 593-5395

World Radio History
CIRCLE #042 ON PRODUCT INFO CARD



WHEN ALL YOU WANNA DO IS PLAY

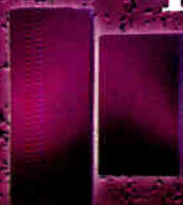
Stack It...



Rack It...



Hang It...



Patch It...



It doesn't get any easier than that

Call

1-800-TAYTRIX

When All You Wanna Do Is Play

Pre-fabricated Studio Accessories

Stackit modular gobo system

Studio furniture -Acoustical panels

Cables and patchbays

<http://www.taytrix.com>

Look for TAYTRIX at the NAMM SHOW

direct to the mix bus. Also featured: 10-segment LED meters, two aux returns (one stereo, one mono with pan), independent mono out and headphone out. Retail: \$1,399.

The ACM-1406 from **Audio Centron** is a 14-channel stereo mixer with six mono mic/line and four stereo line inputs. All 14 inputs offer 3-band EQ, two aux sends, pan, mute, solo, PFL/AFL (selectable), and 60mm faders. The six mic/line inputs offer TRS insert points, and both aux returns provide for stereo inputs. L/R outputs are balanced TRS (+4/-10dB switchable); a summed mono out is also standard. Additional

features include phantom power, stereo record/replay RCA connections, 10-segment LED metering, headphone out and an in/out footswitch jack for controlling aux 2. Rack ears are optional. Retail: \$549.

Audio Toys Inc. (ATI), maker of the acclaimed Paragon live sound console, presents the 16MX2, an extremely versatile single rackspace 8x2 or 16x2 audio mixer. Its eight high-speed preamps have individual phase, ground lift and phantom switching, along with main and aux outs that can simultaneously and directly feed a DAW or digital multitrack as well as an additional audio

—FROM PAGE 68, MIXERS TO GO!

headphone out and an aux input. The 8002MCB may be AC or DC powered (battery charger and carrying case optional). Retail: \$649.

The BEQ Series Four Location Mixer from **Oram Professional Audio** is available in 8-, 10- and 12-input configurations. The mixer provides four subgroups and stereo master outputs. Channel inputs feature mic/tape return input select switch, mic/tape and line-level trim pots, phantom power and polarity reverse switches. Connections include XLR (mic) and TRS (line) inputs and TRS insert and direct out jacks, plus RCA tape inputs. EQ is 3-band, with sweepable mids and lows. There are five aux sends (three post-fader, two pre-fader; the fifth aux send also functions as a direct out level control). All channels feature EQ, PFL, solo and mute switches. Output section includes aux master send controls, meter select switch, four return-to-mix level and pan controls, submaster pan, solo and mute, and monitor and talk-back controls. Meters are VU (PPMs optional) and a joystick option is available for multichannel mixing. The Series 4 is available in a flight case package with an internal battery pack. Call for pricing.

The MX442 Field Mixer from **Rolls Corporation** is a portable, battery-operated 4-channel stereo location mixer. Each channel input features an XLR connector, input trim control, phantom power, -20dB pad, low-cut switch. The balanced XLR outs are +4/-25dB switchable

with VU output metering. A 6-position headphone monitor select allows for comprehensive monitoring. Additional features include a built-in master output limiter, a slate mic with tone (20 Hz), 400Hz oscillator, auxiliary line input (TRS) and a sturdy aluminum casing. The unit runs up to 20 hours on two 9-volt batteries or can be used with a 12V power supply. Retail: \$1,050.

Sonosax offers the SX-S stereo location mixer in 6/8/10-input formats. The SX-S8 has eight XLR mic/line inputs with TRS line out and inserts for each channel. Each chan-



Rolls MX442

nel strip features switches for 12V or 48V phantom power, polarity reverse and -30dB pad. The switchable EQ is 3-band (sweep mid), with a separate sweepable low-cut filter (20-500 Hz). Its aux send is pre/post switchable to the 83mm P&G fader. There is also a channel on/off switch, pan control and PFL switch. Each input strip has an internal limiter with variable threshold control; LEDs indicate limiting action/signal overload. The stereo master output module features a 1k/10kHz oscillator; tape return, aux master and headphone level controls; mono test button; and a pair of 83mm P&G faders. Outputs are balanced transformerless. A low battery alert LED is standard, as is a rugged aluminum case. The unit runs

—CONTINUED ON PAGE 72

CROSSOVER

To a NEW Kind of Power Amp

RMA 1650

Audio Centron
RMA-1650

STEREO
POWER AMP WITH
ACTIVE CROSSOVER

Introducing the New RMA1650
Power Amp with a real 2-way
electronic crossover.

FEATURES.

PERFORMANCE.

POWER.

VALUE.

**DESIGNED AND
MANUFACTURED
IN THE U.S.A.**

Based in St. Louis, Missouri, Audio Centron has over 200 full-time employees, including one of the largest Research and Development staffs and manufacturing facilities in the industry. Audio Centron has dealers and distributors in the Americas, Europe, Australia, and the Far East. All Audio Centron products are designed and manufactured completely in the United States, and come with a full 5 year warranty on electronics.



- Built-in Active 24dB/octave 2-way Linkwitz Riley Electronic Crossover.
 - Range variable from 45Hz to 2500Hz
 - Select Channel A for the Upper Range and Channel B for the Lows, or vice-versa.
- Built-in Active Variable Low-cut Filters.
- Parallel Mono Switch.
- Dual Variable Speed Fans with More Heat Sink to run Efficient and Cool.
 - 660 Watts Stereo @ 2ohms or
 - 1320 watts Mono-bridged @ 4ohms

- Balanced XLR Thru Jacks pass Input Signal to Other Amps in Your Rack
- Compact 2-rackspace Package.
- 5 Year Warranty.
- Made in the USA.

SEE US AT NAMM BOOTH #108

Audio Centron

1400 Ferguson Ave. • St. Louis, MO 63133 • www.audiocentron.com

CIRCLE #044 ON PRODUCT INFO CARD

device. Internal jumpers allow customizing the 16MX2 to operate as a 16x2 mixer with aux output, 2-track returns and a cue system with input, main/aux or line return monitoring via phones or rear panel line outputs. All I/O is balanced. Four standard D25 sub (Tascam format) connectors carry all the channel inputs/outputs, machine return and channel aux outputs. The mix outs, 2-track return, monitor signals and aux bus outs are on TRS jacks. Retail is \$2,395.

Behringer's Eurorack MX 2004A is a rackmount 16-channel mixer with

eight mono mic/line inputs, four stereo line ins and stereo outs. Mic/line channels (1-8) offer XLR inputs and TRS inserts. EQ is 3-band (sweep mids) with a 75Hz low-cut filter. Line inputs (9-16) have fixed 4-band EQ. There are two aux sends per channel, one pre/post switchable and two stereo returns. Output meters are 12-segment bar graphs; faders are 60mm. Additional features include independent headphone and monitor outs. Retail: \$569.

DDA's modular Interface system offers five input modules and three output modules; users may mix and match

(within limits) to create application-specific mixers with up to 40 inputs. The standard rack configuration holds 12 input modules and a stereo master output; six-into-one mic, stereo mic/line and dual line input modules are also available (MS stereo and digital inputs are optional), and 4x4 matrix output or group output modules can be inserted before the stereo master output. Inputs include phantom, phase and low-cut switches. EQ is 4-band (sweep mids), and six auxes are fed pre/post EQ/fader from four pots (aux 1 doubles as a direct out), along with pan, PFL and mute controls, and 5-segment input level LEDs. Group outs have 20-segment meters, 2-band EQ, and two return paths for effects returns and/or tape monitoring. The stereo master output module offers master control for the six auxes, 20-segment bargraph metering, and controls for oscillator, talkback, headphones, mono summed output and control room monitor levels. All faders are 100mm, and rear panel connections (XLR and TRS) are balanced. Prices depend on configuration; an 8x4x2 console with standard group outputs is \$4,710.

DOD offers the 1222 RM rackmount stereo 12-input mixer. Input channels feature XLR mic and TRS line input connectors, 3-band EQ, pan, overload LED and 60mm fader. Three aux sends are designated monitor send (pre-EQ, pre-fader) and effects sends 1 and 2 (post-EQ, post-fader). The output section offers aux send masters, effects and tape return, monitor and headphone level controls. Output faders are 60mm, with levels indicated on dual 6-segment bar graphs. Additional features include record/play RCA connections and phantom power with LED status indicator. Retail: \$599.95.

Mackie Designs' CR1604-VLZ is a rackmountable 16x4x2 mic/line mixer. Inputs offer 3-band EQ (sweep mid) plus a low-cut filter, four aux send pots (two pre/post fader, two post) feeding six aux buses, pan, mute, solo (PFL or AFL), subgroup and master stereo bus assignment switches, and a 60mm fader. LEDs indicate signal presence, overload and mute status. Input connections are

—FROM PAGE 70, MIXERS TO GO!

up to 20 hours on ten "D" cells or from a 11-18VDC power supply. Options include a simplified input module, which omits the 3-band EQ and limiter, and a transformer line output module. Retail: \$4,785.

The LM1 series modular stereo mixer from **Soundcraft** is available in 6-, 8- and 12-input formats and also as an 8-input rackmount version. The LM1 may be loaded with mono mic/line, stereo mic or stereo line only input modules. The mono input module features phantom power (48V, 12V and 12VT), polarity reverse, a stepped mic gain/line trim pot, line input switch, 3-band EQ and switched low-cut filter. Aux 1 send is pre/post switchable, aux 2 is post only. A stereo bus assign switch doubles as a channel mute. LEDs indicate signal peaks and the stereo PFL mode. Fader is 100mm. The stereo mic input module is similar; the polarity reverse only affects one channel, and aux sends are mono. A switch on mono and stereo mic modules allows M-S recording. The stereo line input accepts both balanced and unbalanced signals. EQ is 2-band, and an image width control and L/R assign buttons affect the stereo image. A fader start switch is optional. The master module offers 100m faders for L/R masters and the two aux send masters. Metering for stereo and M-S output, auxes and monitors is via PPM or VU meters. Limiters across the stereo bus may be linked. Outputs are balanced (transformers are optional). Switches for meter source select, 1kHz tone, battery check and meter lights are standard. A monitor module provides level control for headphones and ex-

ternal monitors, comprehensive monitor source select, and slate and communications facilities. Rear audio connections are XLR, except TRS monitor and headphone outs. The LM1 is powered by 12 "D" cells or an external supply. Price depends on module selection: an eight mono channel configuration is \$7,398.

TL Audio's PMI 4/2 Portable Mixer is a 4-channel stereo location mixer with internal limiters, onboard oscillator, 48V phantom and 12V "T" power. Transformer-isolated inputs are via XLR/TRS combo connectors; the TRS inserts have 20dB pads. All inputs feature 2-frequency switchable low-cut filters; inputs 1-2 and 3-4 can be stereo linked, and channels 1 and 3 have polarity reverse switches. The stereo outputs are available balanced on XLR connectors, unbalanced on TRS (stereo and mono), and feature a -30dB pad switch. The two output

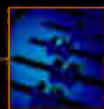
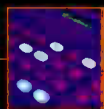


TL Audio PMI 4/2

limiters may be stereo linked. Tape returns can be monitored via a 10-pin multiway connector or TRS input. Comprehensive headphone monitor switching allows for channel PFL and M/S decoding. Output VU meters (PPMs are optional) also indicate battery power. The unit may be powered from batteries (typical operating life: 12 hours) or from an external 12-24VDC supply. Retail: \$2,250. ■



Mackie Designs CR1604-VLZ



THE
FUTURE
OF
MIXING
HAS
ARRIVED

It's not another million dollar mixing console. And it's not the impossible dream. ProControl is, quite simply, the most powerful tactile control surface for the world's leading digital audio production environment — Pro Tools.

Anything you can do with your Pro Tools TDM system, you can do from ProControl. Record, mix, edit, and automate everything — including mutes, sends, volume, panning, and all Plug-In parameters — with instant and total recall. Access all the tracks in your session from the ProControl Main unit, or add Fader Expansion Packs (in eight-channel increments) for up to 32 faders. ProControl even has a

comprehensive monitoring section, so it's the only mix controller you'll need in your studio.

We could go on and on about ProControl's patented DigiFader touch-sensitive moving faders, the unique

Channel Matrix, and other powerful features, but here's the bottom line: a Pro Tools / ProControl system runs circles around consoles and recorders costing 5 or 10 times more. So what are you waiting for? Put the future of mixing in your hands today.

Call Digidesign at **1.800.333.2137 ext. 374** for a full-color brochure or to schedule a personal demo.



www.avid.com
www.digidesign.com

digidesign

A division of **Avid**

© 1998 Digidesign, a division of Avid Technology, Inc. DigiFader, ProControl, and Pro Tools are trademarks or registered trademarks of Digidesign. All trademarks are the property of their respective holders. Studio photo courtesy of DubeyTunes Studios, San Francisco

CIRCLE 48 ON PRODUCT INFO CARD

Get In The Mix!



FREE

132-Page Color Catalog

The Pro Sound & Stage Lighting catalog is jam packed with all the hottest products. You'll find a huge selection of pro audio, DJ gear,

recording, keyboards, groove gear, software, lighting effects, books & videos, cases, cables, hard-to-find accessories, mics and much more. Compare thousands of top name



Technics, JBL, Denon, JVC, Roland, Gemini, QSC, Crown, Numark, Sony, Shure, Alesis, Mackie, Akai, Cerwin-Vega American DJ & many more.

brand products side-by-side. Our low discount prices are guaranteed to be the best you'll find—even 30-days after your purchase. Most orders are shipped out the same day received from our giant inventory.



CALL TODAY FOR YOUR FREE COPY!

1-800-672-4268

Outside the U.S.A. 1-714-891-5914

Mon. - Fri. 6am - 10pm
Sat. & Sun. 8am - 5pm (PST)

Online Catalog - www.pssl.com

Fax Toll Free 1-888-PSSL-FAX (777-5329)



**PRO SOUND
& STAGE
LIGHTING™**

11711 Monarch St. Garden Grove, CA 92841

Since 1976

CIRCLE #046 ON PRODUCT INFO CARD

balanced XLR for mic signals, balanced/unbalanced TRS for line inputs and unbalanced TRS for inserts. The master section has master aux send level controls, effects returns, tape return and monitor switching, and dual 12-segment LED meters. The four subs have 60mm faders; also featured are direct outs on channels 1-8, headphone out, phantom power, mono summed out with gain control, and a 12V BNC lamp connector. Rack ears are included, and the rear panel is re-orientable to save space or facilitate frontal access. Retail: \$1,199.



Manley All-Tube 5 Into 1

Manley Laboratories' "All-Tube 5 Into 1 Purist Mixer" is designed for audiophile location recording and studio applications. The unit is offered in two versions: one with four phantom-powered mic inputs and one line input, the other with five line inputs. The one-rackspace unit provides a gain control and mute for each input, a master gain and switched monitor output. Two units may be linked for stereo via rear-panel connectors. Call for pricing.

The Mixing Suite from **Millennia Media** is a modular rackmount system that may be loaded with a variety of input and master modules, splitters and equalizers (the system is also compatible with the GML HRT-9100 Mixing System). The mic/line input module has 48V phantom power, sweepable LF filter, four aux sends, four main bus sends, master output fader, pan, solo, mute, pan/fader bypass switch, overload and signal present LEDs. PCB jumpers allow numerous output options. A stereo line input module offers similar features; a passive stereo input module is also available. An auxiliary master module offers four sends and four returns, and a stereo master module contains a three-frequency oscilla-



Millennia Media GML HRT-9100

tor, dual headphone outs, stereo 10-segment level meters and monitor controls. Additional features include tape return monitor facilities and mono select switch. Pricing depends on configuration—the rack, power supply, ten mono mic channels, an aux master and a stereo master exceeds \$15,000.

The RQ 3014 from **Peavey** (Meridian, MO) is a stereo rackmountable mixer with six mic/line and four stereo line inputs, a separate stereo sub mix bus and recording facilities. Four of the six mic channels have an additional line input (TRS); two of the mic inputs have -20dB pads, polarity reverse and phantom power switches. All mic inputs feature TRS inserts and low-cut filters. Stereo line inputs are switchable +4 balanced/-10 unbalanced. EQ for the first two mono inputs is 3-band (sweep mid); all other inputs have 3-band fixed EQ. Aux send #1 is pre-fader; the other two auxes are pre/post switchable. The 60mm channel faders are routed to the master stereo bus or the submix bus. PFL is supplied on all channel and mix



Peavey RQ 3014

bus signals. Tape record and play select switches and level controls direct tape returns to the buses and monitors. Two stereo return paths can be mixed to the stereo and monitor buses. Outputs include master L/R outs (on balanced XLR and unbalanced 1/4-inch connectors); monitor and aux master outputs; and control room L/R sends. Also featured are 12-segment stereo out/PFL meters, submix insert points, headphone out and optional rack kit. Retail: \$549.99.

PreSonus Audio Electronics' M80 is an 8-channel rackmount stereo mixer featuring an XLR-balanced direct output from each mic preamp. Mic/line inputs are via Neutrik combo connectors, with separate send/return TRS line connectors. Panel switches select phantom power, polarity reverse, -20dB pad, low-cut filter, and L/R bus assign (en-

The Panasonic DA7 Mixer. Taking Digital Further.



Panasonic introduces the WR-DA7 digital mixer, and sets an entirely new standard in quality, flexibility, ease-of-use, and affordability—all for under \$5000.

ADTV
ADVANCED DIGITAL TELEVISION & VIDEO

World Radio History

1-Step Functionality

24 Bit A/D and D/A

Moving Faders

Surround Sound

Automation & Memory

Panasonic

Broadcast & Digital Systems Company

For more information call:

1-800-777-1146

gages pan control). Each input has a master output gain control, 8-segment LED output metering and an "Idss" control that simulates tape saturation and tube warmth. Master outputs are XLR (balanced) and TRS. Additional features include Jensen transformers and Class A input amplifiers followed by a twin servo gain stage and headphone out. Retail: \$1,899.95.

Rane's MLM 82 is an 8-in/2-out, mic/line mixer in a single rackspace. Inputs 1-4 are mic/line switchable, with switchable phantom power, bussed in mono to both outputs; rear panel connectors are XLR. Front switches select mic/line input levels, and pots adjust output level and input gain simultaneously for low-noise operation. LEDs indicate signal present or overload. Channels 5-8 are line-level inputs and feature mono balanced XLR inputs, as well as separate right and left/mono balanced/unbalanced TRS inputs to allow any combination between four mono and four stereo sources. Rotary pots control level to the left/right outputs, which feature master level controls and XLR balanced outputs, individually switchable between line and mic level. Additional features include a mono out-

put switch and output overload LEDs. Retail: \$499.

The **Shure** SCM262 is a half-rack stereo mixer offering two mic inputs (one with an additional TRS line input) on XLR connectors and three stereo RCA line inputs. Controls include input channel level pots, Bass and Treble EQ controls, master stereo output and power LED. Outputs are TRS (mic/line switchable) and RCA. Additional features include selectable ducking action, "jukebox mute" on the third line input. 12V phantom power. Rack mounting hardware included. Retail: \$300.

SoundTech's ST1602 is a 16-input stereo mixer that places all input connectors on the top panel above the channel strips. Faders for the eight mic/line inputs, four stereo line inputs, "B" mix (stereo subgroup) and stereo master outputs are 60mm. Mic/line input connectors are Neutrik combo type; line inputs and inserts are TRS. EQ is 3-band (sweep mids) and there is a switchable low-cut filter. Three aux sends are pre-, pre-/post- switchable, and post-fader. Output metering is via 12-segment LEDs. Additional features



Spirit by Soundcraft Folio FX16

include solo, stereo tape record and playback connections (RCA). Rear connections include XLR and TRS master outs and stereo TRS control room and "B" mix outputs. Retail: \$949.

Spirit by Soundcraft offers the Folio FX16, a rackmountable 16-input stereo mixer with an onboard 16-program, Lexicon multi-effects processor. Input channels feature the UltraMic™ mic pre and accept mic (XLR) and line (TRS) inputs. EQ is 3-band (sweep mid) with switchable low-cut filter. Four aux sends are available in pre- and post-EQ, pre-

—CONTINUED ON PAGE 226

Folks say it's like a "best of" album with a few new songs...



It looks awesome, but what is it?

AN ALL-TUBE MICROPHONE PREAMPLIFIER, OPTO-COMPRESSOR, EXTENDED PULTEC EQUALIZER, DE-ESSER & PEAK LIMITER DONE IN A WAY THAT CUTS THE TYPICAL PATH OF A MIC TO TAPE IN HALF! THE MAIN APPLICATION IS RECORDING VOCALS BUT IT IS TRULY AMAZING ON MOST INSTRUMENTS, ESPECIALLY BIG DRUMS AND BASS.

MANLEY VOXBOX

and I like it too...



EveAnna Manley

The word is out! Users and magazines are raving about how we put the compressor ahead of the mic-pre and then put a limiter at the end of the chain. All-Passive Processing. Even the EQ is passive with real inductors for that good ol' low end punch. Plenty of inputs and outputs, with and without transformers. It's all there.



MANLEY LABORATORIES, INC.
13880 MAGNOLIA AVE.
CHINO, CA. 91710 USA
TEL: (909) 627-4256
FAX: (909) 628-2482
emanley@netcom.com
<http://www.manleylabs.com>

CIRCLE #047 ON PRODUCT INFO CARD

TOROIDAL TRANSFORMER PRODUCER

Mei Ah Electrical & Industry (HK) Ltd. is an integration of three established manufacturers who have been in this field for over 10 years. Since our integration in 1994, we have become the largest toroidal transformer manufacturer in the world.

Mei Ah have a workforce of 2,000 staffs and strong engineer team. In order to keep up with the market and increase our own efficiency, we have made great investment in equipment, plants and human resources. In our own China factory, we have 100 toroidal winding machines, 28 toroidal steel core winding machines, 68 bobbin winding machines, 31 injection moulding machines, 10 computer controlled milling machines, 1 in-circuit tester and 1 SMT production line.

We also welcome other OEM products.

ISO9002 Approved

MEI AH ELECTRICAL & INDUSTRY (HK) LIMITED

Office: RM E2, E3, E8, 15/F, Blk. E, Wah Lok Indus. Ctr.,
31-41, Shan Mei St., Fotan, N.T., Hong Kong.
Tel: (852) 2698 1820(10 Lines), 2609 2302, 2609 2889
Fax: (852) 2609 3086(2 Lines), 2609 2321, 2694 8854
E-Mail: maei@hkstar.com



CHUCK AINLAY

LOOKING FOR THE MAGIC

Glance at the credits on almost any country superstar's CD and you'll see the name of engineer Chuck Ainlay—Trisha Yearwood, George Strait, Wynonna, Vince Gill, Reba McEntire, Nanci Griffith—the list goes on and on.

He's engineered well over 100 albums, received a Grammy nomination for Best Engineered Recording Non-Classical and has twice been winner of the Nashville Music Award for recording engineer; with 20 years on the Nashville music scene under his belt, Ainlay is well known for his talents at recording and mixing both classic and modern country as well as other genres. His mixes evince a transparent blend of natural balances and pop edge—somehow he makes combining all those instruments seem



effortless while still managing to keep the all-important lead vocal pleasingly out front, telling the story.

Easygoing and disarmingly frank, with a self-deprecating sense of humor, Ainlay has developed his own style over the years, and that style keeps him in demand and on a nonstop working schedule. Recent projects have included a new Trisha Yearwood album, production chores for Mark Knopfler's second solo album, Shana Petrone's debut album, the film scores for

Wag the Dog and *Metroland*, and 5.1 mixes for artists including Vince Gill, Trisha Yearwood, George Strait, The Mavericks and Olivia Newton-John. *Mix* caught up with Ainlay during a break in mixing Vince Gill's new album at Nashville's Sound Stage Studios.

How's the new record?

It's great—and very country. I think Vince has decided to just go for it and that he doesn't have anything to prove anymore.

Did you record the record also?

Most of it. He wanted to do it whenever he came into town and had time off, so I had to rearrange my schedule to accommodate that. For one tracking date I was mixing Trisha Yearwood and couldn't make the session, but I did all the rest of the tracking.

Do you prefer to record the music that you mix?

Well, it doesn't always work out

that way. I end up mixing more than anything, but I do like to work on what I've recorded. I love tracking; I think it's probably the most fun, because you're there with all the players creating music and you hear it all come together, from nothing to magic. That one moment when it happens is just amazing—the camaraderie of people coming in and digging what you're doing, and you digging what they're doing; there's nothing like it.

Mixing is different. It's more self-indulgent. That can be great, too, because you get to sit there and fine-tune things that you hear. It takes time; sometimes you feel like there's nothing there, and then suddenly it all comes together and in that one moment it is just shining in your face, and you're going, "Wow!"

Obviously, I love to do both. But to answer your question, I do prefer to mix what I track, because when you're tracking there are always

BY MAUREEN DRONEY

Our customers' comments

"Ghost is Killer! Classic fat British EQ like you've always dreamed of. And the faders are awesome...the taper on them is as smooth as anything I've ever used. Incredible. Ghost has just about everything I look for in a quality console; great tone....great feel...looks...even the name! I'd swear you custom made this for me. I could not have picked a better console for sound, features and feel."

Geno Porfido, Boulevard Recording Co. New Milford, NJ

"Other consoles I've worked with in the past just couldn't deliver the levels of punch and clarity I felt the music deserved. I never have this problem with my Soundcraft Ghost. The Ghost gives me the flexibility I need over a wide range of frequencies and has the body and warmth to really bring my music to life."

Johnathan Moffett, Drummer with Michael Jackson and Madonna

"After the first mix I did, I realised I was in a whole new league. This thing sounds beautiful. Very silky in the high end and full in the lows. The EQ is totally cool and the board has a quality feel to it. I know of nothing that touches it in its price range and I have been recommending Ghost for months to anybody who's looking for a console."

Garth Webber, Red Rooster Studio, Berkeley CA

"I've worked on many competing 8 bus consoles and none can compare to the Ghost in features, ergonomics and, most importantly, sound. The Ghost, simply put, sounds warm and musical - you don't have to work hard to get great sounding mixes on this board. The EQ is very flexible and we compared the mic preamps (using a Neumann U-47) to the Neve 1066s in our studio. We were very surprised at how favourably they compared to these megabuck classics."

Peter Thorn, What If? Productions.



Just about the only sound as sweet as our EQ!

Let us know what you think about the Soundcraft Ghost by visiting our web site at <http://www.soundcraft.com> or via e-mail to info@soundcraft.co.uk

Ghost
Soundcraft

H A Harman International Company

SOUNDCRAFT, HARMAN INTERNATIONAL INDUSTRIES LTD., CRANBORNE HOUSE, CRANBORNE RD., POTTERS BAR, HERTFORDSHIRE, EN6 3JN, UK. TEL: +44 (0)1707 665000 FAX: +44 (0)1707 660742
SOUNDCRAFT US, HARMAN PRO NORTH AMERICA, INC., AIR PARK BUSINESS CENTER 12, 1449 DONELSON PIKE, NASHVILLE, TN 37217, USA. TEL: 1-615-399-2199 FAX: 1-615-367-9046

World Radio History
CIRCLE #049 ON PRODUCT INFO CARD

All trademarks acknowledged

MIX MASTERS

things that you leave to do in the mix, and it's not always obvious what somebody else had intended to leave to mixing.

Is it accurate to say that most of the music in Nashville is recorded live?

Very little is done here using sequencers, except maybe for the Christian market. Country music is pretty much driven by live musicians and session players.

In general most of the tracking is done live; the amount of overdubbing of course depends on the album. Because there are so many solo artists, the bands are usually comprised of session musicians, and the studios are set up to where you can get isolation on a lot of players at once. For the basic country record you cut a track, then the acoustic guitar player doubles, then the electric guitar player might take a lead, but usually the steel and the fiddle and all those other solos are done live.

Which is why it's so exciting to track in this town. You get to hear it come together, and it happens really fast, in maybe three takes. From an engineering perspective you have to be

on it for that first take, because that really might be the one. You always need to be ready, because they're going to go with the magic of the track rather than with whether it was technically good or not.

And you sure don't want to have to tell all those musicians you're not ready.

[Laughs] Well, you don't tell them. You fix it in the mix. Live music is one of the great things about working in Nashville. I happen to love real drums, and the fact that there is human error. I don't hear that a lot in the records that are on the radio where the timing is just perfect, and they've put everything in a hard disk system and lined everything up and the pitch is just absolutely dead-on. I don't hear that magic in songs that makes you want to listen to the record over and over again. Sometimes it seems that there's this thing that everybody is going for now, an instant impression of 'Wow that's great—listen to how tight it is,' but as far as that depth, that human feeling that makes you really love a song and dig it for the rest of your life, I don't think it's out there that much.

Instant perfection—something that catches your ear immediately but

doesn't have staying power.

It's one of the things that drives me crazy about records today, and it's starting to happen in Nashville, too—the process where you cut the vocal, you comp the vocal, you tune the vocal...

There are a lot of great tracking rooms in Nashville.

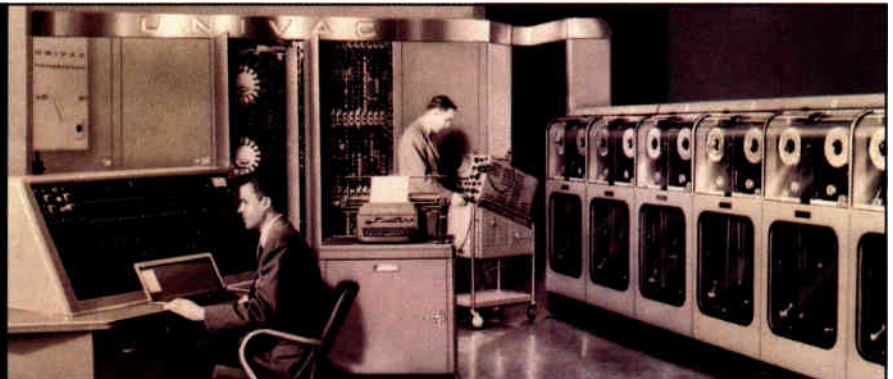
You'll find here that even the bigger rooms have a lot of isolation booths, so you can put the acoustic, the piano, the fiddle, the vocal all in separate rooms with the drums in the main part of the room, and you can get everything live. You need that isolation, because with acoustic instruments like fiddle or upright bass there isn't a lot of output, yet on modern country records the drums are a real driving thing, and they're played loud.

What are your console preferences?

For tracking I carry a lot of outboard gear of my own that I use, and the desk becomes more of a monitoring desk so it's not really an issue.

For mixing I really like the J Series SSL 9000. I also like Neve V Series. While I like the sound of the 8078s and the older Neves, sometimes the facilities aren't there. I have to work quickly, and therefore it gets down to ergonomics—

**Remember
what
happened
with
computers?**



It just happened to your audio rack.

NEW POWER-Q™ ADF-4000 • 24-BIT, 2-CHANNEL

Buy 1, Get 8 FREE!



- Automatic Room Equalization
- 31-Band Graphic EQ
- 12 FBX/Parametric Filters
- Real-Time Analyzer
- Compressor/Limiter
- Noise Gate/Downward Expander
- Digital Delay



Features available only from Sabine:

FBX Feedback Exterminator®, ClipGuard™ Adaptive Clip Level Control, & Auto Room EQ. All functions run concurrently!
SEE US AT NAMM BOOTH #1303

FBX and FBX Feedback Exterminator are registered trademarks of Sabine, Inc., and are the brand names of its line of automatic feedback controllers. Covered by U.S. Patent No. 5,245,665, Australian Patent No. 653,736, German Patent No. 69118486.0, U.K. Patent No. 0486679, and Canadian Patent No. 2,066,624-2. Other patents pending.

SABINE®
ADAPTIVE AUDIO

MADE IN USA
Tel: (904) 418-2000
Fax: (904) 418-2001

Fax-Back Product Info:
(904) 418-2002
www.sabineinc.com

©1998 Sabine, Inc.

\$20,000.00 and worth every penny!

Special Edition Keyboard

83-Note Weighted Action

Variable Architecture Synthesis Technology

\$11,350.00 Value Library

40 Producer's Elite CD-ROM Set

KDFX 8 Channel DSP

Full 24Mb ROM Expansion

KURZWEIL AUDIO ELITE SYSTEM



128MB Sample RAM

P/RAM-2

Program memory expansion- 1.25MB

2 GIG Internal Hard Drive

KB3 Mode/Live Mode

Operating system in Flash ROM

2 DMTi Digital Multitrack
Interface's, ADAT™, TASCAM™

Rock Mount

External SCSI CD-ROM Drive

With 50-pin terminator plug

Extended 3 Year Warranty

KURZWEIL... SOUND
IT'S THE

Ask your dealer about our Consumer Financing Plan.

Available at your authorized Elite System Dealer.

Kurzweil Music Systems Young Chang Canada, Corp.

(253) 589-3200

905-948-8052

World Radio History

www.youngchang.com/kurzweil

CIRCLE 1051 ON PRODUCT INFO CARD

the facilities of the desk play an important role.

Do you mix fast?

I wouldn't say I'm a fast mixer, because I don't think I'm a golden ear kind of guy. I think I'm a hard working kind of guy. I just work until it sounds and feels right. I push all the faders up to begin with, and just listen to the song, and get an image in my head of what it should be as an end result. Then I go to work to achieve that. I generally like to tell clients it's going to take a day a song. I don't think that's fast; I think that's about average.

How did you get started in engineering?

I played guitar in bands in high school in Northern Indiana—actually I started out with drums when I was a child and then The Beatles came around, so I wanted to be a guitar player. I always loved listening to records and would save up money to buy a new tape deck or some new bit of stereo gear; I would always look at record covers to see who engineered them. When it came time to graduate high school I went to the guidance counselor and said I wanted to be a recording engineer and he

said, 'Huh?'

So I went to Indiana U, and there was a studio in town that had a six-week engineering course. I went through that program and realized that it was truly what I wanted to do. Someone recommended that I check out Belmont College in Nashville, which had a recording business program with an 8-track studio—it was one of the first studios to do that. I went to Belmont for about a year-and-a-half and then got a job in a tourist studio.

A what?

That's where we would have busloads of tourists come into the studio, and we'd put on a skit and record it, then play it back over the speakers and get the audience to clap and shout as an overdub, then play it back for them.

A theme park studio.

Yeah. Then at night we'd do radio interviews and demos.

What next?

My next job after the tourist studio was as head engineer at a studio up in Fort Wayne, Ind.; I went up there for six months till I realized I didn't want to do jingles. There wasn't anything else going on so I went back to Nashville and got a job assisting at Quad Studios.

That lasted for about a month until somebody said, if you go tear out all the equipment in the studio and get us out of there so we don't have to pay next month's rent, you can have the equipment. So we had a 16-track studio for nothing; we got a trailer and built a remote truck, and that was my next deal. That kind of worked into a job at Sound Lab.

Were you ever an assistant engineer?

Well, the way it worked at Sound Lab, the chief engineer got all the record business work, and then, for the custom work and demos, rather than hiring an independent engineer like people might today, the client would just come to the studio and, since they were paying less money, they got the assistant. So rather than assisting on many albums I was just thrown straight into the fire doing demos and custom albums and then worked my way up.

Custom albums?

That's where it's not a label deal, just somebody with money who wants to record an artist; there was a lot of that that went on in town. People who wanted to be a star would come to Nashville and pay to have their record made—there were a lot of people who

Reliable Remote Mixing

• Large calibrated VU meters for easy viewing in any light

• Slate Mic with a 20Hz tone



• High-volume Headphone Output for monitoring in loud environments

• 400 Hz Setup Tone

• Stereo Panning on each channel

• Plenty of Output Level

• 6-Position Headphone / Monitor select

• Balanced XLR Outputs



• Balanced XLR Inputs with Trim controls



• Stereo Headphone Output

• External Monitor Input

• Auxiliary Input

• Switchable +4/-25 dB Output Level

• 20 dB Pad switch on each channel

• Low-Cut switch on each channel

Introducing the new Rolls MX442 Field Mixer. The MX442 includes a built-in limiter, operates in mono or stereo, and it runs on two 9-volt batteries with an expected life of between 8 - 20 hours of operation depending on usage. Each XLR input has switchable +48 volt phantom power available, and the unit is housed in lightweight, sturdy aluminum. Price: \$1,100.



ROLLS CORPORATION
5143 South Main Street
Salt Lake City, UT 84107

(801) 263-9053 • FAX (801) 263-9068
email: rollsrfx@rolls.com • www.rolls.com

SEE US AT NAMM BOOTH #548

CIRCLE #052 ON PRODUCT INFO CARD

FIRST WE MADE CD RECORDERS AFFORDABLE



NOW WE'RE GIVING AWAY THE DISCS

No other pro audio CD recorder sounds better. No other pro audio CD recorder is easier to use. And no other pro audio CD recorder is backed by HHB's award winning technical support.*

No wonder the HHB CDR800 is so hot.

And it's about to get even hotter. Buy an HHB

CDR800 CD Recorder and you'll now receive a pack



of 10 HHB CD-R74 Gold blank discs, absolutely free. That's more than 12 hours free recording on the most advanced Phthalocyanine, audio - optimised CD-R discs that money can buy.

There's never been a better time to record your work on CD-R. Call HHB about the CDR800 today.

* Winners of the Professional Recording Association Award for Technical Achievement, 1997.

ALSO FROM HHB · COST EFFECTIVE, HIGH PERFORMANCE DIGITAL RECORDING MEDIA



DAT Tape



CD-R



MiniDisc



MiniDisc Data



Magneto - Optical



ADAT



DTRS

HHB Communications USA · 626 Santa Monica Boulevard, Suite 110, Santa Monica, CA 90401, USA · Tel: 310 319 1111 · Fax: 310 319 1311 · E-Mail: sales@hhbusa.com

HHB Communications Canada Ltd · 260 King Street East, Toronto, Ontario M5A 4L5, Canada · Tel: 416 867 9000 · Fax: 416 367 1080 · E-Mail: hhbcam@istar.ca

HHB Communications Ltd · 73-75 Scrubs Lane, London NW10 6QU, UK · Tel: 0181 962 5000 · Fax: 0181 962 5050 · E-Mail: sales@hhb.co.uk

Visit H-H-B on line at: <http://www.hhb.co.uk>



CIRCLE #053 ON PRODUCT INFO CARD
World Radio History

made a lot of money just doing that. *In country music there usually seems to be a lot going on, and a lot that's in the midrange frequencies—piano, guitars, fiddles. How do you cope with all of the parts?*

In the studio at Indiana U where I first had my introduction to recording, the instructor said, 'It's not so much blending the instruments together as it is making the instruments not mask each other.' That was one of the first things I learned and have held true to the art—it's not so much making each instru-

ment sound great as it is making each instrument have a place to live.

That's part of the art of miking and using equalizers and compressors—to allow all these instruments in the same range, which ordinarily would tend to mask each other, to have a place to live and breathe in the mix.

How do you generally record acoustic guitars?

For an acoustic I'll generally use a Neumann KM84 or the tube version, a KM56 or 54, and I'll go out and listen to determine what kind of guitar it is. If it's a boomy Martin sort of guitar, I'll tend to stay away from the center;

with a Gibson that's more midrangy you can use the hole to get warmth. It's a matter of going into the control room and listening then going out and adjusting. I do try not to mic too closely; that's one of the benefits of using isolation rooms—you don't have to mic right up on the guitar because you're not as concerned about leakage. A lot of times I'll track an acoustic using Focusrite modules, because I like the airiness about them. If the acoustic is doing more finger-style stuff or if they are taking a lead, I'll use two mics; the second is usually further out or higher up or towards the rear of the guitar.

Would you usually compress the guitar signal?

When I track I really tend to shy away from compression; I deal with that more during the mix, when yes, I do generally compress the acoustic.

What sort of compressors would you use?

Actually for an acoustic I tend to use an onboard SSL compressor on the auto setting—it just works. For a more classic sound I may use an LA-2A or my Tube Tech.

What's in that rack of yours that you bring to the session?

I've got a lot of Neve modules: 1081s and 1073s. I've got GML mic pre's, Focusrite and API modules, Tube Tech, UREI 1176 and GML compressors. I also have a rack of effects gear.

What might your mic choices be for piano?

If I have them, I'll put two C-12s on the piano, and either use GML mic pre's or a lot of times I'll go through Focusrites. I'll use 414s if I don't have C-12s. I never mic right over the hammers; I usually use the bracing in the piano as a mark for where I'll mic. For the high end it's generally about six inches back and up from the hammers near the upper bracing, and at the low end bracing maybe a bit further toward the low strings, about the same distance up and further back into the piano. For country, you usually want that left hand/right hand spread; you're not generally going for that solid middle kind of thing. I've got a Drawmer 1960 that I like to use on piano for compression—it adds a little air to it. Piano is one of the things I may compress a little when I track.

Any tricks for recording pedal steel guitars?

[Laughs] The thing about recording is that it's so much easier when you're working with the best musicians, like I

"...the meek shall inherit the earth."

VC3 PRO CHANNEL \$399



VC6 MEEKBOX \$599



VC5 MEEQUALIZER \$599



VC4 STEREO ENHANCER \$599



VC1 STUDIO CHANNEL \$1099



VC2 TUBE CHANNEL \$1999



SC2 STEREO COMPRESSOR \$1999



SC3 DAD STEREO COMPRESSOR \$2799



JOEMEEK

Our Sound Comes From A Higher Source
Got Meek?



SEE US AT
NAMM BOOTH #1632

JOEMEEK distributed by PMI 23773 Madison St., Torrance, CA 90505
voice 310 373 9129 facsimile 310 373 4714 website www.joemEEK.com

CIRCLE #054 ON PRODUCT INFO CARD

Introducing RADAR II.
The latest in 24 bit recording technology.

RADAR II

NEW
FOR
1998!

The World's Best Sounding Hard Disk Recorder... JUST GOT BETTER.



Completely self contained, RADAR II is an extremely compact, great sounding Multitrack Recorder. When two RADAR IIs are slaved, the package presents an extremely cost efficient solution to 48 track Digital Recording. Both mainframes are controlled by a single remote and metering is provided by the RE-8s integral meterbridge.

Otari's RADAR has replaced analog multitracks in hundreds of commercial and private facilities worldwide. RADAR has become the benchmark of sonic excellence in hard disk recording. In keeping with Otari's legacy of innovation, we proudly present the newest in 24 bit Digital Multitrack technology.

Through advancements in technology, the sonic integrity of the RADAR series has been elevated to a new level of excellence. A single removable hard drive provides record time of over 40 minutes of 24-bit,

24 track audio. Longer record times are available simply by adding additional external hard drives. Multiple RADAR IIs can be linked together and its enhanced RE-8 controller provides track arming and optional metering of up to 48 tracks of storage.

Multiple machine control, user definable macro keys and digital I/O make RADAR II the most comprehensive, best sounding recorder/editor available. Contact Otari today for RADAR II information and then listen to the future of digital recording.

Otari, Inc.
Japan
Phone: (81) 4-2481-8626
Fax: (81) 4-2481-8633
www.otari.co.jp

Otari Corporation
USA
Phone: (800) 877-0577
Fax: (650) 341-7200
www.otari.com

Otari Europe GmbH.
Germany
Phone: (49) 2159-50861/62/63
Fax: (49) 2159-1778

Otari Singapore Pte., Ltd.
Singapore
Phone: (65) 284-7211
Fax: (65) 284-4727

The Otari Logo is a registered trademark of Otari Corporation. © 1998 Otari Corporation.

CIRCLE #055 ON PRODUCT INFO CARD

we're not the experts... you are.



grandma's
music & sound

albuquerque, new mexico

<http://www.grandmas.com>

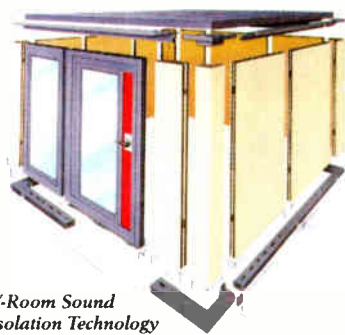
1-800-444-5252

CIRCLE #056 ON PRODUCT INFO CARD

MODULAR

RELOCATABLE

GUARANTEED



V-Room Sound Isolation Technology

Over 25 years ago Wenger Corporation pioneered modular sound isolation technology. Today our V-Rooms® lead the industry with truly flexible modular designs, easier relocation and guaranteed sound isolation. In as little as two hours, a self-sealing V-Room can be installed in your studio – no

fasteners, caulking or permanent attachments to the building. As a result, your Wenger V-Room can move with you just like any piece of studio equipment. Competitively priced Wenger V-Rooms are truly a sound investment. Call your Wenger representative today for more information.



WENGER QUALITY STARTS AT \$8,500 INSTALLED!

Call 1-800-326-8373, Ext. 390
Worldwide: 1-507-455-4100
www.wengercorp.com

Wenger®

© 1998 Wenger Corporation

CIRCLE #057 ON PRODUCT INFO CARD

MIX MASTERS

am. Ninety-nine percent of it is the musicians. Steel guitar, you want to know what I do? I put two 421s out there and cut it flat—I mean, Paul Franklin has the most amazing tone in the world. But, okay, if you really want to know, for steel guitar it's either a 421 or a 57, and I usually mic a bit off the speaker center, so that you don't get the brittleness that can come from the center. Pretty much that's how I mic any amped instrument. But for steel it's a fairly simple signal path—through a Neve module straight to tape; I generally don't do much EQ.

Your records don't sound like they have a lot of EQ in general.

I really would like to emphasize that with me it's all about the music and trying not to overhype things so that the warmth and emotion of the music comes through.

Do you do a lot of riding faders by hand in the mix?

I do. I use compression to help me and to make things sound powerful and strong, but there's a lot of riding involved, and I think that's why I generally like to work on the J Series desks—because the automation is killer.

Any favorite snare compressors you'll tell us about?

Once again I usually use the desk compressor, but I'll also bus the drums out to a separate compressor and bring that up in the mix—I like to use a Calrec or an 1176 for that. My 1081 Neve modules generally end up on the bass drum and snare as well.

In a lot of the music that you work on the vocals are very out front. That makes the ambience on them apparent and important. Do you have any favorite settings for those ambiences?

For vocals I spend a lot of time choosing the microphone. It usually ends up being a tube microphone—a C-12, a U47 or a 251—and I'll either use the GML mic pre's, which I like for their warmth and overall transparency, or I'll use the Neve 1073s with the EQ out, just using the mic preamp section. I almost never use EQ when I'm tracking a vocal, but I'll compress it slightly with my Tube Tech compressor. It's one of the original ones that I really like, a CL1A that they don't make anymore.

For the verbs you're asking about, I like to have an EMT 250 around; I like a Lexicon 300, usually a plate program, then I may use a [Lexicon] 224X with a

CHUCK AINLAY SELECTED CREDITS

ENGINEERING/ MIXING

Trisha Yearwood
Thinkin' About You,
Everybody Knows,
forthcoming LP

Wynonna
Wynonna, Tell Me
Why, Revelations

Reba McEntire
Whoever's in New
England, The Last
One to Know

Lyle Lovett
Lyle Lovett &
His Large Band

Vince Gill
When Love
Finds You, High
Lonesome Sound,
forthcoming LP

George Strait
Blue Clear Sky,
Carrying Your
Love With Me

Steve Earle
Guitar Town,
Exit Zero

Dire Straits
On Every Street,
On the Night

Marty Stuart
Hillbilly Rock,
Tempted

Ziggy Marley
Jehmekya

PRODUCING

Mark Knopfler
Golden Heart,
forthcoming LP

Shana Petrone
Shana Petrone

Film scores for
Wag the Dog,
Metroland

longer pre-delay as well. I usually mix a lot of 'verbs together for vocals, using one for warmth, one for decay and one for brilliance, and I'll usually use a bit of harmonization—dual Harmonizers split up and down—to spread the vocal a bit. Many times I'll also use some sort of delay to add dimension.

Someone commented to me that you somehow get the vocal to sound like the singer hears it inside his or her head.

You were asking about riding things—I'll spend quite a lot of time riding the vocals. I usually compress them in the mix using the GML compressor. I love that compressor for how it rides the vocal but doesn't sound compressed—it doesn't eat into the air of a vocal. Then I'll spend a lot of time riding the vocal just trying to get the intent.

Do you use overall stereo compression on your mixes?

I try to make it sound like a finished record. When I'm using an SSL I'll use the quad compressor, or I like the Alan Smart version of the SSL compressor if I'm working on a Neve. I also have the Calrec compressors; they work in a very similar way to the SSL compressors, and I'll use those sometimes on the overall mix. I don't do any of that digital compression, maxing out a DAT kind of thing, like a lot of people do; I'll leave that to mastering.

What format do you mix to?

I always mix to half-inch with AGFA

tape on an ATR 100. I also mix through the Pacific Microsonics HDCD converters to the Genex magneto optical recorder, which allows me to record to at 88.2 24-bit.

What level on the half-inch?

Plus 5 over 250; that works pretty good if I'm using 16dB headroom on the digital as far as maxing out the digital and still hitting the analog hard enough.

When do you choose between the formats?

I'll wait until I get to mastering. Generally the half-inch wins. There isn't, in my opinion, a better representation of the console bus than the Pacific Microsonics system, but sometimes you just can't beat the character that the analog adds.

Why both formats then?

Well, for example on this Vince Gill project, I had to get a single done for his next release. We took the tapes to Denny "Platinum Ears" Purcell at Georgetown Masters, where I master all my records; we decided to go with the 24-bit, and we mastered the song completely flat. I find if you get it absolutely right in mixing, there's just nothing that comes closer to the desk than that [Pacific Microsonics] system. And I've auditioned lots of converters.

What are your main monitoring speakers?

Recently I've been using KRK Expose' 8s, which I love; I've been getting great mixes with them, and Keith Klawitter at



WAVES

WWW.WAVES.COM

THE RIGHT TOOLS, EVERYTIME!

PRICE & PERFORMANCE

EASY WAVES

ENTRY-LEVEL BUNDLE WITH AN EQ, REVERB & COMPRESSOR



NOW ONLY \$150

PLUG INTO THE POWER OF WAVES!

NATIVE POWER PACK

AUDIO PROCESSING SOLUTION

COMPLETE



NOW ONLY \$495

PLUG INTO THE POWER OF WAVES!

THE TDM BUNDLE

COMPLETE PRO AUDIO PROCESSING SOLUTION



NOW ONLY \$1000

PLUG INTO THE POWER OF WAVES!

WAVES GOLD BUNDLE

ALL THE WAVES' PLUG-INS IN ONE BUNDLE



NOW ONLY \$2300

US WAVES 6716 CENTRAL AVE. PIKE, SUITE 8, KNOXVILLE, TN 37912 USA
TEL: 1-423-689-5395, FAX: 1-423-688-4260

KRK has been great. I came across them searching for a good monitor for 5.1, and I've been using them ever since. I also use the M&K subwoofer for the .1 when mixing in surround.

You're one of the main engineers in the forefront of mixing for 5.1—why is that?

Just pure chance, I guess. DTS approached MCA Records and producer Tony Brown about doing Vince Gill's *High Lonesome Sound* in 5.1. I had been the engineer on that album, so I was given the opportunity to do the

project. I had a concept of how to do it, and I guess people are digging it: since then I've been asked to do quite a few other albums. I really believe that if it wasn't for DTS, music releases of 5.1 probably wouldn't be happening at all. Rory Kaplan and Bill Neighbors at DTS are very responsible, I think, for the musical integrity of what's going on by getting creative people with high standards involved and moving the whole concept forward.

So is it a lot more fun to mix in surround?

Back when I was in high school I would listen to music all the time with a

pair of speakers in front and my dad's speakers in the back—that's how I listened, and I loved it. Then you become a professional and you get into precise stereo positioning and all. When I did the surround mixing for the first time I thought, 'This is how I remember it!' —to have sound coming from all around you. It really is fun; the fact that there are no guidelines of what you are supposed to do makes it very creative—I love it.

Would you like to have your own studio?

I'm thinking about it. I see the need for a facility for mixing 5.1. Rooms now are acoustically designed and optimized for stereo, with the sound coming from one direction; generally they are live end/dead end situations, so with a surround setup, speakers in one end of the room will sound different than the speakers in the other end. Also, with 5.1 you really have to look at all the reflective surfaces. Because the sound is coming from more directions, your first reflections are more complicated to deal with. I think the big consoles we work on are a major factor as far as an imprint on the sound of the room, and that becomes an even bigger factor in surround. It's leading me to the idea that a digital console with a smaller imprint could work better in a surround room; also, because it's a pure digital medium that's only going to ever be heard off DVD or DTS CD with a decoder, I see how a digital desk could work. So that's the thought—a room designed acoustically for surround with a digital desk.

What's up next for you?

I'm finishing Vince Gill's album, then I go out to L.A. to mix Trisha's new album at Capitol Studios—they have a Neve VRP console with the film mods so that I can mix it in surround. That will be a lot of fun, because, at the same time Vince Gill will also be out there doing his Christmas album in the next room with Al Schmitt engineering, and they are recording the whole thing in 5.1. Tony Brown is producer on both those projects.

After that I'm going to stay in L.A. for a while because I'm producing a Los Angeles band called Spaghetti Western for DTS. Meanwhile, we're also in the process of a Mark Knopfler record... [Laughs] I guess there's a lot going on. Oh, and of course I also intend to be doing a lot of water skiing!

Maureen Dronney is Mix's Los Angeles editor.

A Digital Masterpiece



- Award winning technology
- NO compromise performance
- Ideal for digital consoles and routers
- -107 dB THD+N (20 Hz - 20 kHz)
- 9 pSec intrinsic jitter
- AES lock with >50 dB jitter reduction
- BNC/XLR Digital, XLR Analog connect
- 9 segment true digital level meters
- IRU package with internal power
- External redundant power available
- \$4200 (\$525 per channel)

The ADA2008 provides four channels of 20-bit A-to-D and D-to-A conversion. This eight channel system is housed in a 1RU, RF tight chassis with meter LEDs and standard connectors. Internal power or an external redundant power option is available.

Dependable linear power supplies are used for an uncompromising THD+N performance of -107 dB (0.00045%), 20 Hz to 20 kHz.

Now you can use the digital console of your choice, without having to accept poor converter performance, and still do it at an extremely affordable price!

Call Rory Rall today, for more information.

Benchmark
... the measure of excellence!

BENCHMARK MEDIA SYSTEMS, INC.
Phone 800-262-4675, FAX 315-437-8119
<http://www.benchmarkmedia.com/>

CIRCLE #059 ON PRODUCT INFO CARD

The power of
an 02R digital
mixer and
16-track hard
disk recorder

Imagine having the processing power of the 02R

digital recording console on a computer card. When you install the card in

your computer, you've got a **24-channel, 10-bus digital mixer** with all

the mixing power of the acclaimed 02R. Pretty great. Imagine this card

also gives you **16 tracks of tape less recording**

with up to **32-bit resolution**. And works

out-of-the box with the industry's most

popular PC and Mac recording soft

ware*. Imagine you can have all

this for **under \$1,000**. Yamaha

proudly presents the DS2416

Digital Mixing Card. The star

component in the **Yamaha**

DSP Factory—a complete digi-

tal recording and mixing system

inside your computer. For details,

call 800-937-7171 ext 662.



24 channel, 10 bus
digital mixer



16 track recorder
with up to 32 bit
capability



104 bands of
parametric eq



26 dynamics
processors



Two 32 bit effect
processors



Comprehensive
muttering



Full mix automation
via software



All features available
simultaneously

(cleverly
disguised as
a \$1,000
computer card).

**DSP
FACTORY**
YAMAHA

*DSP Factory is supported by:



© 1998 Yamaha Corporation of America, 6600 Orangethorpe Avenue, Buena Park, CA 90620

World Radio History

CIRCLE #060 ON PRODUCT INFO CARD

BÉLA FLECK

"LEFT OF COOL," RIGHT AT HOME

What do the banjo and jazz have in common? Pretty much just one thing: Béla Fleck & The Flecktones. Never one to stick with convention, Fleck and his band combine the sounds of banjo (electric and otherwise), basses of all flavors, a handheld electronic drum set and other interesting musical instruments. That Fleck and the boys can flat play has never been questioned—their live double CD *Live Art* won a Grammy for best pop instrumental album. Even The Flecktones' past studio albums have been recorded live and edited after-the-fact, trading the perfection of endless overdubs for the magic of a live performance.

Now, instead of working his recording and editing magic in a high-dollar studio, Fleck's doing it at his Nashville-area home. In a large room above his garage, he's got a Mac 9600 hosting a 24-bit Pro Tools rig with 24 channels of I/O, Apogee AD-8000, several Glyph hard drive arrays (63 GB total) and a DLT backup system. A second, 16-bit Pro Tools system sees use when Fleck's juggling multiple tasks, or when the main system is backing up. The studio's outboard gear includes a Lexicon PCM 90 and PCM 80 patched into the main Pro Tools system digitally, but the majority of the processing is done with plug-ins. Fleck's "virtual rack" includes plug-ins from Focusrite, Drawmer, Aphex, Waves, Lexicon, DUY and Antares. Meyer IID-1, Genelec 1030A and Yamaha NS-10M monitors are the speakers of choice. The studio has minimal acoustic treatment, yet sounds quite good.

The Flecktones' latest album, *Left of Cool*, released last month, was recorded, edited and mixed entirely at Fleck's house. Eight days of tracking basics and solos saw bassist Victor Wooten and drummer Future Man plugged in direct in the control room, Fleck playing banjo in the kitchen and saxophonist Jeff Coffin in the dining

room. On some tracks, Wooten played cello and upright bass in the master bedroom, while Future Man played percussion kit in the main entryway. Along the way, Dave Matthews and Amy Grant dropped by to add some background vocals to Future Man's lead vocal parts.

With help from Roger Nichols, Flecktones' live sound engineer/technician Richard Battaglia and production assistant Animal, Fleck and the band tracked simultaneously into Pro Tools and onto ADAT. "We also rented the best stuff we could find in town," says Fleck, "including Avalon preamps, great old mics and some other gear. We felt that once the sound is in the computer, it is what it is—getting it in there is the key. So we used the best mics and the best mic pre's."

Traditionally, Fleck's approach to recording has been to capture the band's music with as much faithfulness to the live performance as possible. This has made the editing and comping of different takes his main production tool. With *Left of Cool*, the Flecktones took a different direction. "The last album was a live album—truly live—and I felt like we had gotten across what the band sounded like," says Fleck. "On this record, we decided to do a true studio album. Some of the songs became very produced, with a couple of basses, different banjos, mandolins, guitars, percussion, background vocals, saxes and flute. I didn't want to lose the way we all play together, yet I wanted the flexibility of monkeying with the music and trying new stuff. If there was a chorus that really felt great, why not use that one? Pro Tools gave me that kind of flexibility, with seamless multitrack edits that nobody could possibly hear."

BY LOREN ALLDRIN



PHOTO: LOREN ALLDRIN

As with most artists and musicians taking the plunge into home-based recording, Fleck doesn't miss the expensive hours logged in a "real" studio. "When I was working on *Tales From the Acoustic Planet* [his solo album], it was so much more expensive," he says. "I had to go to a studio and pay the hour rates, lock up the machines, have the edits prepared before I got there and spend a hundred hours trying to do stuff that here took me a lot less time. I kept thinking, 'There has to be some way to do this without explaining every edit to some guy.' Pro Tools was a real revelation as to what I could do and how much control I could have over the music. I think I was able to make the record I really wanted this way."

According to Fleck, recording at home hasn't compromised the quality of the album one bit. "We mastered with Denny Purcell at Georgetown Masters, which is where we mastered all the previous records," he says. "When we put up the mixes, we were struggling to find things to do to them." ■

Loren Alldrin is a freelance writer, engineer and producer based in Nashville.

WANT THE BEST OF BOTH WORLDS?



2408 Digital Hard Disk Recording System

MOTU



A R T

Pro MPA and VLA Modules

APPLIED RESEARCH AND TECHNOLOGY

Analog or digital? Chances are, you want the best of both worlds: the warmth and creative flexibility of tube processing and the exacting clarity and editing ease of digital recording. Too expensive? Think again! Enter the amazing 2408 Hard Disk Recording System from Mark of the Unicorn and the lush Pro MPA stereo tube mic preamp and Pro VLA stereo tube Compressor from ART. These devices complement each other perfectly, bringing a wide range of creative power to your rig. Sure, you could spend more than four times as much to get the same sonic quality and features. But don't you have better things to do with your money? Let's take a look at what makes these products so special . . .

With Mark of the Unicorn's 2408, you get up to 24 simultaneous digital inputs and outputs, 8 channels of analog I/O and as many tracks as your computer allows, 16-bit recording (expandable to 24-bit), digital I/O to connect with ADAT, DA-88 and S/PDIF and much more: all for under \$1,000! It even works as a stand alone translator between ADAT, TDF and analog. Connect up to three 2408s for 72 inputs and outputs! Works with your choice of Mac or Windows computers and a wide variety of music software including MOTU's award-winning Digital Performer sequencing/recording package. Cut, copy and paste any portion of your performance for unsurpassed editing ease. Just add the 2408 and your home computer rocks! It becomes a professional digital audio workstation with power far beyond limited tape-based or stand-alone systems.

The 2408 is one of the hottest new products we've ever had at Sweetwater. It's great by itself or in combination with a tape-based system such as ADAT or DA-88. If you've been wanting the ease and power of random access multitracking but were waiting for a more economical approach, your time has come. With the money you save on the 2408 over other systems, you can buy yourself an amazing computer to run it on!

Classic tube preamps and compressors have become hot commodities, costing thousands of dollars. What if you could have all of the sound, coupled with today's low-noise, high-reliability design advancements for a fraction of the cost? The processors from ART give you that vintage sound to warm up your digital recordings. Hit them softly for a clear, transparent sound. Crank it up to add more "heat." Check out some industry raves:

"Useful on all kinds of sessions . . . whisper-clean or add a nice warm thickness. The Pro MPA is great for making mid-priced mics sound like pricey, big-ticket models. An excellent value. ART has a winner on its hands." — George Peterson, *Editor, Mix Magazine*

"Every manufacturer loves to use buzz words like transparency, warmth, and musicality. For my money, ART is justified in using exactly those words to describe the Pro VLA . . . One of the few products I have encountered that has caused me to rethink the way I work in my studio. ART has built a real winner!"

— Jim Miller, *Electronic Musician*



MUSIC TECHNOLOGY DIRECT — and the Best Value Guaranteed!

CHUCK SURACK, President of Sweetwater Sound

Sweetwater SOUND INC.

www.sweetwater.com



"Now, thanks to MOTU, ART and Sweetwater Sound, you can enjoy the best of both worlds for a song! Call now and ask about the great specials available on all the hottest items from MOTU and ART this month!"

(800) 222-4700

(219) 432-8176 • FAX (219) 432-1758 • sales@sweetwater.com
5335 BASS ROAD • FORT WAYNE, INDIANA 46808

AT THE

Record Plant



Above, Billy Idol with Rose Mann and Keith Forsey. Below, at the 25th anniversary party, founder Chris Stone presents owner Rick Stevens with the 1968 invitation to the opening of the Record Plant. From left, Sam Stone, Chris Stone, Joel Moss, Rick Stevens and Mann.



Thirty years is a long time in any business; in the record industry, it cuts across five or six generations of talent—from the Eagles to Stevie Wonder to the B-52's to Guns N' Roses to Celine Dion. Those artists that remain vital earn our respect and our praise. And so it should be for the facilities in which they reco

In 1968, marketing genius Chris Stone and engineering wunderkind Gary Kellgren wanted to create the perfect music recording environment, and they built the Record Plant, forever changing the way music was produced. Their philosophy of providing unparalleled service and creature comforts, so that the artist was free to create, was novel at the time but is commonplace today. Thirty years later, Record Plant, under the direction of CEO Rick Stevens and president Rose Mann, is as strong as ever. Recent sessions have included Celine Dion and Barbra Streisand's hit duet "Tell Him," Janet Jackson's "The Velvet Rope," Babyface's "The Day," and Whitney Houston's work on the soundtrack to *The Preacher's Wife*, as well as projects for Mariah Carey, Bonnie Raitt, No Doubt, Save Ferris and G3. There are other L.A. studios that have put out hits for 30 years, and we will honor them in the coming months. But few have the cache of the Record Plant name. In this photo gallery of stars, *Mix* salutes you, Record Plant. ■



Producers Al Kooper, right, and Bill "should also have worn sunglasses" Szymczyk fight it out over the 8 p.m. to midnight booking of Record Plant's Jacuzzi. "Don't Dalby the water," says Kooper.



Stevie Wonder at the Board with Phil Kappell



Walter Afanasieff, left, and David Foster with Celine Dion and Barbra Streisand



"As soon as I walk through the door of the Record Plant, I know I'm home."

—Producer Nile Rodgers at home in Studio 1



"I work at the Record Plant because it's simply the best of the best. Four rooms to choose from, great equipment, great vibe, and most importantly, great people."

—Producer David Foster, right, with engineer Dave Reitzas



Producer Dor Was presents Bonnie Raitt with flowers, while engineer Ed Cherney keeps things in line at the console

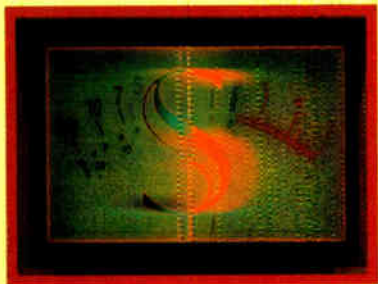
Above, Nine Inch Nails with dog. Below, self-described "foolish studio expert" Chris Stone stands amid the rubble of what would become Studio D (right behind Studio C) on Third Street, circa 1979. "Building, building, building," Stone says. "Tearing down is easy, but I've spent most of my life building. That's why I love the Record Plant. That's why I love this industry."



Stephen Stills with Michel Bronstein in Studio C, late 1970s



MIX BUSINESS



The Business Of the Studio Business

by Dan Daley

Six years ago, I stopped caring. I no longer had the same urges to see the latest pro audio gear arrive, read the spec sheet on a microphone, take something behind the closed doors of the studio and red-line it. If this relationship had been a marriage, I would have been one of those guys who went down to the corner one evening for a pack of Luckies and never came back. But for some reason, my affair with this industry couldn't end. After 20 years in this business—as a songwriter, producer, studio owner and, for the past 15, a journalist—I found that while I was no longer enthralled by S/N ratios, I was still looking at the price tags.

Six years ago, this business hit what Francis Fukuyama called “the end of history.” He was talking

about how the fall of communism left capitalism as the only viable economic philosophy, and that since history is a narrative, without a fundamental conflict on that scale, there can be no history. The equivalent of the “wall coming down” in pro audio was not the introduction of the Alesis ADAT—that was more like the battle of Lexington and Concord. The real turning point came quietly, without notice, when somebody in Yuma, Ariz., Ocoola, Fla., or Crested Butte, Colo., bought that ADAT, put it to use and changed the nature of the recording business forever. A critical mass of down-market technology created a tide that could no longer be turned back, like the day that digital finally forced the use of the word “analog” as an adjective. On that day, this bucolic little community that we used to call the recording business truly became an industry.

Most music recording studios were slow to recognize and react to the change, especially compared to the audio post industry, where many facilities were already being run like corporate entities. However, as much turmoil as change engenders, it also creates opportunities, and the shift that has taken place in studios of all types reflects the fact that people now realize that all that cool gear is just pieces in the larger puzzle of running a business.

When I stopped caring about the spec sheet, I started being fascinated by the business of this business—the changing relationships between the manifold forms of studio life out there—and in one way or another, it's all I've written about since. The new Mix Business Quarterly is simply an extension of that. ■

This year opened on a troubled note in Nashville with the announcement that Masterfonics, founded in 1973 and consistently one of the city's leading recording, mixing and mastering studios, filed for Chapter 11 bankruptcy. The January 29 reorganization filing sounded an ominous tone in Nashville, where the studio community has undergone significant economic pressures—many of which Masterfonics owner Glenn Meadows cited as reasons behind his move—related to rapid growth in recent years.

However, the degree of resiliency and innovation in response to a chang-

STAT Of the Month

RIAA RECORD SALES STATS BY GENRE

The Recording Industry Association of America released its 1997 Consumer Profile, which tracks record shipments by genre market share (in parentheses is each genre's 1997 market share).

Rock: 32.5% (32.6%)

Country: 14.4% (14.7%)

R&B: 11.2% (12.1%)

Rap: 10.1% (8.9%)

Pop: 9.4% (9.3%)

Gospel: 4.5% (4.3%)

Classical: 2.8% (3.4%)

Jazz: 2.8% (3.5%)

Soundtracks: 1.2% (0.8%)

New Age: 0.8% (0.7%)

Overall music shipments for 1997: \$12.2 billion, down 2.4% from 1996's \$12.5 billion.

QUARTERLY

ing economic climate has been equally remarkable, with optimistic expansions and new-media forays serving as a counterbalance to difficult times.

Nashville has long had the highest density of music recording studios of any major music center in the world, with well over 150 commercial facilities. The competition that such a large number of studios generates, though, has tended to suppress rates and defer large-scale technological upgrades. But throughout the first half of this decade, significant increases in country record sales—the genre reached an

competing more with pop records, and producers (many of whom were now working with rock and pop engineers who had arrived in Nashville) started demanding more sophisticated technologies, putting pressure on studios to upgrade. (Producer/label chief Jimmy Bowen, it should be noted, did

ment forced many of Nashville's conventional studios to make large new capital investments in order to differentiate themselves from the swelling pool of mid-sized facilities.

In the past three years, Nashville has witnessed the opening of seven so-called world-class studios in four facilities, the first of which was Masterfonics' \$3 million-plus, Hidley-designed The Tracking Room. (For that debut, Meadows also brought in the first of what are now five SSL 9000 J consoles in Nashville—nearly as many as in all of New York City.) Ironically,

**MARKET
CONSOLIDATION,
NEW OPPORTUNITIES**

Nashville Faces the Music

18.7% market share of a \$12 billion U.S. record market in 1993, its watershed year—helped offset static rates with volume bookings. Many of Nashville's studios were working night and day through the so-called "Garth years."

But country music's most recent brush with mainstream success has unleashed a few trends that Nashville's entertainment industry had been well insulated from, including the arrival in force of home and private studios. The sudden and overwhelming appearance of these facilities—many of them opened by Los Angeles émigrés—took demos, which in the publishing-rich environs of Nashville is a massive market, virtually off the radar as a source of income for many commercial studios. It wasn't long before both the swelled ranks of the Nashville music industry and the proliferation of affordable technology resulted in the opening of new commercial and sometimes-private/sometimes-commercial hybrid studios in the city.

At the same time, two other trends were at work, both forcing the hand of the high-end. Country records began

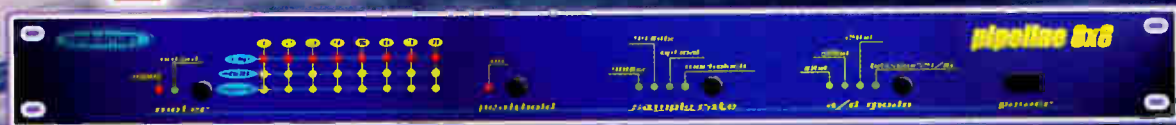
this nearly a decade earlier.) Second, the rise in the number of new studios with affordable yet powerful equip-

some in Nashville argue that it was the appearance of The Tracking Room that sparked the flurry of high-end construction, including three rooms at Ocean Way/Nashville (a huge vintage Neve, a Sony Oxford digital console and an API desk), two at Starstruck (two SSL 9000 J consoles in an architecturally stunning Neil Harris design)



the new wave in digital audio

pipeline 8x8



Finally! A 24-bit, 8 in/ 8 out digital audio converter for the rest of the world!

For over a decade MIDIMAN has provided the music industry with reliable, low cost solutions for synchronization, MIDI and, more recently, digital audio. Well we've done it again. Introducing the Pipeline 8x8 digital audio converter. We've combined true 24-bit A/D and D/A converters with 8 balanced, 1/4" I/O's, external word clock, 16 & 20-bit dithering and our exclusive 16/24 "BitRazor" technology into a truly affordable (under \$1000), professional quality recording tool. Check out Pipeline 8x8 along with SAM (Adat-S/PDIF & S/PDIF-Adat converter) at your local music dealer.

pipeline 8x8 features:

- 8 in/out true 24-bit Audio-to-Adat and Adat-to-Audio conversion.
 - Balanced or unbalanced 1/4" TRS I/O's.
 - Sample rates of 44.1 and 48 kHz.
 - Selectable word width of 16, 20 or 24 bits
 - 16 and 20-bit conversion with optional noise shaping and dithering.
 - Word Clock in and out with selectable 75 ohm termination.
 - MIDI I/O for extended control through system exclusive messages.
 - +4 dB or -10 dB input levels selectable per channel.
 - Special BitRazor™ 24/16 mode allows 24-bit audio to be recorded and played back using 2 standard 16-bit Adat tracks.
- SEE US AT NAMM BOOTH #3448**



800-969-6434

WWW.MIDIMAN.NET

INFO@MIDIMAN.NET

CIRCLE #062 ON PRODUCT INFO CARD

and one at East Iris (Hidley design with an SSL 9000 J).

Then, in March, mastering guru and Georgetown Masters owner Denny Purcell and engineer Chuck Ainlay announced their intention to build a dedicated 5.1-channel mixing room on Music Row in 1998 (predicated substantially on significant project commitments from DTS). And in the outlying areas, there are plans for four new rooms at Brentwood's Sound Kitchen, an expanded Dark Horse Recording in Franklin, and the new Hidley-designed Bulldog Studios.

But in the midst of this rapid expansion, the foundation for much of it—country music—went through a sub-

stantial decompression, with its market share dropping in excess of 10% annually in both 1996 and 1997. Producers, many of whom in Nashville are also record label executives, kept up their demands for better studio rates and upgraded technology even as they cut recording budgets, purged bloated label rosters and terminated expansion labels born of the euphoria of the early '90s (Rising Tide Records and Almo Sounds both closed in March). Despite their response to their own financial fortunes, producers/label executives remained "woefully unaware," in Meadows' words, of the changing economics of studio ownership. Many of those same producers began using their own

recording facilities for overdubs and mixing, taking time away from commercial studios at the same time they were asking for upgrades. Nashville had produced a scaled-down version of Japan's "bubble economy," and the bubble was ready to burst.

Josef Nuyens, owner of The Castle Studios in Nashville and first president of the two-year-old Nashville Association of Professional Recording Studios (NAPRS), articulated the views of several area studio owners: "I think a lot of people have been stuck in the euphoria of 1993 and have blinded themselves to what can realistically be done. You have to remember, Masterfonics is not the first studio to get into financial trou-

Hiring a Studio Manager

by Dan Daley

A studio's appeal has typically been measured by the quality of the control room. But lately, more often than not, a studio is also judged by what's going on in the back office and reception area. With marketing rivaling technology as the primary concern of facility owners, more importance is being placed on acquiring, training—and most important, retaining—personnel with basic business acumen, technical chops and impeccable "people skills."

"There's an enormous shortage of qualified people out there for the studio business," says Alessandro Ceconi, owner of Room With A View in Manhattan. "The [audio] schools don't emphasize management as much as the technical aspects." Ceconi, who also owns a hotel in the Bahamas, adds that, "If I could find a good hotel manager, I would want to hire that kind of a person to manage a studio. You can always teach the kinds of specific things, like dealing with record company production people, that you need to know to run a studio. But it's very hard to teach the people skills. That's one reason we don't hire people who have managed at other studios; each studio has its own style, and we've had experiences where you have to de-program people of the attitudes some of them acquired at other places. And that's a difficult thing to do."

Lou Gonzales, owner of Quad Recording in New York, agrees that it's becoming harder to find qualified front-line management people. "I've been lucky to have had the



same manager for a long time, and a very good one," he says. "But I see what's going on out there. The reality of it is that in the upper end of studios, the owners are not the managers anymore. They need to rely more and more on other people to manage for them, and it's hard to find people with that right balance of business and people skills who also know something about what a studio does and how it works."

Gonzales recalls that when he worked as an engineer at the Hit Factory in the early 1970s, studio owner Jerry Ragavoy decided to hire a manager, a relatively radical departure from the then-common paradigm of owner/management. "But it didn't work out then," says Gonzales. "It was hard to teach someone to run the studio the

same way you ran it. There's a level of intuition involved that's hard to communicate to someone unless they have it instinctively. But these days, it's common to have to hire a manager, and that person sets the tone for the facility itself."

THE APPLICATION AND INTERVIEW

Hiring a studio manager is similar to hiring a mid-level executive at any company, and much of the screening can be done at the application stage. Applications should ask about education (degrees, awards), employment history, length of time someone has lived in the area, personal references, familiarity and experience with the industry in

—CONTINUED ON PAGE 105



Battery Studios, featuring a Neve 8068

ble here in recent years. These are the normal cycles and dynamics of any industry. I saw that [country] radio was beginning to want to play it safe and want more of the same. So it's natural that you'd see more 'best of' records come out, and that means less new recording. The handwriting has been on the wall for some time."

Lee Groitzsch, manager at Battery Studios, says tighter competition and rate cutting were becoming more common as labels consolidated. "I'm finding that some of the larger stu-

dios are dropping into my neck of the woods in terms of rates," he says. "And producer- and engineer-owned studios have completely neutralized the overdub business. I think we may see more closings here into 1999."

ACTION, REACTION

However, Nashville studio owners are not sitting still and waiting for the next ax to fall. Several studios have strategically expanded to meet new challenges. Seventeen Grand Recording put in a second room with Nashville's first Euphonix CS3000 in a commercial facility, adding a 5.1-channel monitoring environment to boot. A string of film soundtrack projects from Hollywood helped raise the studio's profile, but co-owner Jake Nicely says pragmatic realism is a necessary philosophy at this point. You can resist rate cuts, he says, as long as you acknowledge that there are times when they're necessary. "We're not immune to getting hammered on rates, but there are just some things you have to walk away from to preserve your rate structure," he observes. "We have discounted when it makes sense, such as when the client offers to pay up front. The labels are taking much longer to pay these days—as much as three months, which would have been unheard of three years ago. So it makes sense that an artist can tell his label that they can save a few hundred dollars a day by pre-paying, which also helps us a lot."

Sound Stage Studios manager Michael Koreilba credits the studio's 20-year lifespan to forging long-term personal rela-

BY DAN DALEY

Managing the Fort: E ware's Soundbusiness music production manager software is out. The program, designed by company owner John Hug, creates, edits and tracks record production budgets; tracks projects and purchase order payments and receipts; and has a database that stores and cross-references talent information. The program also saves data as an "sbz" file and allows it to be exported via the Internet. Though the initial market for the product has been record companies, individual producers and production companies, studios could install it on their office hard drives and offer it as a client service. System requirements are Windows 3.1 or Windows 95, 486 or higher, 8 MB RAM and 15 MB hard disk space; for Macs, System 7.2 Power PC with 16 MB RAM and 15 MB hard disk space. Call 310/260-4934 for details.

Free Time, Future Business: Studio time giveaway at Ardent—the grand old man of Memphis facilities is using a promotion involving free studio time to generate a highly qualified mailing list. A flyer, distributed at music trade conferences, asks respondents for name, artist/band name, address, phone, fax, e-mail and the name of the conference

attended. A drawing was held May 15, giving a random winner four ten-hour days in one of Ardent's three studios, including tape and engineer, for a stated value of \$6,200. The promotion drew significant response at Boston's NEMO show, Nashville's Extravaganza and Austin's South by Southwest, according to Ardent marketing director Teron Shoemaker, who did a similar promotion at Memphis' Cry Rock mastering studio. "That one was very successful," she said. "We were able to generate a huge mailing list of bands and producers for our mastering services from nothing, really. And the people who do respond tend to have high levels of interest in the studio."

Got a spare closet? Tape duplication continues to be a cost-effective secondary revenue source for some music studios, particularly those that cater to

artists recording for independent labels, where the acts tend to look for one-stop service. A thriving Southern California market for Latino music has prompted Long Beach studio Sound Shack, owned by Latino label Cintas Aquario, to expand into high-speed tape duplication with new division Digital Sound Duplication. Sound Shack installed a turnkey system including a Telemetrix digital bin and four slaves, as well as a tape loader and an on-cassette imprinter. Studio co-owner Lupe Rivera said he expects initial production of between 400,000 and 500,000 units annually, work that previously went to outside vendors. Start-up costs: approximately \$300,000. ■

Odds & Ends From the World of Business

Warm *not fuzzy*

Introducing the tube mic with attitude: the new AT4060 from Audio-Technica. With a dynamic range that far exceeds that of any other tube microphone, the AT4060 provides the coveted sound of valve design with the ability to match the performance level of digital.

Its low self-noise and high max SPL capability make the AT4060 a premier vocal microphone, and much, much more. From a whisper to a shout, from soft string sections to screaming guitar cabinets, it delivers output that's always clear and consistent, always lush and uncolored.

And of course the AT4060 has the precision engineering and professional studio-grade electronics that you've come to expect from A-T's 40 Series.

So if you're looking for warm and fuzzy, keep shopping around. But if you want the ultimate tube mic, call, write or fax today for more information on the versatile new AT4060.



audio-technica®

Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224 ☎330/686-2600 Fax: 330/686-0719 E-mail: pro@atus.com www.audio-technica.com

Audio-Technica Limited, Old Lane, Leeds LS11 8AG England ☎(0) 113 277 1441 Fax: (0) 113 270 4856 E-mail: sales@audio-technica.co.uk

CIRCLE #063 FOR PRODUCT INFO CARD



PHOTO: NGUYEN PHOTOGRAPHY

Emerald Sound's overdub room, Studio B, with SSL 6048 EG


the low- to-mid-priced overdub market. But rather than use it to go head-to-head with similarly priced rooms, studio manager Milan Bogdan positioned it to augment projects that come to Emerald's main room for tracking. "The larger studios like this can provide a level of service that most smaller and mid-sized ones can't," he says. "But we understand that a lot of clients need to go to less-expensive studios for extensive overdub work. So we're providing that same capability here." In addition, Emerald has entered a joint venture with audio post start-up Digital Audio Post and created a business servicing country artist promotional interviews to radio via satellite and ISDN hook-ups, putting in a small Mackie-equipped studio with eight digital phone lines to house the operation. "People have to do unusual things in

In the Sony Oxford room at Ocean Way Nashville, producer/engineer Ed Seay (center) worked on a release for Web Records artist Monty Holmes with engineer Joe Hayden (right) and assistant Dean Jamison.



tionships with producers and engineers, which has helped it hold the line on rates, particularly in the studio's SSL 9000 J studio. Even as high-end producers and engineers are turning to their own studios for overdubs, Koreiba notes, there is a new generation behind them, and he is actively building relationships for the next century. "There are more rooms in town that are now divided into \$500 increments," he explains. "It seems that those in the \$1,500 to \$2,000 a day range are doing well, but over \$2,000 it gets harder. And now there are more \$1,000 to \$1,500 a day rooms than ever, and it's harder for them, as well."


Emerald Studios opened a new room in 1997, designing and equipping it with a pre-owned SSL console to service




ADL
Anthony DeMaria Labs

Sales: (818) 340-0228
Technical Info: (914) 256-0032
Fax: (818) 340-4331
www.ADL-TUBE.com


GREENE STREET RECORDING STUDIOS




CHUNG KING STUDIOS




MASTERFONICS




STARSTRUCK STUDIO





Sometimes
warm
is
COOL.



ADL 300G
Stereo Tube Direct Box

ADL 1000
Mono Tube Compressor

ADL 1500
Stereo Tube Compressor

MTS-6
Modular Tube System
Shown here with TPM-1
Tube Preamp Modules

CIRCLE #064 ON PRODUCT INFO CARD

World Radio History



Sound
that fits your music.

Size
that fits your space.

Price
that fits your budget.



PS-3
Personal Studio
Powered Monitoring System

- This self-contained system consists of one 5 1/4" ported bass reflex subwoofer and two 2-way shielded satellite speakers each with a 3" midrange driver, 1" balanced dome tweeter and protective metal grills.
- The subwoofer contains its own 15 Watt RMS power amplifier, a crossover network and two 5 Watt RMS power amplifiers for the satellite speakers. Speaker connections are via high quality, reliable binding posts.
- Since low frequencies are non-directional, the subwoofer can be placed virtually anywhere without affecting the integrity of the stereo signal.
- The satellite speakers are computer designed to provide an accurate 'stereo stage' panorama without requiring critical placement.
- The power amplifiers and all individual speaker components are engineered to ensure precise audio conversion from an electrical to acoustical signal with minimal loss.
- Optional hardware is available for mounting the satellite speakers to a wall or on mic stands.

Sound. Size and Price — everything is designed to fit in your personal studio or project room.

Audition the PS-3 at a selected Fostex dealer today!

Fostex

15431 Blackburn Avenue
Norwalk, California 90650
Voice (562) 921-1112
Fax (562) 802-1964
E-mail info@fostex.com
URL www.fostex.com

unusual times," says Bogdan.

Other studio owners have made an effort to pursue non-country clients. Neal Cappellino, owner and chief engineer at Poppi Studios, has targeted his one-room facility at Nashville's small but active alt/rock community. "The fact that I'm making a living in a niche like this is testimony to the fact that the perception of Nashville is changing," says Cappellino. "As I expand, we might become more vulnerable to the cycle that the studios on the Row are experiencing, but we can access a much larger market with rock and blues and alternative music."

Still others are casting their nets into new media ventures. For example, mastering engineer Hank Williams, owner of Mastermix, entered into a nonexclusive agreement with BMG-owned disc replicator Sonopress in North Carolina to do all of the plant's DVD authoring.

FOLLOW THE MONEY

The capacity for self-delusion is a prerequisite for getting up in the morning in the entertainment business. Banks, however, view situations somewhat more clinically. Don Figlio, assistant vice president at NationsBank's Music Row office, says that his bank has re-

ceived a continuous stream of inquiries about financing for studio start-ups in Nashville over the last two years—inquiries, he says, that come from everywhere but Nashville. "There's a real lack of knowledge about what the situation here really is," he says. "We're reluctant to finance start-ups at this point. There is already a significant amount of refinancing going on with existing studios, people trying to take advantage of falling interest rates."

One of the issues complicating any financing situation is the often-tenuous rate structure in Nashville. "Five years ago, you knew what the [studio] rates were, and they were stable enough to base financial projections on," Figlio explains. "When you can't predict rates, it's hard to be realistic about what projections can be."

Nashville's studio community is apprehensive, but a strong vein of hope is also apparent. Most expect that a high-stakes game of musical chairs will continue for at least the next year, with several more facilities finding themselves without a seat when the music stops. But most also now accept this situation as a normal business cycle in a saturated market. The single most important factor—and the one that truly sets Nashville apart from New York, Los Angeles and London—is the historical reliance on a single genre. Country music provides the foundation for the Nashville studio community, and studios must ride the roller-coaster of country's fortunes in the marketplace, as well as contend with the perception—or more precisely, the misperception—of country music by the larger entertainment culture.

Nashville studios have been trying to project themselves as "more than just country" with varying degrees of success. More recording artists from a variety of genres—such as Lionel Richie, Metallica, No Doubt, Queensryche and Boyz II Men—have landed in Nashville studios in the last two years, and those types of bookings are critical to the city's future. As the country stereotype recedes and the studio community emerges from its shakeout and consolidation period, the studio base will be substantially stronger and could have even more to offer. Already there are excellent recording facilities, perhaps the world's deepest talent pool of musicians, great producers and engineers, and a well-oiled music business infrastructure, all within a ten-mile radius of Music Row. And with easy parking. ■

GLYPH TECHNOLOGIES, INC.

(Not) Just Ones and Zeros...

It's your art, your life.

Choose only premium digital media storage.

Comes complete with herculean service and crushing technical support.

Contact us for dealer information.

607/275-0345

800/335-0345

email: info@glyphtech.com

GLYPH Technologies, Inc.

www.glyphtech.com

CIRCLE #066 ON PRODUCT INFO CARD

State-of-the-Art, Discrete, Low Z Mic Preamp

Only \$41.67*

*when purchased in this convenient 12-Pack.

Unity™ 2002-12 RQ

The RQ™ Series proves that high performance, state-of-the-art, microphone preamps can exist in groups larger than two! We use the same large geometry, Ultra low Rbb, discrete transistors as in our large format consoles. You could easily spend a lot more money for mic preamps, but since the RQ delivers a Noise Figure within 1.5 dB of perfect, you are not likely to find one for any price that is audibly quieter. Quiet is good.

Only \$49.99 per Mic Pre for the 8-pack

Unity™ 1002-8 RQ

Only \$43.75 per Mic Pre for the 16-pack

Unity™ 2002-16 RQ

Only \$37.50 per Mic Pre when purchased by the full case

Unity™ 2002-24 RQ

CIRCLE #067 ON PRODUCT INFO CARD

SEE US AT NAMM BOOTH #934

Yet another benefit from our **32** years of designing mixers for professional users.

Prices are U.S. Suggested Retail Only. The MONITOR Magazine is a publication filled with the latest information musicians want to know. To receive 4 issues for only \$5 (price good in U.S. only) send check or money order to: Monitor Magazine, World Radio History



PEAVEY
EQUIPMENT THE DIFFERENCE

PUT YOUR HEAD WHERE
YOUR HEART IS...



Come to
New York City

the center of the
recording industry.
Learn recording
engineering at the

INSTITUTE OF AUDIO RESEARCH

Our 6 month
Recording Engineering
and Production Program
includes:
Multitrack Recording,
Mixdown Techniques,
MIDI, Digital Audio
& more. + a diploma
from a world
renowned school.

Call 800-544-2501
212-777-8550
(NY, CT & NJ)

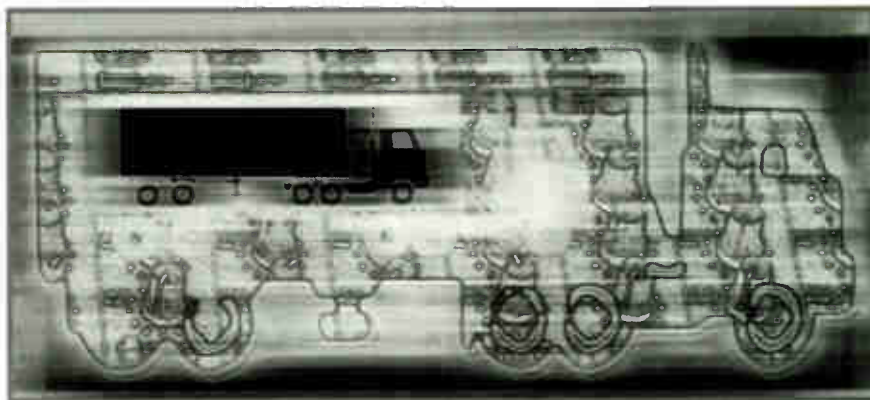
Your focus is music,
our focus is you.



INSTITUTE OF AUDIO
RESEARCH

64 University Place
New York, NY 10003

CIRCLE #068 ON PRODUCT INFO CARD



TRAVELWISE

ROLLING YOUR RACK AROUND

by Dan Daley

Pro audio is more mobile than ever, with a single record project making stops in as many as ten studios along the way. Producers and engineers often want to rely on the constant of their own gear under these circumstances, but while travel can broaden the mind, it can also flatten the rack. So here are some insights into moving your boxes around from Don "Tonto" Genovese, Southeast regional sales director for Rock-it Cargo. Over the past 15 years, Genovese has probably moved more gear than most of us see in a lifetime.

- Pack the interior of the case as tightly as possible, using bubble wrap, to keep pieces from wiggling loose. And select a double-shock-mounted rack for additional protection.
- Know the weight and dimensions of the rack, which is one of the first things the shipper wants to know. "If you're flying between cities like Nashville and Cleveland and Chicago, you're going to get almost all narrow-body aircraft service," Genovese explains. "That means that racks are going to have to be laid on their sides, assuming they can get on at all—airlines have weight and size restrictions on baggage of around 300 pounds per piece. So put arrows on the rack case to indicate which sides should face up if it has to be laid down."
- Consider splitting gear into multiple racks. As noted, the heavier and larger the rack, the more potential restrictions on shipping and the more possibility for damage. As you accumulate gear, start putting items into separate racks to keep each rack more easily manageable.
- Ship early. Not only does additional time help keep shipping costs down, but during certain peak travel periods, like holidays, passenger baggage and mail will take precedence over freight in aircraft holds.
- Make sure you or your shipper provides a carnet for international shipments. The carnet is essentially a passport for your rack indicating that the equipment is coming into a country on a temporary basis, and consequently will not require a deposit. (This is customs' way of making sure you're not bringing equipment in for sale.)
- You can specify air or overland shipping (assuming it's not a rush shipment). However, air freight tends to be more efficient and safe, though it's a bit more expensive. While costs vary widely depending upon weight, dimensions, distance and urgency, you can figure approximately between \$0.80 and \$1.25 per pound shipped between major cities, with the average rack coming in at between 150 and 300 pounds. ■

—FROM PAGE 97, *HIRING A STUDIO MANAGER*
general and your market in particular, and long-term ambitions. If some of these sound like essay questions, they are—and with a specific purpose: You want someone with better-than-average literacy and communication skills in the management position.

Taken together, these points will create a person's "picture of potential." For instance, according to responses *Mix* received to a story on crime in recording studios, the need for personal references has become critical in assessing someone's potential. (And don't take references at face value—check them.) Also, if someone's long-range goal is to become a producer or engineer, they may be looking to use a management position as a foot in the door, and that's not what you're looking for in a manager.

Does appearance count? For better or for worse, yes. It's a person-to-person business, and impressions do make a difference; it's not at all unreasonable to expect someone to represent the facility professionally. Broadcast houses might want a jacket and tie every day; music studios might be comfortable with jeans and a shaved head. Appearances are relative—one studio's Marilyn Monroe is another studio's Marilyn Manson.

What are the most important qualities to look for in a studio manager? First and foremost, the candidate has to want that particular job, not a roundabout route to sitting behind a console. Experience is important, but it doesn't necessarily have to come from within the studio business. Managing a studio is similar to managing any other business, and management experience in other industries can bring with it new ways of looking at old studio issues. For example, is your studio's benefits package the best available for the cost? Are the proper book-keeping/financial reporting structures handled efficiently and regularly? Are you soliciting bids from the broadest range of vendors? Are there defined job descriptions and responsibilities? Is there a way to cut back on overtime and/or relieve stress? All these questions are dealt with each and every day in the business world. Pro audio should be no

different.

Still, without question, familiarity with pro audio technology and the types of clients that a facility gets is also important. Studio managers have been drawn from the ranks of musicians and former pro audio salespeople, as well as graduates from academic audio-music industry programs. And considering the way Gibson had been advertising Les Paul guitars in *Vanity Fair*, there are probably a few wannabes on Wall Street, too. The pool of people who have some knowledge and experience with technology is vast. The key is finding someone who has the managerial skills, as well.

Academic programs are a good source of managerial talent. Some of the larger schools have implemented studio management courses, such as the one at Middle Tennessee State University's Department of the Recording Industry four-year program in Murfreesboro. The course is an elective, and it's been very well-attended, says associate professor Doug Mitchell, who adds that studios have been calling the school to inquire about management candidates, as well as engineering interns, in recent years. The department also offers minors in business administration, marketing and, most recently, entrepreneurship. "Not everyone who comes into the program finds that they want to be an engineer," says Mitchell. "But many of them do find that they want to be in the studio business in other ways. And studio management these days calls for a lot of varied business skills."

STRATEGIC AND TACTICAL

Management is a broad term. Its root lies in *manus*, Latin for "hand." And hands-on studio management covers a wide range of areas, from the routine tasks of making sure the studio is properly supplied with everything from 2-inch tape to Scotch tape, to creating marketing strategies for the facility, hiring and dealing with other employees, customer support and follow-up, etc. But remember, the manager should fit the studio, both in personality and skill level—someone running a multiroom facility is going to have to deal with a different set of issues than in a single-room studio. One difference

Record Deals.

Publishing Deals.

Film/TV Music Deals.

Foreign Deals.

We're Not Kidding...

But you won't know that unless you call this toll-free number and request our FREE information kit.

1-800-458-2111



TAXI

The Leader in Independent A&R

CIRCLE #069 ON PRODUCT INFO CARD

**WE'RE NOT EVEN CLOSE...
TO BEING THE FASTEST GROWING
MUSIC RETAILER IN THE U.S.A.**

**SO WE HAVE TO TRY HARDER TO
PLEASE YOU AND CHARGE LESS.**

**NO CLARINET LESSONS, NO CHEAP GUITARS!
BUT WE HAVE PRO-RECORDING, P.A. AND
BROADCAST EQUIPMENT, CUSTOM WIRING
AND TECHNICAL EXPERTISE AT YOUR SERVICE.**

1 (800) 541-9140



**NATIONAL SOUND ENGINEERING
6500 McDONOUGH DRIVE C-9
NORCROSS, GEORGIA 30093**

VISIT OUR WEB SITE AT: www.natlsound.com

CIRCLE #070 ON PRODUCT INFO CARD

is basic philosophy: Single-room studios often pride themselves on the extra degree of privacy and attention that they can offer clients, while multiroom studios offer scheduling convenience and a wider array of technology. A highly focused concierge-type personality might be better suited to the former, while a more flexible person might be a better juggler at the latter. No one knows your facility better than you, so use your own experience to formulate scenarios that become part of the interview: If so-and-so calls and wants a specific type of limo, how do you handle it? If the afternoon session cancels at the last-minute, how do you fill the room and pick up the cancellation charge? Better yet, how do you anticipate those kinds of needs?

Assistant engineers are used to the concept of trial periods, but that's less the case in management. A trial period is implicit in any hiring, but don't make the relationship between you and a new manager tenuous from the start by saying, "We'll see how things work out." Instead, let a new employee know that you're behind him or her and that you expect proactive management of the studio. And always leave your door open. Showing that kind of confidence from the beginning can help a new relationship get off to the best start possible.

The age of the studio owner/manager has been eclipsed by an emphasis on specialization. That's not too surprising, since that's also what's been happening on the engineering side, as mix engineers can now be differentiated from tracking engineers, and remixer and post engineers have become industries unto themselves. If studio owners are placing an increased emphasis on specialization in production, it only makes sense for them to put the same sort of care into choosing who will run their day-to-day operations. After all, nobody wants a first impression to be the only impression. ■

Boxing the sound of General Mills

Fortified with essential isolation
No muss, no fuss, no pans to wash, no
concrete to pour, no studs to saw

Hear unwanted noise just drop away
from hips, ears & thighs

voice-over room

production room

sounds healthy

ACOUSTIC SYSTEMS
800 749 1460
acousticsystems.com
The science of silence

mobile modular
relocatable
excellent insulation
compact
proactive
less expensive

CIRCLE #071 ON PRODUCT INFO CARD

EVOLUTION

PXm



PXm250*

175W into 2 ohms
 125W into 4 ohms
 75W into 8 ohms

PXm450*

275W into 2 ohms
 225W into 4 ohms
 150W into 8 ohms

PXm900*

550W into 2 ohms
 450W into 4 ohms
 300W into 8 ohms

*PXm Features

- Clip Eliminators
- Adjustable HP Filters
- 1/4" TRS & XLR inputs

The PXm amplifiers, from Carver Professional, expand the already impressive PX Series. The PXm amplifiers deliver powerful bass response, with dynamic clarity, low impedance endurance, an enhanced feature set and weigh in at less than 30 pounds. If you are a DJ looking for your ultimate system, the hottest new band on the club scene, or a sound contractor, needing big bang for the buck, look no further. Hear the PXm amplifiers at your Carver Professional Dealer. Unbelievable performance and remarkable value added to Carver Professional's Five-Year Warranty and 180-Day Performance Guarantee place the PXm amplifiers ahead of all their competition. It's time you listened to the PX Series!

SEE US AT NAMM BOOTH #2003

CARVER

P R O F E S S I O N A L

A division of Phoenix Gold International, Inc. • 9300 North Decatur • Portland, Oregon 97203
 P: 503.978.3344 • F: 503.978.3302 • www.carverpro.com

PXm450

CIRCLE 103 ON PRODUCT INFO CARD

ACTIVE DIRECT BOX TESTS



SEVEN FOR THE ROAD

On the road, active direct boxes are often taken for granted, with sound engineers and stage techs routinely grabbing the same old DI out of the work box. Musicians and P.A. companies spend thousands of dollars on the finest guitars and monitors with little thought to their connection. We wanted to check out several new active direct boxes that have come on the market recently and compare them to the leading active DIs used for live sound.

Seven DIs were chosen for this survey, representing some of the top products used in touring: The ARX DI-1, the BSS AR-133, the Countryman Type 85, the Whirlwind HotBox, the Klark-Teknik (K-T) LBB-100, the Radial Engineering (Cabletek) JDV and Rapco's ADB+8. Passive and tube DIs were not included, as we wanted to compare "apples to apples," although they have their own applications. After these DIs were used for many months on tour with k.d. lang and on regional shows with Relles Sound of Eugene, Ore., bench testing and group listening tests were conducted at the author's Everett Station Labs in Portland, Ore.

BY MARK FRINK

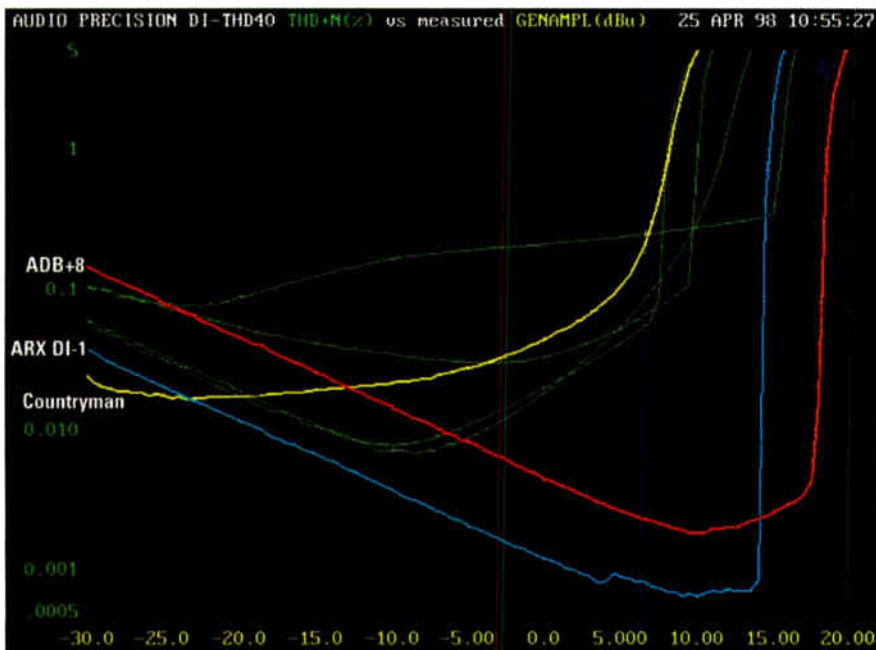


Figure 1: THD measurements using a 40Hz sine wave input: At lower input levels, the JDV and Countryman were lowest, with ARX and HotBox tied for third. At higher input levels, the ARX and Rapco had lowest THD. X-axis represents input level.

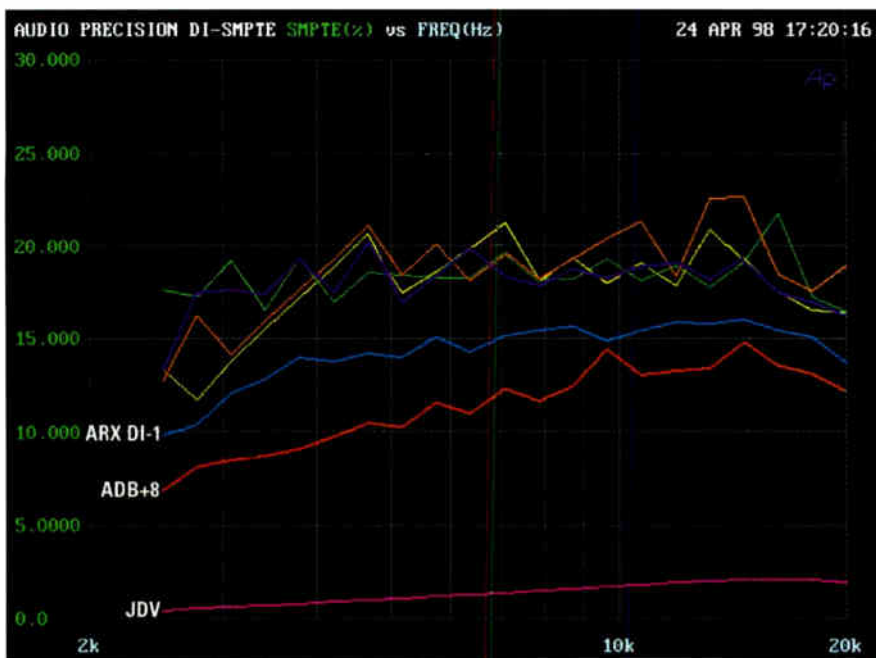


Figure 2: The IMD measurement was taken using the SMPTE method. Note: The JDV (lowest response) is a Class A design.

All DIs tested were pin 2 hot, except the Countryman. Keep this polarity difference in mind when using the Type 85 in combination with other sound sources or other makes of direct boxes: You might consider either permanently labeling them "pin 3 hot" or resoldering them.

DESIGN FEATURES

The BSS AR-133 is a refined, repackaged and slightly less expensive version of the old AR-116. Gone is the lowpass filter (which only works when the pad

is in) and the phase switch. Added are 2 dB of headroom, a .5dB tilt toward the low end and a stylish aquamarine aluminum chassis with rubber end caps to protect it from the rigors of the road and from grounding out to an amp's chassis.

The other DIs are based on the Countryman's mechanical design, with the guts sliding into a rectangular aluminum sleeve. Unlike the Countryman, most of these can be repaired, should they need it. Actually the Klark needn't be opened, as it has no battery, nor do

you want to open it, as the ends are mounted to the internal PC board. The Rapco is the largest, with the ARX a close second. All but the Countryman have something to prevent contact with an amp's chassis. The JDV has a neoprene pad across the bottom, while the other four have little (and in the ARX's case, not-so-little) rubber feet.

The ARX, HotBox, JDV and Rapco are transformerless. The BSS, K-T and Countryman all exhibit a rise in distortion below 80 Hz due to their use of a transformer, with the BSS showing the least. However, sometimes a little iron between the pickups and the consoles is what's needed to cut RF interference.

POWER

The Countryman and Rapco lack phantom power LED indicators, which are invaluable in troubleshooting situations. In the case of the K-T, since it only runs on phantom, an indicator is also indispensable. The ARX has a momentary switch to check its batteries when a jack is plugged in. On the BSS and HotBox, the power LED indicates phantom power. On the JDV, a momentary switch lights an LED when a jack is plugged in to show an adequate charge on its Ni-Cad battery pack, and it does not run on phantom power.

The ARX, the HotBox and the Rapco all require two 9-volt batteries, while the BSS and Countryman use just one. The JDV runs on an internal Ni-Cad battery pack that recharges in a couple of hours from a DC wall wart and discharges over 24 hours. Because it does not "deep-cycle," it won't suffer from memory effect. The BSS and Rapco both have a power switch that must be turned on (and off!) and an LED that winks to confirm the battery's charge (continuously on the BSS, once on the Rapco). The ARX, Countryman, HotBox and JDV are turned on only when a 1/4-inch jack is plugged in. Changing batteries is easiest in the ARX, which slides open, and the BSS, which has a small door that unfortunately is not captive. The Countryman, Rapco and HotBox are all opened with a Phillips screwdriver. The ARX can also run on any 7- to 12-volt DC power supply. The JDV never needs changing.

Batteries are the bane of the stage tech's existence. How many times have you asked musicians whether there's a battery in their guitars, only to get a blank stare? Batteries in DIs serve not only to provide backup to phantom power from the console, but sometimes are a better source of power. The ARX

and Rapco improved their performance slightly running on batteries and, in the case of the ARX, on a DC power supply.

Consoles with a heavy phantom load, bad mains AC or a poorly regulated supply may produce phantom power that degrades a DI's performance. We used a 9-volt-powered switching supply that operates at a frequency of 10 kHz to simulate noisy "brown-out" phantom power of 36 volts. We found that the Countryman more than doubles distortion for signals below -10 dBu, but this impaired performance still beats many other DIs. The Klark's headroom drops by over 10 dB, to under +5 dBu. Other DIs tested were mostly unaffected unless they had dead batteries. When did you last check the batteries in your DIs? (Don't give me that blank stare!)

COMPARISON METHODOLOGY

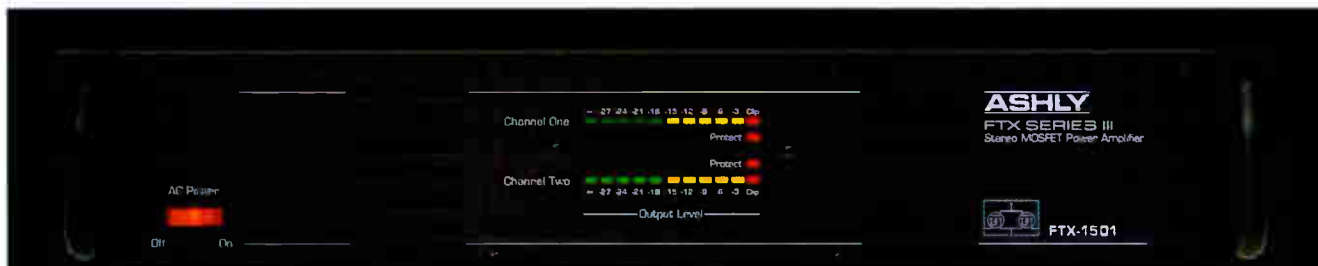
Formal listening tests were conducted first so that subjective opinions would not be colored by technical specs gathered during the measurement phase. Guitar tech Ron Johnson of Carruthers was on hand to assist with fine-tuning the instruments and lend his ears. Several musicians, each with different musi-



Seven DIs were put to the test (clockwise from top): K-T LBB-100, Countryman Type 85, Rapco ADB+8, ARX DI-1, Cobletek JDV, Whirlwind HotBox and the BSS AR-133.

cal interests and styles, participated. For speakers, we alternated between a Meyer HD-1 studio monitor and a Meyer UM-1P floor monitor. Guitars used included two beautiful Taylor 414 acoustic 6-strings, one with a Baggs Ribbon transducer and another with a Fishman Matrix pickup; other guitars used in-

cluded a Fender P-Bass Special, which has both Jazz and Precision pickups, and a Carruthers nylon electric. We also used a Spanish custom-made rosewood acoustic with a passive pickup and a Gibson Les Paul. Listening tests were conducted using a Whirlwind Multi-Selector FS to select from a bank of four



3 POWERFUL REASONS TO CHOOSE ASHLY'S FTX SERIES III POWER AMPS

1 FTX AMPLIFIERS ARE MORE RELIABLE

Ashly's FTX Series III amps have a fully modular design and combine metal-can MOS-FETs and high-tech thermal components for advanced heat dissipation. Rugged all-metal construction, and our 5-year worry-free warranty, ensure that your sound system will continue to operate at peak performance.

2 FTX AMPLIFIERS ARE MORE PRECISE

Our Class A amplification provides incredibly precise yet musical sound that rivals high-end studio-monitor amplifiers. The FTX Series III let you drive the amplifiers to their maximum output without compromise throughout the entire frequency spectrum.

3 FTX AMPLIFIERS ARE MORE FLEXIBLE

A full range of plug ins including compressor/limiter, 2 and 3-way crossover and mic/line mixer modules allow you to customize the FTX Series III for virtually any application. Rated output per channel at 4Ω: FTX-1001—175 watts RMS, FTX-1501—300 watts RMS, FTX-2001—500 watts RMS.

ASHLY

ASHLY AUDIO INC. 847 HOLT ROAD, WEBSTER, NY 14580-9103 • TOLL-FREE TEL: 800-828-6308 • TEL: 716-872-0010 • FAX: 716-872-0739 • VISIT US ON THE WEB: www.ashly.com
IN CANADA: GERRAUDIO DISTRIBUTION INC • TOLL-FREE TEL: 888-462-8346 • IN MEXICO: COMERCIALIZADORA GONHER S.A. de C.V. • TEL: 52 (17) 16-82-00

Power Amplifiers • Graphic Equalizers • Parametric Equalizers • Crossovers • Remote-Controllers • Mixers • Signal Processors

EXPERIENCE THE WARMTH OF AKG'S SOLIDTUBE MICROPHONE.

John Guess and AKG's SOLIDTUBE Microphone Bring The Warmth of Sound to The Studio.

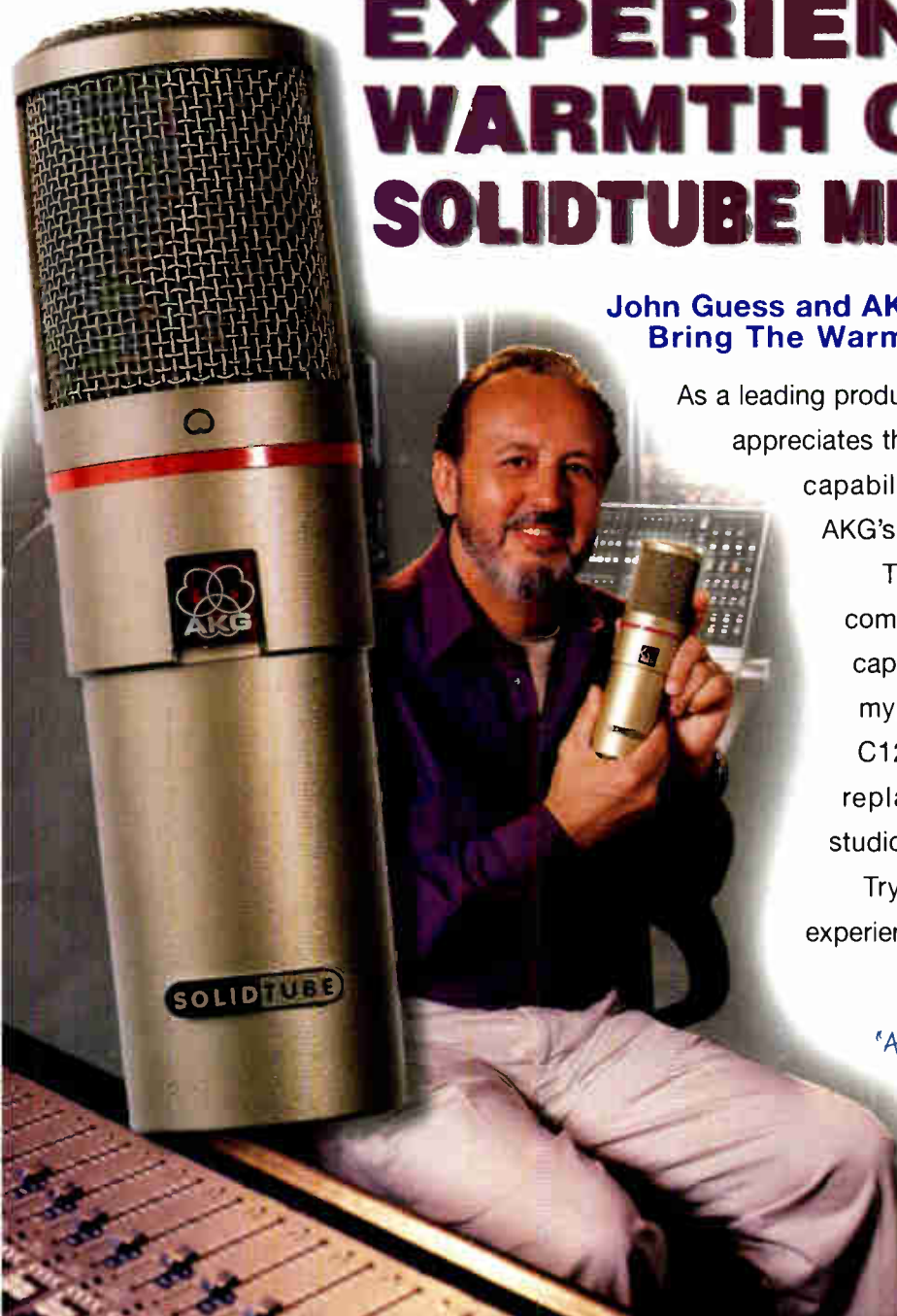
As a leading producer and studio engineer, John Guess appreciates the rich sound, ruggedness, high SPL capability, and extremely low self-noise of AKG's new SOLIDTUBE microphone.

The heart of AKG's SOLIDTUBE is the combination of the capsule and tube. The capsule features the same gold-sputtered mylar material as used in the legendary C12. The ECC 83 (12Ax7) tube is field replaceable and available at most pro studio dealers.

Try out the new AKG SOLIDTUBE and experience the warmth.

"AKG's SOLIDTUBE is the best overall value of any high performance condenser tube microphone that I've ever used."

John Guess



LEGENDARY STUDIO QUALITY BY

AKG Acoustics U.S., 1449 Donelson Pike, Nashville, TN 37217,
phone: 615-360-0499, fax: 615-360-0275.
AKG Acoustics G.m.b.H. Vienna/Austria, <http://www.ake-acoustics.com>



H A Harman International Company

World Radio History
CIRCLE #074 ON PRODUCT INFO CARD

**PRO
TOOLS**

LEARN AUDIO RECORDING AT THE CONSERVATORY LIKE NOWHERE ELSE.

Avid | Authorized
Education Center

- Multi-Studio Facility
- Hands-on Training
- Affordable Tuition
- Internships
- Small Classes
- 22 Week Master Recording Program
- Financial Aid to Qualified Students
- Our Graduates are in Demand

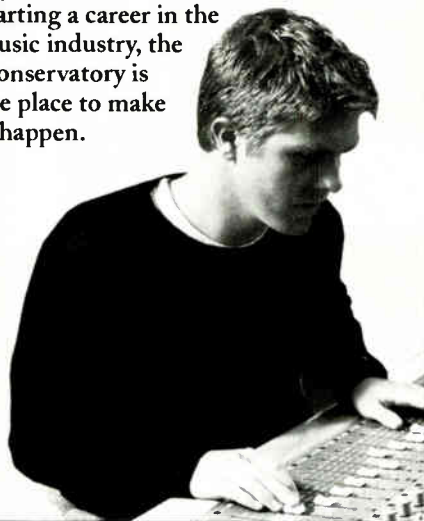
Call Today!
1-800-562-6383

CONSERVATORY
Recording
Arts & Sciences

2300 East Broadway Rd.
Tempe, AZ 85282

DC&A 1997

The Conservatory is the only recording school in the *entire country* that's authorized by Avid to teach ProTools recording, editing, and mixing functions. If you're serious about starting a career in the music industry, the Conservatory is the place to make it happen.



CIRCLE #075 ON PRODUCT INFO CARD

direct boxes hidden from view. Each bank was randomly chosen, matched for gain and the process repeated.

Finally, measurements were performed with an Audio Precision (AP) System One, with a 47k resistor used to load each DI's input. Along with gain, signal-to-noise and phase response, we used the AP to examine total harmonic distortion (THD) with first 1k and then 40Hz sine waves, with amplitude swept over 50 dB to simulate the range of contemporary stage instruments' signals. To look beyond these results we also tested intermodulation distortion (IMD) to see how cleanly the DIs reproduced musical signals.

The bench tests cleared up several of the seemingly contradictory observations made by several listeners. Comments like "cloudy lows," "covered-up highs," and simply "missing something" became meaningful when examined in the context of bench test results.

Of course, listening observations are subjective, and playing style and musical context can determine the preference for one DI over another, but there can be no doubt that the choice of direct box affects the sound of instruments. And rather than present the listening results in the form of long-winded comments reminiscent of wine tastings (i.e., "the HF had a distinct effervescence, while the mids were dry with a hint of tolexed birch ply..."), we simply listed the group's overall consensus in each of several categories.

THE RESULTS

We began our measurements by examining gain and, to no one's surprise, found the seven DIs varied in gain features. The BSS, K-T and Rapco direct boxes all produce unity gain, while the HotBox produces -8 dB. The Rapco ADB+8 has a three-position switch to add 8 dB (hence the name) or subtract 16 dB. The K-T has a -15dB attenuator, and all four have pads, allowing them to be used with line- or speaker-level inputs: -20 or -40 dB on the BSS; -40 dB on the Rapco; and -30 dB on the K-T. The HotBox has a three-way switch providing -20 dB of attenuation in the "line" position and 55 dB in the "speaker" position.

The ARX, Countryman and JDV direct boxes have output levels of +4, -10 and +2 dB, respectively, relative to input. The ARX has a recessed potentiometer, allowing its output to be variably increased by up to +20 dB. The JDV has a 10dB input pad and, like the ARX, is not intended for speaker level input. The Countryman has no line-level pad, but a "speaker"

Your Mother was right...
you do play better with a little self-control!

Psychologist



Individual Remote Controlled Monitor Mixing System

- ✓ Every artist controls their own custom mix.
- ✓ Speed up pre-show monitor mixing time.
- ✓ Eliminate compromises and hassles — artists hear only what they want to hear.
- ✓ Create up to 16 unique monitor mixes using your console's direct outs.
- ✓ Greatly extend your board's monitor mixing capacity.

For product and specs, see www.intelix.com.

Call Intelix today for Self-Control

Middleton WI • USA • **608-831-0880**

fax (608) 831-1833 • intelix@intelix.com

intelix

CIRCLE #076 ON PRODUCT INFO CARD

position has -50 dB of attenuation.

Next we looked at signal-to-noise. The Countryman and JDV topped out at better than 110 dB. Next were the BSS and the HotBox at better than 100 dB. The K-T and ARX had better than 90 dB, while the Rapco measured 87 dB. The lower noise floor provided by the Countryman and the JDV make them a better choice for acoustic guitar pickups without preamps (no 9-volt battery in the axe), and both maxed out at about +10 dBu.

THD measurements were performed within a 22 to 22k Hz band. THD testing was first performed at 1 kHz while sweeping the level from -30 up to +20 dBu. At 1 kHz, the BSS, ARX and the Rapco exhibited the lowest THD for the widest range of inputs. At low input levels, the Countryman, JDV and BSS were the quietest. At the highest levels, the K-T, Rapco, ARX and BSS performed the best, with the Rapco having the most headroom, followed by the K-T, with the ARX and BSS in third. However,

simply testing with a 1kHz sine wave can be misleading.

Using a 40Hz sine wave is a little more strenuous and simulates the lowest notes from a bass guitar, as seen in Fig. 1. At levels below -20 dBu, the JDV and Countryman had the lowest THD, with the ARX and HotBox tied for third, making them good choices for guitars with passive pickups. On the right side of the graph we can see that the ARX starts to "brick-wall" at +14 dBu and the K-T at +15, while the Rapco is good until +18 dBu. The JDV and BSS are in trouble after +10 dBu, while the HotBox and Countryman are out of headroom

after +6 dBu, but each of these has a line-level pad (except the Countryman, which jumps to speaker level).

At the higher signal levels that would be produced by synths and electric basses with active electronics, the ARX and the Rapco are clean for hot signals, while the JDV's THD begins climbing. All three consistently placed as favorites, yet the JDV was the hands-down winner on most listening tests. Could the JDV be exhibiting "good" distortion?

This prompted us to take a different approach and look at intermodulation distortion (IMD). One common IMD measurement is the SMPTE method, which

PRICING & CONTACT INFO

ARX DI-1 (\$110 direct)
www.arx.com.au
818/225-1809

BSS AR-133 (\$185 list)
www.bss.co.uk
615/399-2199

Cabletek JDV (\$299 list)
www.radialeng.com
604/942-1001

Countryman Type 85 (\$231.70 list)
www.countryman.com
650/364-9988

Klark-Teknik LBB-100 (\$196 list)
www.eviaudio.com
616/695-6831

Rapco ADB+8 (\$208 list)
www.rapco.com
573/243-1223

Whirlwind HotBox (\$189.95 list)
www.whirlwindusa.com
716/633-8820

Note: All prices listed are suggested retail, except for the ARX products, which list factory-direct prices. The ARX DI-1 is also available as the DI-2, a 2-channel version, for \$165. ■

CABLE REELS

It's a Whole New Spin on the Broadcast Business!



Hannay reels, a better way to work.

What's our spin on things? How about the fact that we offer a faster, easier, and cleaner way to work! Whether you have various setups at one location, or you're all over town - we'll keep you rolling! TV, radio, satellite, cable and mobile production facilities all benefit from Hannay's better way to work. We meet the need! We'll save on expensive cable replacement and keep everything neat with compact storage. Call today for a Hannay Reels dealer near you: 518-797-3791.

 **Hannay Reels**
The reel leader.

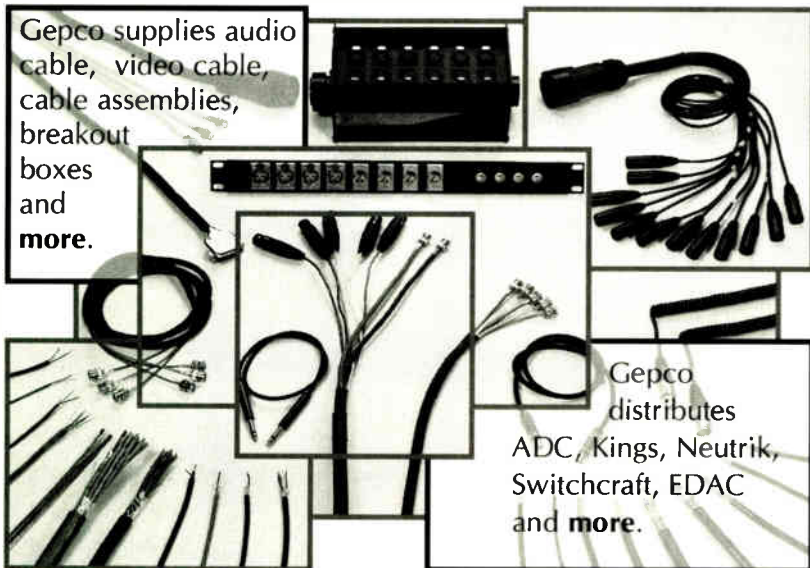


553 State Route 143, P.O. Box 159 • Westerlo, NY 12193-0159 • Fax: 1-800-REELING • www.hannay.com

CIRCLE #077 ON PRODUCT INFO CARD

Cabling Solutions from Gepco

Gepco supplies audio cable, video cable, cable assemblies, breakout boxes and more.



Gepco distributes ADC, Kings, Neutrik, Switchcraft, EDAC and more.

Innovative, Quality Audio and Video Cable Products

GEPSCO
INTERNATIONAL, INC.

1-800-966-0069

CIRCLE #078 ON PRODUCT INFO CARD

uses dual-sine wave stimuli consisting of a low-frequency (LF) tone (60 Hz @ 0 dBu) combined with a high-frequency (HF) tone at one-quarter the amplitude (7 kHz @ -12 dB). After filtering, IMD products appear near the HF tone spaced at multiples of the LF tone and are measured as a percentage of the HF tone. In our version, we swept the upper signal's frequency from 2.5 to 20 kHz (see Fig. 2). The JDV is the clear winner, with the Rapco ADB+8 a distant second, the ARX DI-1 in third and the others tied for fourth close behind. It should be noted that the JDV is a Class A design. The highest spikes on the graph belong to the Countryman.

In phase and polarity testing, the JDV exhibited the smoothest phase response, with the Rapco placing second, which again was how these two ran in many listening tests. Above 10 kHz, the Countryman exhibited nearly twice as much phase shift, with the others falling halfway between.

It would be great if one direct box were best for every application, but since we apply this criteria to our microphone inventory, it follows that some DIs have application-specific advantages. Musicians will find it interesting to make their own comparisons. Several listeners chose a favorite that favored their guitar pickup, playing style and taste. Many commented that a particular model made them feel better about their playing. As with microphones, making a comparison is as easy as plugging into two channels on your console and matching the gain—you can even use an AB box to go back and forth.

I know that many readers use articles like this to confirm choices they have already made. Let those of you with aging DI inventories be warned that the performance of your oldest boxes will deteriorate long before they fail. For example, we compared the specs of some really old Countryman Type 85s with the new one and found quite a bit of variation. The time to replace your old DI is before it breaks. Don't take our word, though: Get a few musician friends together and have your own listening test. Don't worry; you can still use your old DIs to prop up stage monitors! ■

Mix sound reinforcement editor Mark Frink predicts a direct box category for the TEC Awards will come about sometime in the next millennium. He wishes to thank several technical gurus for their help: Fred Bijeh, Jim Kelsey, Lloyd Baggs and Bob Taylor.

Finally.

A practical computer display for your studio.

Face it: big, bulky CRT monitors never made sense in the cramped conditions of a studio. Now there's a better solution. At just a fraction of the weight and depth of a CRT monitor, flat-panel displays from FlatWorks will work with your Mac or PC systems, and are available in a variety of sizes to meet your specific needs.



FlatWorks is the leader in flat-panel display solutions, offering all of the major brands including Akia, IBM, NEC, Sceptre, Samsung, and ViewSonic. You can order one right now from our Web site, or please call (425)456-0042 for more information.

FlatWorks
The Flat Panel Display Experts.
www.flatworks.com

Fax (425)456-0043 Email: info@flatworks.com



CIRCLE #079 ON PRODUCT INFO CARD

YOU'VE NEVER SEEN 3-WAY LIKE THIS BEFORE!

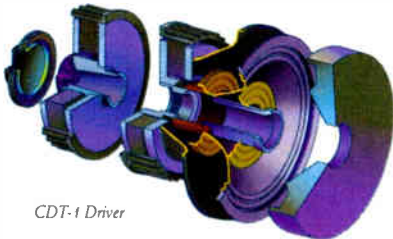
Your first thought might be: Where is the second horn?

The answer: Our patented new CoEntrant driver allows us to use a single horn for the mids and highs, providing point source performance from 500 Hz to 17 kHz. The result is unmatched mid/high control and clarity. And there is more. This cabinet is loaded with so many unique new features, we decided to open one up for you to see:



Patented CDT-1 CoEntrant Driver

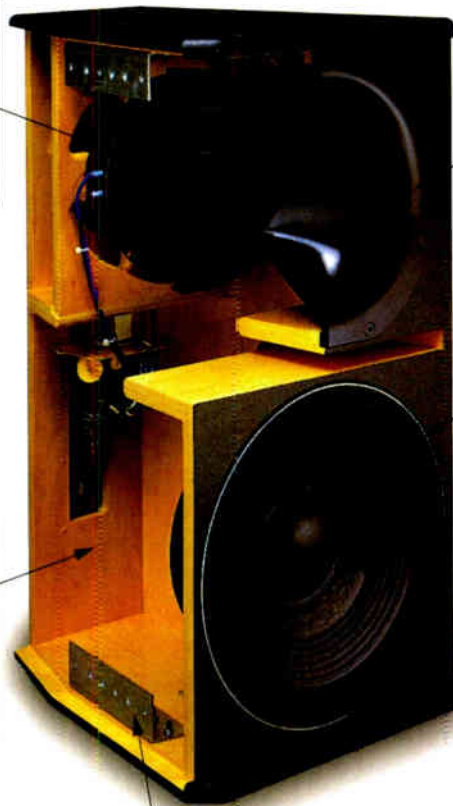
The CDT-1 combines the output of an 8" mid range and a 1" high frequency driver in a single device. Mounted to a 2" Complex Conic horn, the result is true point source performance from 500 Hz to 17 kHz.



CDT-1 Driver

Rugged, Compact Cabinet

As the CoEntrant design allows one horn to reproduce both the mid and high frequency bands, the SR6 & SR7 cabinets are smaller than conventional 3-way systems in their performance class. Only the finest 13 ply Finnish birch is used to build the cabinet. Rigid internal bracing makes for improved low frequency performance, and excellent durability.



Exclusive Horn Design

Complex Conic WaveGuide Technology™ smooths out the rough edges of traditional horn designs and provides excellent transparency, low distortion, and consistent coverage. You have a choice of coverage angles, and you can easily rotate the horn (i.e. the entire mid/high section!) in the cabinet. This is a first for a 3-way loudspeaker!

High Power Woofers

Heavy-duty 12 & 15 inch woofers for the low frequency sections feature 4 inch voice coils and proprietary cone treatment for maximum power handling and low distortion.

Matched Electronics

A built-in crossover network for the mid/high sections makes this a 3-way, bi-amped cabinet. We also offer controllers and amplifiers that are carefully designed and matched to the SR6 & SR7 for optimal performance and reliability, and to make the installation as fast and trouble-free as possible.

Integrated Flying Hardware

You can chose between Aeroquip fly-tracks or our cost-effective UMH-12 Universal Mounting Hardware.



Amplifier with
plug-in Controller

Now that you've seen what's in the SR6 & SR7, we challenge you to put them through critical listening tests.

Few three-way systems can approach the price/performance and sound quality of these new cabinets.

Call us or your local Renkus-Heinz representative for a demonstration.

We think you will agree. 3-way never looked or sounded this good!



RENKUS-HEINZ

17191 Armstrong Avenue, Irvine, California 92614 Phone 949-250-0166, Fax 949-250-1035
4 Hunton Gardens, Canterbury, Kent CT2 7TT, UK Phone +44 1227 452947 Fax +44 1227 463061
Visit us at www.renkus-heinz.com E-mail: renkus-heinz@renkus-heinz.com

©1998 Renkus-Heinz. CoEntrant WaveGuide Technology (U.S. Patent # 5,526,476) and Complex Conic WaveGuide Technology are trademarks of Renkus-Heinz.



CIRCLE #080 ON PRODUCT INFO CARD

World Radio History

COMPUTER CONTROL

IT'S COMING, BIT BY BIT

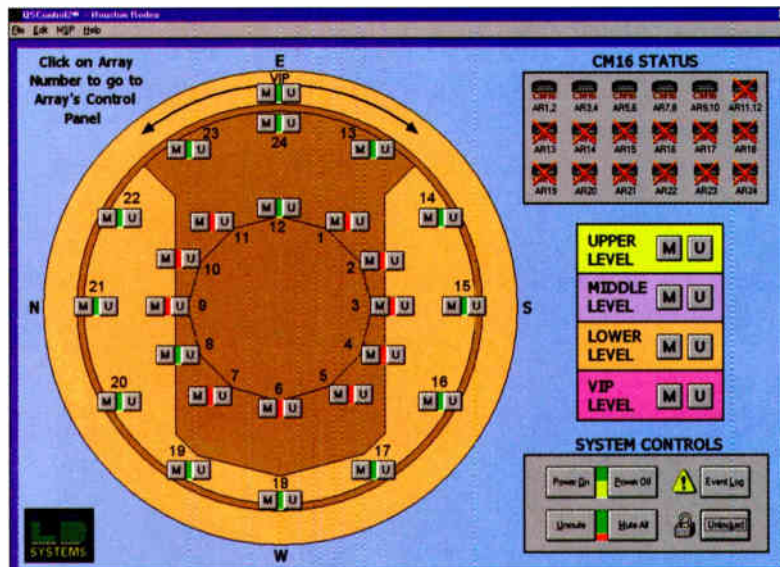
For the past several years, the number of computer-based control systems available for controlling audio equipment and distributing professional-quality audio in real time has been steadily growing. NSCA's Expo '98 in Las Vegas offered an opportunity to catch up with the latest developments.

Several manufacturers have adopted existing computer networking technologies as a transport and control medium. Peak Audio (Boulder, Colo.) offers CobraNet, an audio networking product designed to operate over a standard 100 Base-T Ethernet network and capable of carrying 64 channels of digital audio (20-bit, 48 kHz, uncompressed) on a single CAT-5 or fiber-optic cable. All network audio connections are via RJ-45 or fiber-optic I/O connectors; CobraNet also provides for the transmission and distribution of control data under RS-422, RS-485 and RS-232 protocols.

A significant advantage of CobraNet is that Ethernet is widely supported and understood in the telecommunications and computer industries, and prices are stable or declining. Ethernet cabling costs are relatively low, even for large installations, and an installer and/or system integrator can safely delegate network design and wiring issues to a non-audio network specialist.

Perhaps CobraNet's most important feature is its wide acceptance; Crown, EAW, LCS, Peavey, QSC, Rane and Telex have all licensed CobraNet technology for integration into their networked products. Because all CobraNet products are compatible, the integration of multiple manufacturers' products in a complex, computer-controlled system should, in theory, be simplified. A possible drawback in some situations is that network propagation delay, though minimal and predictable, is unavoidable.

Though CobraNet will carry



A custom QSCControl2 amplifier interface designed for the Brooks & Dunn Tour, an example of an application that can be built without actually writing any code. All elements were selected from an existing menu of QSCControl2 OCX virtual devices or objects, and simply mapped to the graphic by using the Visual Basic drag-and-drop interface. Double-clicking on any device icon on the main screen brings up a sub-screen showing the device's operating parameters, allowing interconnections and operating conditions to be modified with a mouse click.

control information, some users will want to keep the two systems separate, with CobraNet dedicated to audio only and control and monitoring information sent over standard asynchronous TCP/IP and Ethernet networks. QSCControl2 from QSC Audio (Costa Mesa, Calif.) is an example of a standards-based system for controlling and monitoring audio equipment over an Ethernet network, and may also be integrated with audio signal over CobraNet. QSCControl2 is also one of a growing number of equipment control systems that provide system designers with active-X controls for the Visual Basic programming environment, allowing them to create their own venue-specific computer control programs by simply manipulating screen objects. The new QSCControl2-compatible CM16 Power Amplifier Controller is designed to provide control and monitoring capabilities for up to 16

QSC power amps in a networked audio system. Price of the CM16 is \$4,285.

Other new network-based computer control products on display included the OMNInet series of network products from BEC Technologies (Orlando, Fla.), a flexible networking system designed primarily for integrating and controlling various media in a large facility or campus. OMNInet offers various digital audio distribution options, including 16-, 20-, 24-bit and AES/EBU I/O modules. Also being introduced was the Conductor³ hardware and (Windows-based) software system for audio-visual and show control from Belgian company Avenger (distributed by Production Arts Lighting, Moonachie, N.J.).

DESIGN A VIRTUAL SYSTEM

Falling DSP prices have led to the development of several products that effectively replace hardware devices such as equalizers, delays, dy-

BY CHRIS MICHIE

—CONTINUED ON PAGE 121

**TOUR
PROFILE**

PAULA COLE LIVE

Paula Cole's unusual, intelligent, fun and surprisingly radio-friendly hits have provided welcome relief for music fans tired of all the noise, funk and pop pap that seems to have become inescapable on commercial radio. Her music charms, provokes and covers a lot of stylistic ground—from serious, sensitive Lilith Fair-ready folk to aggressively sexy uptempo numbers. And this all-over-the-map image works for her, going counter to the conventional wisdom that says an entertainer has to fit into a clearly defined slot.

The 30-year-old Massachusetts native currently makes her home in Manhattan, but thanks to the growing success of her young career, she is rarely seen 'round the Big Town. Phil Sullivan, who has been molding Cole's live sound since she began touring (with only he and drummer Jay Bellerose traveling together in a van), explains: "The singles have been doing well, and Warner Bros. has been very supportive, so we've been out constantly since the *This Fire* CD was released in October 1996—with a few weeks off every few months."

A dark, rainy late April day found Sullivan at New York's gloriously extravagant old Beacon Theater in the heart of the Upper West Side, watching the load-in onto the big stage. He observed with particular care as a large case was rolled in and Cole's Baldwin baby grand piano was lowered from its vertical, legless traveling position.

"Very few pop acts tour with a real piano, taking it from date to date," he says. "Ben Folds Five is one of the few other acts that carries one. We do it because Paula really likes the feel of a real piano, and she's very comfortable with this particular piano. And Baldwin has been great to us. We don't take it when we do flying dates, of course, when we rent all our gear locally anyway. But we still rent a

baby grand at each date.

"We don't have a piano tech, per se; our drum tech sets it up," Sullivan adds, explaining that piano tuners are hired locally for each date. "Some are better than others; we live with that. Wet weather in outdoor shows also messes with the tuning, but that is rare." However, the lack of a piano tech means occasional serious problems. "Paula can play hard; she's broken keys, and you can't just FedEx a new electronic keyboard; you have to be sure the keys are fixed for the next night. I've spent a lot of time on the phone with Baldwin."

The extra effort of carrying the piano is ameliorated by the fact that the Cole show has not been carrying a full production rig to each date. "I have my own front-of-house desk and a full monitor rig, but we bring in racks and stacks for each date, often from Eighth Day Sound from Cleveland, which provides the rest of our gear," Sullivan says. "We've been doing a lot of festival dates, and we're afforded the luxury of bringing in our own desk, but you can't fly your own speakers for a 40-minute set! So it just wasn't economically feasible to have speakers and amps sitting on the truck for half of the tour."

The show often uses the compact Turbosound Flashlight Floodlight speaker system, which Sullivan says has "a nice character for Paula's voice." Sullivan adds that they are comfortable with a compact speaker system because the show is not particularly loud, "although there are times when it gets up there."

He offers as proof a story about a show at the Santa Barbara Bowl: "Two city employees stood right at the console with computers and microphones to monitor the levels. Their limit was 103 dB at the mix position. Only occasionally was I over it; most of the time I was right about there.



Phil Sullivan at FOH position with a Yamaha PM3500

BY ERIC RUDOLPH

—CONTINUED ON PAGE 124

ALL ACCESS

Amy Grant



Behind The Eyes Tour 1998

All Access



Monitor engineer Rob Bull says he chose the Midas XL-4 board "because I like the sound of the preamps and the EQs."

With the XL-4, Bull finds it unnecessary to carry outboard EQ. "What's coming off the stage and going through the preamp is pretty true and sounds really nice," he explains.



The guitar and keyboard rig outputs are each run through a Hotplate and a Palmer DI. The Hotplate presents the same load as a speaker, allowing the amps to be set for their best "sound" without any stage volume. "The main reason we got the Hotplate is it sounds good," says Bull. "Secondly, for ear monitors and FOH it's consistent every day—you don't have to worry about mic placement and things like that. Jage Jackson, our guitar tech, recommended it."



Amy Grant's "Behind the Eyes" tour features an MD Systems/Clair Bros. S4/R4 system. Mix caught up with the tour during its three-month leg in theaters.

Grant uses the Sennheiser wireless SKM5000 Series mic exclusively. FOH mixer Michael Keating says that the SKM5000, which Grant uses with the condenser head, is the finest-sounding wireless he's ever heard. "It doesn't require much EQ and it works well with in-ears," he says.



Bull adds reverb to the guitarist's monitor mixes for ballads and solos. "That means I can give a cleaner signal out to the house," says guitarist Jerry McPherson. "I know the house engineer enjoys that as well."

TEXT AND PHOTOS BY STEVE JENNINGS



FOH engineer Michael Keating (seen here at his Midas console) has been with Clair Bros. for 16 years. "I'm carrying eight MD/Clair Bros. S4 Series 2s—all short-throw cabinets because of the venues being played in—along with 16 R4s. It's a versatile system; if I only have maybe four feet to fly in, I might consider flying the R4s because they're half the size. If I have the full rig, I can have the S4s flown and the R4s stacked. We have P2s for front-fills, which are very important in the ear monitor world: The only thing coming off the stage is the acoustic drum kit, so it's very important that the front row gets a full mix, otherwise all they get is a drum kit. The P2s get a whole-band mix with Amy's vocal just a little hotter than everywhere else, so it gives the impression that they're hearing Amy right in front of them; it seems to work out well. I'm using all 52 inputs on my board and six outputs, driving the S4s, R4s and P2s all in stereo."

Keating says that his favorite effects device "is still the Lexicon 480, which I use on just about everything. I have a PCM 80, PCM 70, a couple of Yamaha 990s and a Eventide Harmonizer, which puts a slight pitch change on the background vocals. Other than that, it's pretty basic reverb. I'm still psyched up about the Distressor compressor, which is made by my old friend Dave Derr. It emulates a lot of different units, like optical limiters. And unlike a lot of equipment, it comes with a very nice cut sheet and a lot of user-friendly tips."

MERLEFEST

ACOUSTIC FUN ON 12 STAGES

(Editor's note: Bil VornDick is one of Nashville's premier engineers, known particularly for his work with acoustic ensembles. He's been going to the MerleFest for years, has helped out in a number of different capacities, and he even played a couple of sets there this year.)

Just east of Boone, N.C., in the town of Wilkesboro, is the site of MerleFest, an annual music festival named in memory of Merle Watson, the son and former picking partner of the legendary Doc Watson. The festival has always been a major homecoming for acoustic recording artists from around the world, and this year's MerleFest, held April 23-26 was no exception. It brought together such luminaries as Jerry Douglas, Ralph Stanley & the Clinch Mountain Boys, the "polyethnic Cajun slamgrass" group Leftover Salmon, Tim O'Brien, Del McCoury, David Grisman, John Hartford, Peter Rowan, Sam Bush, Riders in the Sky, Ramblin' Jack Elliott and many, many others. The master—Doc Watson—performs every day to the appreciative audience and has since the first year.

This festival has much to offer besides hour after hour of incredible music: There are two giant food tents, along with large tents along the back of the seating area for people selling various crafts, instruments and whatnot. With over 2,100 volunteers, the traffic and camping is very well-organized, and they even have free shuttle buses that travel around town to the many hotels, parking and camping sites. There are always many activities for kids of all ages, so MerleFest is an ideal family vacation spot for acoustic music lovers. Artists perform on any of the 12 stages; some even do seminars on the smaller tented stages. If you want to play, sing, write, dance or learn more about just about anything—



Early morning facing the Watson stage

setting up instruments, engineering records, instrument maintenance, record producing, vocal techniques, workshops on mandolin, fiddle, dobro, guitar, bass and banjo—it's all there along with the music.



Cliff Miller at the Walker Center

Since MerleFest takes place on the grounds of Wilkes Community College, a few of the stages are inside campus buildings. For instance, the Walker Center is the largest indoor auditorium at the college, and during MerleFest it becomes the staging area where the late-night jam sessions happen. Other indoor stages include the Pit and the Lounge, where songwriters and smaller groups can put on

more intimate performances.

From a production standpoint, MerleFest's 12 stages are all under the supervision of Cliff Miller, president of SE Systems, a company that puts on about 350 shows a year.

Miller has had a long association with the Watson family. In the late '70s, he worked as a soundman for Doc and Merle, and even managed to sneak in a little playing time himself—when Merle hurt his hand during one tour, Cliff sat in and played guitar with Doc onstage as Merle mixed the sound! To this day, Cliff brings his musician's perspective to all his sound jobs, MerleFest included.

On the Saturday afternoon of this year's festival, Cliff and I rode around the festival grounds on a golf cart to check out the different stages to get a sense of the event's sound reinforcement requirements. The main festival stage, known as "Watson," was equipped with a complement of 24 JBL HLA 4895 and 4897 loudspeakers flown from a pair of 35-foot steel towers. They provided an even and clean sound to an audience that demands clarity in the reproduction of acoustic instruments. "This two-box, four-way system is unique in its use of DCD

BY BIL VORNDICK

LIVE SOUND

[dual-coil drivers], multiband composite waveguide and a tubular aluminum frame for the high, high-mid and low-mid frequencies, with 18-inch drivers in carbon fiber/foam core enclosures for sub-frequencies," Miller explains. The speakers are driven by 30,000 watts of QSC Powerlight 2.0 and 4.0 amplifiers. (These amps were used on all the stages.) The monitors for the Watson stage were ten JBL 15-inchers with 2-inch compression drivers. The sidefills were JBL 4894 Array Series cabinets, and two 2-way 15-inch drum wedges. The house console was a 40-input Yamaha PM3000; the stage monitoring is controlled by a 40-input Ramsa WR-S840 with 14 Klark-Teknik DN3600 series digital equalizers.

The slightly smaller Hillside stage had a loudspeaker system similar to the Watson stage, but with 18 flying JBL HJ Space frames. The main speakers at the smaller stages were IMS three-way models. Cliff used BSS Varicurves for the house EQ and 4-in, 8-out BSS Omnidrives to control the monitor EQ. At the smaller stages—like Americana, Creekside, Dance and Little Pickers—a variety of consoles were employed, the

Soundcraft Series 5, 500B, 800B and K-2; Allen & Heath GL 2000 and 3000; and a Mackie 32x8. For outboard gear, the 'verbs were mainly Lexicon 70s and Yamaha SPX900s, REV5s and REV7s. Compressors were dbx 900 and 160 Series. For gates, Cliff used Brooke and Klark-Teknik. Mics varied from stage to stage, but the main selection included Shure Beta 57s, AKG 5600 and AKG 535s for stringed instruments; Beta 58s for vocals; for drums, a B-52 on kick, SM25 and SM98 for snare and toms; and C5600s as overheads. Upright basses were captured with an M-88 or a B-52. DIs were the new BSS active AR-133s.

It takes months of planning and ten days of actual setup time to make MerleFest a reality each year. Then, a staff of 25 engineers and a tech support group of 12 is needed to keep the shows running smoothly. "These guys," Cliff notes, "are the real key to the event. We're very fortunate to have the technical and logistical talent it takes to pull this off. In addition to the SE staff engineers, we recruit acoustic sound guys from Colorado, Nashville and other places."

Miraculously, it all falls together come showtime. The breaks between



PHOTO: BL. VORNDICK

Sand sculpture

sets on the various stages are rarely more than a few minutes, and, in keeping with the spontaneous spirit of the event, the stage crews are always prepared for guest artists to show up on any stage at any time. During the midnight jam sessions, in particular, the sound and stage crews really have to stay on their toes.

So, if you get a chance and want to get away where the music is always great and the food is cooked Southern-style, head to North Carolina from April 29 through May 2, 1999. I guarantee you will have a fantastic time. You can find more information about MerleFest online at <http://www.merlefest.org/>. ■

WWW.BGW.COM

The tradition continues....

POWER AMPLIFIERS

BGW

SUBWOOFER SYSTEMS

BGW Systems, Inc.

13130 Yukon Ave. Hawthorne, CA 90250
Phone: (310) 973-8090 (800) 468-AMPS
Fax : (310) 676-6713 Email: sales@bgw.com

For over 25 years, BGW Systems has provided audio professionals with dependable, high quality power amplifiers. From Abbey Road Studios to Zion National Park, BGW amplifiers, rack mount accessories and self powered subwoofer systems can be found in the world's most prestigious installations.

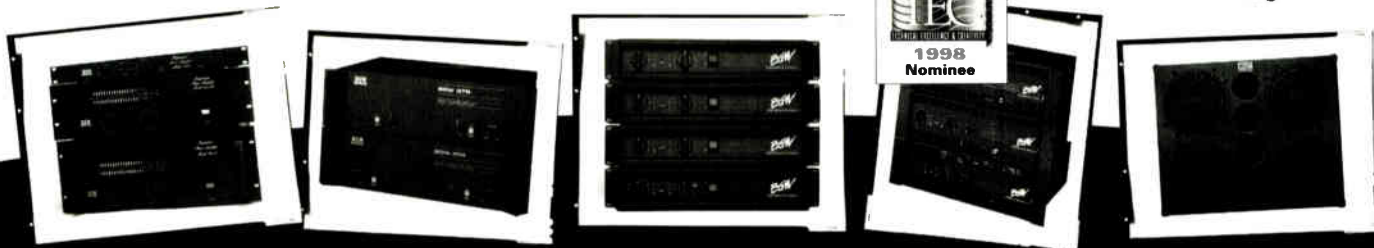
BGW offers four lines of power amplifiers including the Millennium, Performance, Professional and Grand Touring Series, all designed to handle the most demanding audio applications at an affordable price.

BGW's line of self powered subwoofer systems, the M2200 and M1100, incorporate power and processing into a quad or dual 15" subwoofer cabinet. They are the perfect cost effective solution for any subwoofer application and provide an awesome "sub bass" experience.

Call BGW today to find out why more audio professionals worldwide depend on us.

Go For The Best... Go For BGW.

APPROVED
THX[®]



Professional Series

Grand Touring Series

Performance Series

Millennium Series

Self-Powered Subwoofer Systems

CIRCLE POST ON PRODUCT INFO CARD

—FROM PAGE 116, COMPUTER CONTROL

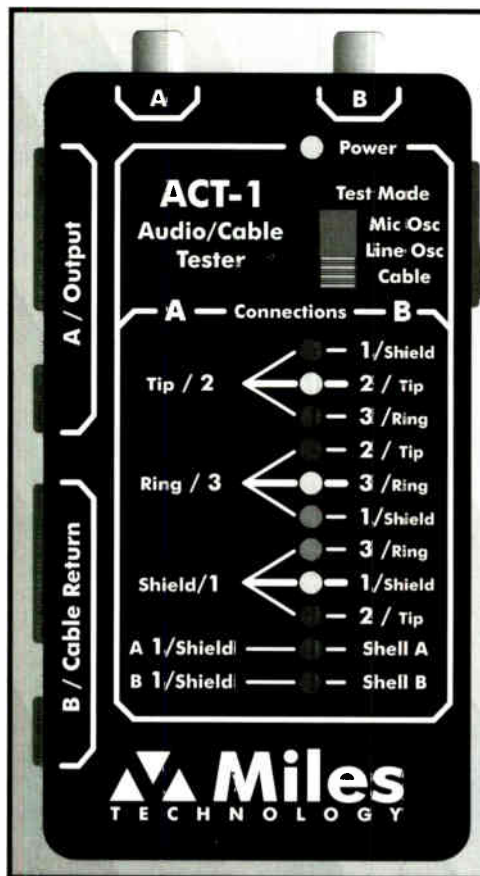
namics processors, etc. Soundweb™ from BSS Audio (Nashville) is a networkable DSP-based system for 48kHz, 24-bit digital audio distribution and processing that allows the user to design a “virtual” system on a PC, then download the complete routing and processing design into one or more rackmount Soundweb 9088 units. The 9088 includes 24-bit A/D and 20-bit D/A converters, and provides eight analog inputs and outputs, plus computer-controlled microphone preamps with continuously variable gain. Multiple 9088s can be networked together, with digital audio and control running over standard CAT-5 network cable, and the system can be programmed to control contact closures and potentiometer inputs. The system may be controlled locally from a PC or remotely via a modem or serial interface, and front panel buttons allow for immediate switching between system configurations. Price of the 9088 is \$4,500 and up, depending on configuration.

Rane (Mukilteo, Wash.) offers the RPM 26v DSP Multiprocessor, a one-rackspace unit that contains two analog inputs and six analog outputs. Internal 24-bit ADCs and 32- and 48-bit processing allow the user to select from 14 system templates that provide a number of system designs, including stereo two- and three-way crossover systems, with delay, EQ and dynamics control. All parameters within a selected template are user-adjustable, and there are 16 memories, which may be recalled by means of remote commands or contact closures. Programming is via RaneWare,™ which may be downloaded from www.rane.com. Price of the RPM 26v is \$2,295.

Crest Audio (Paramus, N.J.) showed its new LCP-AC8 “Octopus,” a one-rackspace unit that provides a simple control interface for up to eight amplifiers. The unit provides EQ, crossover and level control and can store up to 32 system configurations, any eight of which are assignable to front-panel switches. System programming is effected via Windows-based software and an RS-232 port. Price is about \$500, including software.

Allen & Heath (Sandy, Utah) has introduced the DR66 Digital Mix Processor, a one-rackspace unit that combines a programmable 6x6 matrix with EQ, dynamics and timed event features. The front panel offers eight user-definable soft keys and an LED screen; programming is via the Windows-based WinDR System Manager software. Price is \$1,795.

The Merlin ISP-100 from EVI/Telex (Minneapolis) has been upgraded with



This Tester Tells All

Instantly, Completely Checks Audio Cables And Signal Paths

- ▲ Tests All Configurations of XLR, 1/4", and RCA Cables
- ▲ Instantly Displays All Pin Wiring Including Shorts And Opens At Each End
- ▲ Can Test Cables From Just One End
- ▲ Tests Unbalancing Cables And Insert Patch Cables
- ▲ 500 Hz Test Tone Output at Microphone or Line Level
- ▲ Efficient Digital Circuitry
- ▲ Compact, Rugged Hand-Held Design

Miles Technology Inc.
Niles MI, U.S.A.

Email: info@milestech.com

Ph. 616-683-4400 Fax 616-683-4499

1-800-280-8572

www.milestech.com

Stereo Imagers • Mixers • Amplifiers

CIRCLE #082 ON PRODUCT INFO CARD

ProPhonic 2X™ Professional Earphone Monitor

The Ultimate In Sound Quality, Safety and Appearance.

Dual micro-transducers combine to provide powerful bass with clear mid and high frequency reproduction.

- ▶ Custom molded and sculpted for maximum comfort and appearance
- ▶ Optimum isolation from external sounds
- ▶ Virtually invisible appearance
- ▶ Custom skin tone matching system
- ▶ The only audiology network with the expertise in hearing conservation for the music industry



Sensaphonics

Hearing Conservation

312-432-1714

660 N. Milwaukee Ave, Chicago, IL 60622

www.sensaphonics.com

E-mail: saveyourears@sensaphonics.com

**SEE US AT
NAMM BOOTH #341**

CIRCLE #083 ON PRODUCT INFO CARD

new functions, including sample rate conversion, a new AES-EBU digital I/O module, new QuickBuild ISP-100 QuickMap drag-and-drop software for system design and modification, and external serial control capability. Price of the 2-in/8-out version is \$4,584.

XTA Electronics (distributed by Group One, Farmingdale, N.Y.) offers the AudioCore DP226 Speaker Management System, a 2-in, 6-out rackmount unit that provides multiple crossover filters, parametric EQ, high- and low-shelving filters, and limiter and delay functions. Up to 32 DP226 units can be programmed and operated using XTA's AudioCore for Windows™ Control Software. Additional features include MIDI, RS-485 and RS-232 interfaces, an AES/EBU option, PC card for easy program updates, key locking and user-settng memory. Price is \$3,995.

In other computer-control news,

QUICK TIP

THE BARGAIN CABLE TIE

There are at least a million ways to keep mic cables in neat coils once they've been rolled, and the industry has tried them all. Tape is fine, and readily accessible, but it can gum up over time, leaving a sticky residue on the cable. Other systems—such as Velcro cable wraps or attaching a short piece of rope to the cable end—have their fans but may leave a nest of wraps and cording at the stage box/console connections and can pick up an unbelievable amount of dirt, particularly after outdoor gigs.

Several years ago, I began using rubber bands as mic cable ties. Rubber bands are reusable, inexpensive and are delivered on my front porch on a regular basis, leaving me with a vast supply and few options for using them all. To use a rubber band as a cable tie, simply wrap the band around the cable, which leaves two loops. Thread one loop through the other, so only one loop remains, and by running one of the cable ends through the remaining loop, everything stays neatly in place. This method is simple, cheap and effective; however, it's not recommended for 56-channel snakes.

—George Petersen

EAW (Whitinsville, Mass.) is still finalizing its control software for the MX9000 PPST ShowStation, the control and processing package developed to implement EAW's Phased PointSource

Technology™ (PPST), the basis of the company's large-scale KF900 Series loudspeaker array. According to company representatives, the F-chart automated analysis and pre-correction part of the program is finished, but the overall system is still being refined and will be thoroughly field-tested during the Promise Keepers tours this summer. ■

Chris Michie is Mix's technical editor.



XTA AudioCore DP226



MTR-90 MOTOR & IDLER MODIFICATION

Get the Ultimate Performance.

Turn Your MTR-90 into a Mastering Machine with MTR-90 Capstan Motor & Idler Assembly Modifications.

- Lower your Flutter Specs
- Eliminate High Frequency Bounce
- Smoother tape travel across the heads
- Prevent improper head wear
- Reduce component flutter from .034% to .005% @ 15 ips
- Improve transport stability
- Accurate location readings

ALSO NOTE:

Our exchange program reduces down time!

Call 650.589.5206 for references, more specifications and information.



ph: 650-589-5206 / fax: 650-742-9091 / e-mail: athancorp@aol.com / 50 LINDEN AVE. #10, SO. SAN FRANCISCO, CA 94080

CIRCLE #084 ON PRODUCT INFO CARD

1998 House System Requirements
Request for Quotation

Yamaha PM4000 large frame with 44 channels. Next will be 4 stereo channels plus 44 to split of stereo channels. All other features.

CD Player - In rack mounted

6 Racks

System mounted rack (stereo and 44 channel) with 4 stereo channels plus 44 to split of stereo channels. All other features.

1998 Front of House and Sound System Requirements

FOH Console

Yamaha PM4000 large frame with 44 channels. Next will be 4 stereo channels plus 44 to split of stereo channels. All other features.

1998 House System Requirements
Request for Quotation

Yamaha PM4000 large frame with 44 channels. Next will be 4 stereo channels plus 44 to split of stereo channels. All other features.

Request for Quotation

1. Yamaha PM4000 or Yamaha PM3500M with case
 2. Reverb (Yamaha, Lexicon or similar)
 3. Wedges (2x12" or 1x15" and 1x2") with crossover and 12 channel multi-pin cables (ZMP, CPC or similar) for 12 channel multi-pin mount multi-pin (ZMP, CPC or similar)
 4. Weekly Rental Rate
- Based on 40 week rental

THE YAMAHA PM SERIES[™] MEANS BUSINESS.

Your season is gearing up. So here's a friendly reminder to invest in the Yamaha PM4000 and PM3500, the biggest selling large frame SR consoles in the history of the industry. It's the best return on your investment.



©1998 Yamaha Corporation of America, Pro Audio Products
For more information, please call 1(800)937-7171 ext. 667
or visit us at www.yamaha.com
P.O. Box 6600, Buena Park, CA 90622
Yamaha is a trademark of Yamaha Corporation
All other trademarks are property of their respective holders

—FROM PAGE 117, PAULA COLE

But during the times when Paula gets up and goes and it gets a little louder, they would say to me, "Ten more seconds of this and you'll be fined a hundred dollars!"

Sullivan admits that given the sonic requirements of what is still essentially a folk-rock act, his current console, an Amek Recall by Langley, is perhaps more board than he really needs. "It's huge—a 56-input console—and with a total of four people onstage, I certainly don't need [all those inputs]. It's a very

big, powerful desk, but it's what they had in the shop at the time. After each show, I get on the bus and read a little more of the huge manual," he chuckles. "I'm not a wizard on it yet, but I get better with each date."

And Sullivan has grown fond of a number of the board's advanced features. "The computerization adds a lot of neat little things to make the show more polished, like automatic mutes and MIDI controls for my reverbs and delays," he notes. "The whole show is programmed on the computer with VCAs and mutes. It even has built-in gates and compressors. This would be

an amazing board for a band with a big, complex show; you can even run lighting cues from it. I've seen acts which, instead of having each song as a cue, literally have lines of songs as cues; the cue list is enormous. We're not that complex; I just set up a cue for each song, and I keep the board in override mode rather than full automation."

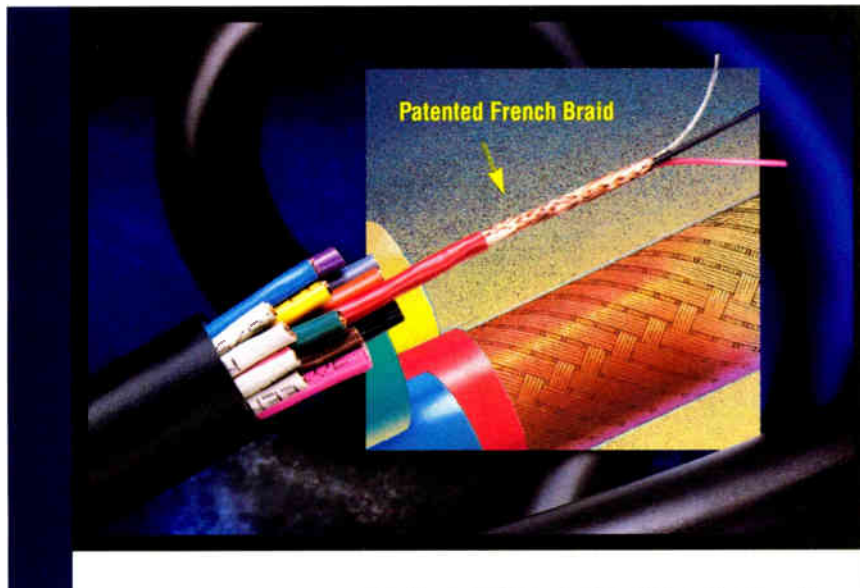
After watching the Beacon's union crew load-in the Recall, barely making the turn in the narrow aisle, *Mix* asked Sullivan if he couldn't make due with a much, much smaller console. "Input-wise I could, but as clean and nice as some of those little boards like Mackies are, as far as features are concerned, I would miss things like the greater amount of EQ per channel and the additional aux sends."

Sullivan's main concern as a mixer is, of course, Cole's vocal sound. Having mixed her show since she began working live in late 1994, he has an ear for the nuances of her voice. "The mix, to me, is primarily about getting the vocal up there and in front of everyone. I use a Summit TLA 100 tube compressor for Paula's vocal because she can really nail it, and sometimes it has to dig deep! The Summit helps move her vocal out and gives me a nice, warm sound.

"We've been using the Sennheiser 5005 wireless series lately [for her vocal mic], which has given her good results," Sullivan says. "We just started using it a few months ago; we had been using a Shure Beta 87. Some nights I love the Sennheiser; some nights I wish I had the Beta 87 back!"

After he's set with the lead vocal, Sullivan moves to the drums. This focus on the drums is at least partially a result of having been there in the days when the show consisted of just Cole and drummer Jay Bellerose. "The drums and the piano were it, so the drums were more than just a rhythm instrument to me," he says. "And Jay is such an unusual, creative drummer. He does not play a normal kit in a normal manner. He uses an old Ludwig kick drum and these very old, no-name warped hi-hats, but that's the extent of his normal drum kit: no floor toms, no rack toms, not even a real snare."

No snare? "Jay plays an African hour-glass-shaped conga-type drum called a djembe more or less as a snare. We rigged a snare mechanism across the djembe with some brackets from Home Depot. It has kind of a snare drum sound, but not quite. People come up to me at shows and ask me what kind of electronic drums or samples Jay uses; the answer



Belden®
AudioFLEX™
Snake Cables...

Clean Sound & All The Right Moves.

Jackets are color-coded for easy pair identification. For more information on Belden AudioFLEX Snake Cables, call:

1-800-BELDEN-4.



Belden

Belden Wire & Cable Company
<http://www.belden.com>

© 1997 Belden Inc.

CIRCLE #086 ON PRODUCT INFO CARD

Focus On The Most Important Musician On Stage.

You

You

You

You

Take Control of Your Sound — and Say Goodbye to Wedges — with the New Shure Personal Stereo Monitor

Let's face it. The band needs you. And to sound your best, you need the new, full-featured Shure PSM™ 600 Personal Stereo Monitor. •The PSM 600 uses advanced technology and tiny earpieces to do what large, bulky floor wedge monitors can't: Give you total control of the mix you hear on stage. •You can choose a full, rich stereo mix. Or, to create your own personal mix, use Shure's innovative MixMode™ circuitry. MixMode allows you

to raise or lower your mix level at will, relative to the others in the band. •The sound is full, clear and consistent. And the price, in wired or UHF wireless configurations, is thousands less than most competitive systems. •Start taking control of your sound. To learn more about the PSM 600, call 1-800-25-SHURE. In Europe, call 49-7131-72140. Outside Europe and the U.S., call 847-866-2200.

SHURE

THE SOUND OF PROFESSIONALS WORLDWIDE

www.shure.com

CIRCLE #087 ON PRODUCT INFO CARD

World Radio History

is none. He gets these unique sounds from all kinds of methods, including his hands, and these five-finger twisted metal wire brushes called Dreadlocks.

"We use the relatively new Shure Beta 52 on the kick drum, and it has been just great; it is placed behind the snare. Jay's old kick has two heads and no holes, and for some reason the mic placed at the back works best, and we haven't had any problems with mechanism noise." The djembe gets SM98 condenser mics that clip on the top and bottom. Overheads and hi-hats use

Sennheiser MK 40s. "We keep Jay's drums totally dry," Sullivan adds. "He doesn't like reverb on his drums, and there are no effects at all, even though he doesn't have that big rock snare. Most engineers would have gates all over the drums; I have none. Gates would just mess up the unusual dynamics Jay gets with the various brushes and the Dreadlocks."

The rest of the show is more conventional in onstage gear selection. "The bass player, Mark Brown, uses a couple of pedals, nothing elaborate," Sullivan explains. "He has a SWR preamp with a DI built in. I don't alter his sound much;

he will alter his tone throughout the show, with a little Korg effects unit and an Octabass device."

Guitar player Kevin Barry splits evenly between electric and acoustic. "For acoustic I use the BSS active direct box. He's very straightforward, using a Strat and a Les Paul through a Fender Super Reverb amp," says Sullivan. "On Kevin's Super Reverb amp, I've been using a combination of the Sennheiser 409 and a regular Shure SM57, which has been a great mic for all kinds of things, especially amps, over the years."

On the baby grand, Sullivan uses Barcus Berry Planar Wave piano pickups, "which work remarkably well in a live situation. They're quite small, and I can throw them in my shirt pocket and use them when we do shows where we don't have our own piano." Also, Sullivan notes, "we sometimes put the Shure BP88 stereo mic inside the piano, which I will use on the occasions when Paula does some tunes just with the piano; that mic has a great sound blended with the Barcus Berry pickups."

Outboard equipment is appropriately minimal. "In addition to the Summit tube compressor for Paula's vocal, there's a little bit of reverb when Kevin Barry plays acoustic guitar, to fill it out a little, and sometimes some reverb on Paula's vocal, and a little delay when it is fitting," Sullivan notes.

In-ear monitors for Cole are a work-in-progress. "We use the Shure in-ears, but not 100 percent of the time," Sullivan says. "She's getting used to them. They're not her favorite things; she likes to hear the house mix coming back at her. Using them is totally up to her. However, if we don't get a soundcheck and things are rushed and it is the best thing for the show, she'll use them. Paula is just a little bit quieter when she uses in-ears because she doesn't have to be as out there to hear herself. As the mixer, I always have to be aware of that."


As the piano assembly is completed and the hired-gun local tuner goes to work on the Beacon's stage, Sullivan prepares for the afternoon soundcheck. The tour is still heating up, and there are lots of big shows looming on the horizon. "We're doing a few weeks on the H.O.R.D.E. and Lilith Fair festivals again this summer," Sullivan says. "Paula's dying to record the next album—she has tons of material—but right now, with the current record still so hot, we'll be staying on the road." ■

Eric Rudolph is a freelance writer based in the New York area.

NAB Top 10 Must-Have Product!
 Mix Magazine - May 1998

"It's almost scary how much time was wasted searching for CDs, only to find an effect that's all wrong!"

Ron Miller, Audio Mixer - Matchframe Video, Burbank



Introducing M&E Pro Intranet™, a hard drive recording system for your local area network.

- Instant auditioning drastically reduces search times - No hunting for CDs.
- Split-second playing of SFX - No loading and unloading of CDs - saves you time and money.
- Intuitive - works with Mac or PC, using any Internet browser you have.
- Enhances creative output - audition far more effects in far less time.
- Maximizes use of customer's inventory - many users at the same time, from anywhere.
- Better control over inventory - with everything online, no missing CDs.

818-716-7081
<http://www.sfxsearch.com>

GEFEN SYSTEMS **mSoft**

CIRCLE #088 ON PRODUCT INFO CARD



DPR-422 Dual Compressor / De-Esser



DPR-944 2+2 Parametric Compressor & Gate



DPR-522 Advanced Dual Noise Gate

There are a few things you'll miss with the Opal Series

Like noise, distortion, lack of headroom, limited facilities, and no pedigree.....

It's obvious that the better you protect your sound, the better your mix will be. When you buy an Opal Series processor by BSS Audio you're getting not only the best in audio quality, but a heritage and proven track record that has benefitted artists, sound companies, studios, broadcasters, theatres and clubs the world over.

From this pedigree, BSS engineers have brought you a range of products designed to solve your sound problems without adding either impurities or complexity in operation. And by exploiting the latest advances in component technology and manufacturing techniques, we can now bring you this thoroughbred processing power for less than you'd think. Don't miss out on an Opal - call your BSS Dealer or Distributor for more information.



Audio Processing with things missing

SEE US AT NAMM BOOTH #344



BSS Audio, Lakeside House, Summit Road, Potters Bar, Herts, England EN6 3JB
 Tel: +44 (0)1707 660667 Fax: +44 (0)1707 660755 e-mail: info@bss.co.uk Internet Site: www.bss.co.uk
BSS Audio USA, Harman Pro North America, Inc, 1449 Donelson Pike, Nashville, TN 37217 USA
 Tel: (615) 360 0277 Fax: (615) 360 0480

A Harman International Company

CIRCLE #089 ON PRODUCT INFO CARD

New Sound Reinforcement Products



ANCHOR SELF-POWERED P.A.

Anchor Audio's (Torrance, CA) Liberty Xtreme is a powered, bi-amped (40W horn/90W woofer) portable P.A. system providing a mic/line XLR input (with selectable phantom power), a 1/4-inch line input and a balanced XLR line out. Units can be daisy-chained with each other and with other Anchor products, and three Xtreme units can run from one AC line via the rear-panel convenience outlet. Retail: \$699.

Circle 314 on Product Info Card

AUDIX OM-2 VOCAL MIC

Audix (Wilsonville, OR) introduces the OM-2 vocal microphone, the latest in the company's OM series of dynamic microphones for live sound applications. The hypercardioid mic features a spring-steel grille ball with exceptional tensile strength, a one-piece inner pop filter and a durable E-coat finish. Retail: \$149.

Circle 315 on Product Info Card

RADIAL SNAKE SPLITTER

Radial Engineering (Port Coquitlam, B.C., Canada) offers the Roadster-TX snake splitter system in

eight standard configurations: 24 ins x 4 returns, 28x8, 32x10, 40x8, 16x16 split and 40- and 50-input. Multipin connector choices include Cannon DL, AMP CPC, EDAC/ELCO, Mass geographical, Ram-Latch and Radial modified VEAM and MIL5015. Customized configurations are also possible, and the system accommodates up to 56-pair cable. Options include Mogami cable (Radial Torsion is standard) and Jensen transformers for isolated splits.

Circle 316 on Product Info Card

EV UNDER-BALCONY SPEAKER

Electro-Voice (Buchanan, MI) offers the EVI-28 full-range loudspeaker for small room and under-balcony applications. Featuring two 8-inch woofers and a small-format Vari Intense[®] horn in a compact vented enclosure, the system has HF driver protection and a passive crossover with frequency shading EQ and time delay for the two woofers. Other features include wide (62-25,000Hz) frequency response, 123dB peak SPL and 200-watt continuous power handling (ANSI/EIA RS-426-A 1980). The 36-pound system is built from 9- and 13-ply birch plywood and is available in either a textured black or white finish.

Circle 317 on Product Info Card

SHURE WIRELESS INTERFACE

The Shure (Evanston, IL) UA888 Networking Interface System allows remote monitoring and control of up to 32 Shure UHF wireless receivers. The system works with all Shure U4S and U4D UHF diversity receivers and consists of a rackmount interface module, Windows-based software and connecting cables. The unit monitors RF levels, diversity signal strengths, audio levels and remaining battery power at the

transmitters. A "walk around" plotter function helps identify dead spots, and a frequency scanner indicates local RF activity. Group/channel selection, frequency, user name, squelch and lock/unlock status may be controlled remotely. Price: \$1,990.

Circle 318 on Product Info Card

SOUND BRIDGE FULL-RANGE SPEAKER

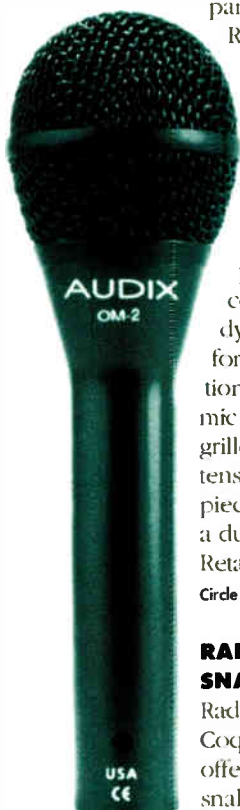
Sound Bridge Acoustic Labs (Waxahachie, TX) introduces the 5000 Series loudspeaker product line with the 5215CT full range system. The 5215CT includes a 15-inch woofer with a coaxial 2-inch HF driver on a 90x90° horn in a sealed compartment, and a 15-inch bass woofer in a vented compartment. The cabinet is 13-ply Baltic birch, and the system is bi-ampable and flyable.

Circle 319 on Product Info Card

TELEX UHF WIRELESS

The Telex (Minneapolis, MN) USR-100 UHF wireless operates on up to 100 different channels in the little-used 668.1-679.9 and 734.1-745.9MHz frequency ranges. The system allows operating on at least ten channels simultaneously; microprocessor control allows the USR-100 to automatically self-tune to factory presets and provides dual squelch and Posi-Phase Smart[™] diversity. Transmitters include the SH-100 handheld, with either a Telex condenser or an Audix OM-3 dynamic element, and the LT-100 belt pack.

Circle 320 on Product Info Card



New Sound Reinforcement Products



ARX 4-CHANNEL 2-WAY CROSSOVER

ARX Systems Pty. Ltd. (Victoria, Australia) offers the EC-4 4-channel 2-way crossover. The single rackspace unit provides separate front panel output controls for all four Low and High sections. Crossovers are Linkwitz-Riley 24dB/octave fourth-order and the crossover frequency is fixed internally. I/Os are balanced XLR.

Circle 321 on Product Info Card

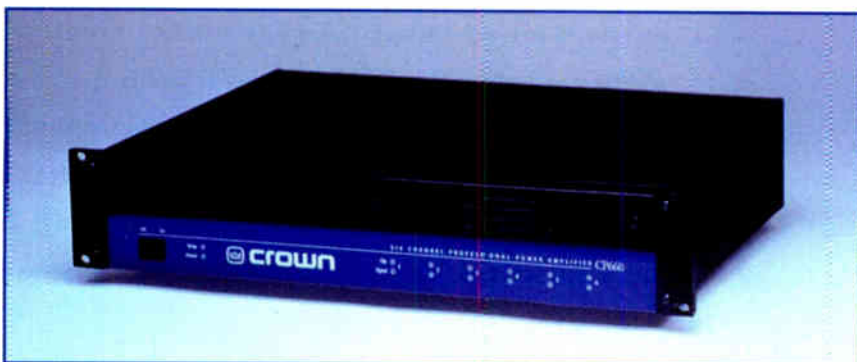
MCCARTHY/MEYER HANDBOOK

Veteran SIM® engineer (and *Mix* contributor) Bob McCarthy has written the Meyer Sound Design Reference handbook, a practical guide to sound system design and alignment. Including complete Meyer product reference data, a product revision history and an appendix, the book is presented in three-ring binder form for easy segmentation. Price direct from Meyer Sound (Berkeley, CA) is \$50.

Circle 322 on Product Info Card

CROWN SIX-CHANNEL AMP

Crown International (Elkhart, IN) announces the CP660 6-channel power



amplifier, a 2-rackspace unit providing an average 75 watts/channel output. Controls and connectors are rear-mounted. Additional features include a variable speed fan and 3-year, no-fault warranty. Price is \$849.

Circle 323 on Product Info Card

SOUNDCRAFT DEBUTS BROADWAY

Soundcraft (Nashville, TN) announced the U.S. release of the Broadway modular live sound console. Comprising digitally controlled analog audio input and output racks linked via Ethernet to digital control surfaces, the Broadway system may be configured to control as many as 120 inputs and 32 buses, with 5 main outputs and a 40-way matrix. Input Audio racks provide input, equalization and routing for up to 40 inputs; Input and Master Control surfaces contain moving faders assignable in banks for the inputs and dedicated VCA group faders, master faders and group and aux outputs in real time via an Assignable Channel Strip (ACS); each channel is also provided with six assignable rotary controls and dedicated switches for key functions. Because of the Broadway's flexible assignment

architecture, the largest input and bus-ing configurations may be controlled from the minimum input configuration; input racks and mixing control surfaces may be distributed as needed. Any number of complete console configurations may be recalled within one second, and the system includes comprehensive MIDI and event control functions.

Circle 324 on Product Info Card



SOUNDCRAFT MONITOR MIXERS

Soundcraft (Nashville) offers two new monitor mixers. The SM20 is available in 40-, 48- and 56-input frames; its 20 output buses are configurable as 20 mono outs or seven stereo/six mono, or any combination in between. Features include built-in mic splitter and MIDI control of external BSS Varicurve™ equalizers. The Soundcraft Series Five Monitor is similar to the Series Five FOH console and is available in 24-bus and 32-bus versions: The former includes a 23x12 matrix, for 38 balanced outs; the 32-bus version's 23x16 matrix provides 50 outputs total. Frame sizes are 44-, 52- and 60-input (24-bus) and 48- and 56-input (32-bus).

Circle 325 on Product Info Card

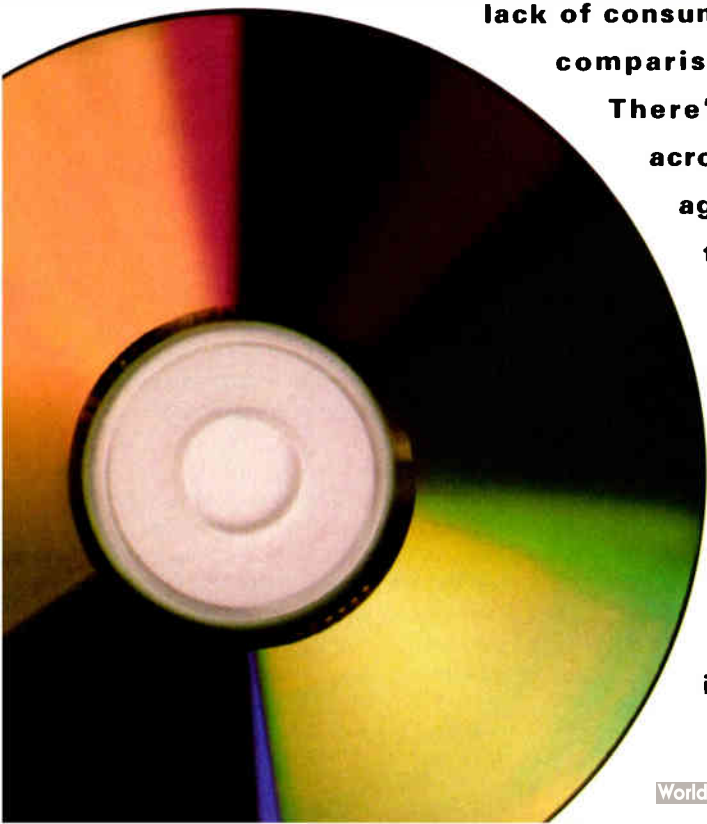
DVD

Closing in On A Final Spec

BY OLIVER MASCIAROTTE

Okay, let's get one thing straight. DVD, the savior of bandwidth and capacity-hungry media folk everywhere, has a problem. And I'm not talking about standards. The standards will shortly sort themselves out, and the hardware and content providers will capitulate when they see their precious shekels evaporating from lack of consumer acceptance. No, those diversions pale in comparison to the real problem. The name "DVD."

There's the rub. Does every TLA (three letter acronym) have to mean something? Quite a while ago, the parties involved decided to go with just the letters, no deep meaning attached. So, what does DVD stand for? Nothing, damn it! (Sorry, I had to get that off my pale and underdeveloped chest.) As for audio developments relating to DVD, there's been quite a flurry of flailing limbs and firing synapses. The audio standard is sooo close to ratification I can smell it. Walk with me, taking a deep whiff, and let's just see what this format is made of...

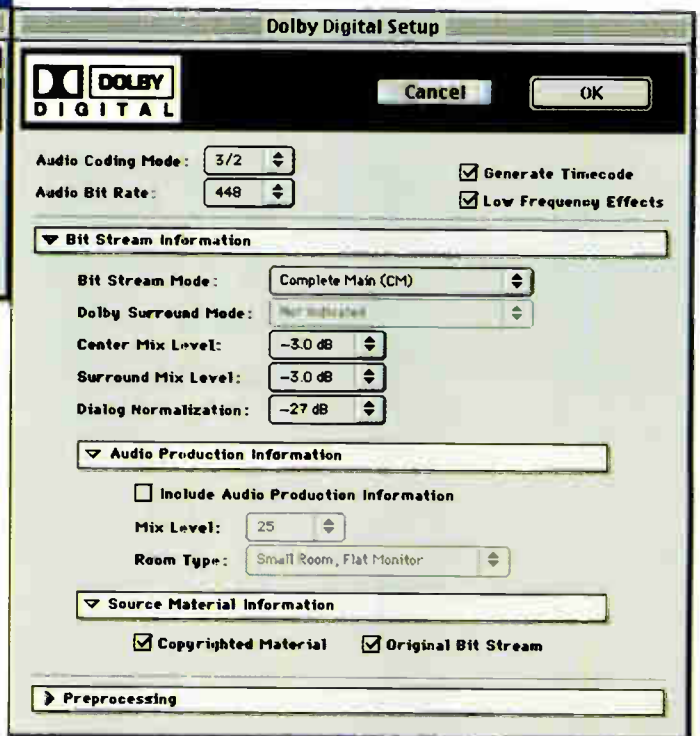


Audio



for DVD-A, stereo audio is supported at not only at 44.1 and 88.2 kHz but also the 4x rates of 176.4 and 192 kHz. The utility of these ultrahigh rates is questionable, but you can't fault the standards gang for not thinking ahead.

The DVD-A family can be thought of as having two branches; let's call them A-Discs and AV-Discs. A-Discs, as the name implies, contain only audio. AV-Discs go one step further and optionally include a subset of DVD-V for stills, real-time text, full-screen video and other MPEG eye candy. A DVD-V disc, where the picture is king, must reserve room for the video objects or files. DVD-Audio considers motion pictures, along with other visual content, to be an optional enhancement to a chiefly aural experience. The underlying reason for dividing the family has to do with the structure of DVD. While DVD-V has a Video Manager to oversee the audio and video content, DVD-A has an additional Audio



Sonic Solutions's Producer allows the user to customize levels when encoding bitstream information.

The final draft from the DVD Digital Audio Working Group 4 (WG-4) for DVD-Audio was hammered out by the 40 principal and more than 60 voting members—significantly more than the ten companies represented in the original DVD group. The WG-4's finished "Part 4" document will be a superset of Part 3, the existing DVD-Video specification. Though anything defined in the draft proposal may change in the final document, it's more than likely that we'll see something quite like what follows.

That draft proposal calls for scalable multichannel audio encoded as linear PCM at equal or higher sample rates than are currently available. Whereas DVD-V specifies that two channels of 96kHz sampled audio are permissible, DVD-A allows for up to six channels. With DVD-V, the audio community was given a standard distribution medium for recording at 96kHz sample rates. (If only there was a standard for recording...) It may come as a surprise to find that,

Manager to control the additional audio data. So, if a disc has video titles for the Video Manager to handle, it's an AV-Disc. DVD-V will retain one visual advantage over DVD-A; the interesting, if little-used, multiple viewing angle feature is not part of the AV-Disc's repertoire.

For either disc type, here's the run-down on allowable audio data types that can live in the 9.6 Megabit/second stream:

versions that just make analog audio to fancy versions with component video and digital audio outputs. A universal variety will play both. Already, January's

to be undesirable and the disc reverts to simple linear play. If, however, the user initially starts the title by exploring the opening menu, then deeper levels of complexity such as optional visuals become accessible.

Another aspect of authoring is defining how a given player deals with a limited number of playback channels. An explicit "downmixing" procedure, along with the channel group assignment, is stored in the header of each track. This smart content allows the author to control individual channel amplitude and phase, though not dynamically. Downmix is accomplished by applying an individual scaling coefficient to each track for left and right, then summing the separate left and right aggregate tracks to produce a final stereo mix. By manipulating the scaling coefficients and channel group assigns, the author could suppress or accentuate certain tracks to interactively hide or reveal particular material. Since there's room for 16 individual mixdown tables within each title set, there are lots of creative possibilities.

One area of keen interest for the engineering community is the inclusion in the draft spec of optional formats such as DTS, Dolby Digital, lossless compression, MPEG-2 BC and DSD or Direct Stream Digital. Accommodation of these disparate formats is yet to be determined by the WG-4, but it's here that a good portion of the battle for Joe Consumer's hard-earned dollars will be fought. All of the participants have a need to see their technology receive the official blessings. DTS has done quite well with their technology, positioning it as a high-fidelity alternative to the seemingly excessive bandwidth required by multichannel PCM. Dolby Digital, with its maximum data rate limited to less than half that of DTS, is not what one would think of as ultrafidelity. It does work great in the arenas in which it was designed: motion pictures, DVD-V and DTV, where it must coexist with bandwidth-hungry motion images. As for MPEG-2 audio, especially the difficult Backward Compatible multichannel implementation, there seems to be little hope of its widespread use with the official announcement that MPEG audio is *not* required for PAL formatted DVD-V titles, and PCM or Dolby Digital will work just fine, thank you. It seems that MPEG-2 BC encoder technology has to play some catch-up as well.

Sony, as the only company in the mix to combine technology development with a major music label, holds a

	Channel Group 1	Channel Group 2
NUMBER OF CHANNELS (6 ch. max. unless noted)	1 to 4	0 to 3
SAMPLE RATE (kHz)	44.1 48 88.2 96 176.4 (2 ch. max.) 192 (2 ch. max.)	44.1 48 88.2 or 44.1 96 or 48
WORD LENGTH (bits)	16 20 24	16 16 or 20 16, 20 or 24

As with a good ol' CD, linear PCM is mandatory. But here, it's a mix-and-match scheme that allows the producer to allocate the sample rate and word length according to taste. Notice the inclusion of "channel groups," a method of signal partitioning that can be thought of as Group 1/front and Group 2/rear. More on that later.

So how much program can you fit on an A-Disc? Here's another table with some examples for a DVD-5:

CES in Las Vegas saw the introduction from high-end hi-fi manufacturers of new, second-generation DVD-V players specified as having low-jitter digital audio outputs. Look for more good-sounding players in the consumer channels this fall.

For those of you who've been keeping up with DVD, you know that "authoring" is part of the creation process. This is the production stage where the title's level of interactivity and the role

4.7 GB Single Layer	48 kHz, 20 bit, 2-channel	318 min.
	88.2 kHz, 24 bit, 2-channel	144 min.
	88.2 kHz, 24 bit, 3-channel	75 min.
	(LCR) + 44.1, 20 bit, 2-channel surrounds	

Of course, you'd get about double these values on a dual-layer DVD-9. A dark secret of the dual-layer technology is increased jitter over the single layer approach. Jitter averages are dependent on the material used to sputter the semitransparent layer, with gold beating silicon, silicon nitride or silicon carbide for best jitter performance. Silicon, however, is less expensive and performs better in the bonding step, which is the final hurdle to cost effective DVD-9 and DVD-18 production.

The option of including stills, text, menus and motion isn't limited to the discs themselves. Players will also be made available with a variety of features, from inexpensive, stripped down

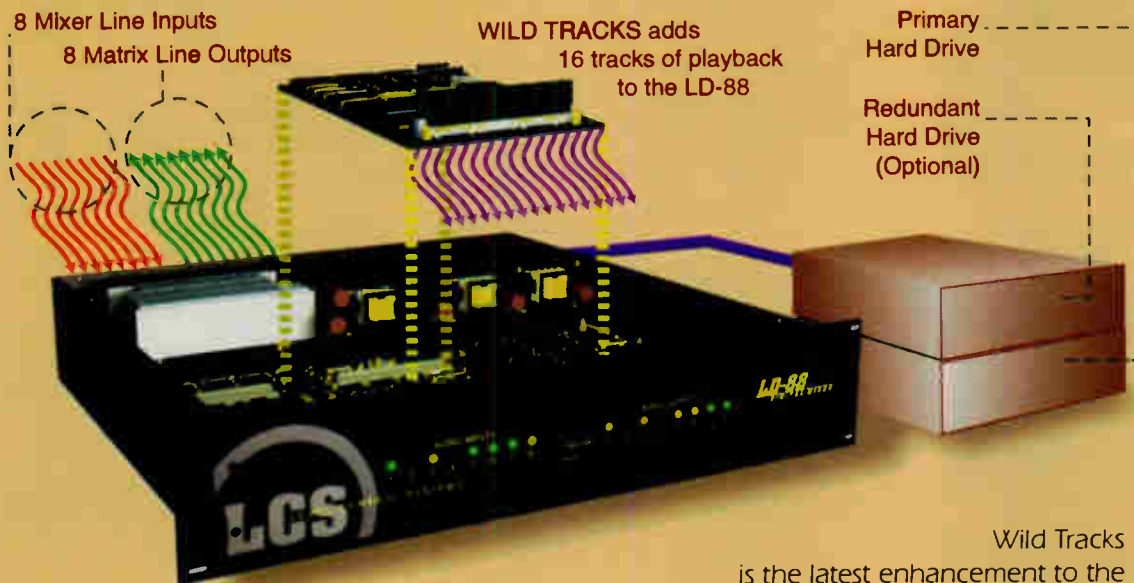
of both the Audio and Video Manager is defined. Authoring tools will give the programmer the ability to detail the behavior of a disc in a wide range of players, from simple Walkman style commands with no need for a visual menu, to more complex behaviors such as constructing different, seemingly random music compositions each time a disc is played. As a player's memory registers can be programmed to keep track of a user's "walk" through a title, the disc could alter its presentation based on each user's selection order. A simple example would be authoring an offering so that, if a user skips an opening menu and immediately starts playing music, then interactivity is assumed

Playback Your Wildest Dreams

with *Wild Tracks*™

Theatrical audio playback was, until now, a job for several digital carts, minidisks, multitracks and samplers. Not anymore... Introducing the single system solution - Wild Tracks from Level Control Systems.

Unlike a multitrack tape recorder, where the relationship between tracks is fixed, Wild Tracks allows you to dynamically select the start times of tracks or groups of tracks. All audio is stored on hard drives; RAM buffers provide instant playback.



Wild Tracks is the latest enhancement to the LCS SuperNova™ Modular Audio Control System, and is ideally suited to the demands of theater sound, sound reinforcement, themed retail and location based entertainment. The Wild Tracks card provides an additional 16 tracks of record/playback when installed in the basic module - the 8 x 8 LD-88 digital matrix mixer.

As many as 16 LD-88's can be configured for a cohesive 128 x 128 system. Mixing automation, equalization, delays, Wild Tracks, and external device control are programmed via CueStation™ software. Changes on the fly can be made with the software or RIF-108 motorized fader modules.

With Safetynet™ redundant hard drive back-up virtually eliminating down time, the LCS SuperNova System with Wild Tracks now solves more problems, more completely and reliably, than any other audio control system.



LEVEL CONTROL SYSTEMS

130 East Montecito Avenue #236, Sierra Madre, California, 91024
626.836.0446 • Fax:626.836.4883 • <http://www.LCSaudio.com>

Wild Tracks, SuperNova, CueStation, and Safetynet are registered trademarks of LCS Ltd.

CIRCLE #090 ON PRODUCT INFO CARD

RAIN - SURT
RAIN - R
RAIN - C
RAIN - L
THUNDER
CUE 3
CAR DOOR
FOOTSTEPS
CUE 4
BAR AMBIENCE - L
BAR AMBIENCE - R
DOOR
COIN DROP

Radial Direct Boxes

TRUE TO THE MUSIC

- Flawless harmonic transmission
- Phase accurate beyond compare
- Less than 0.3dB deviation ~40kHz
- Built for the abuse of pro-touring

The Radial JDI

Jensen transformer equipped features a warm Bessel curve and zero-phase deviation. Ideal for keyboards, guitars and bass rigs.



"It should be called the un-DI - so clean, you don't even know it's there!"
Will Lee
World's Most Dangerous Band

The Radial JDV

Class-A active transformerless design with vintage front end. Constant voltage supply, ultra-low noise circuitry. Ideal for all acoustics and electrics.



"More transparent and natural than all others"
Grant McAree, FOH Engineer
K. d. lang

The Radial JD4

4 channel JDI for keyboards, features front and back access jacks, pad, merge, polarity flip, filter and ground lift. Welded 14 gauge steel.

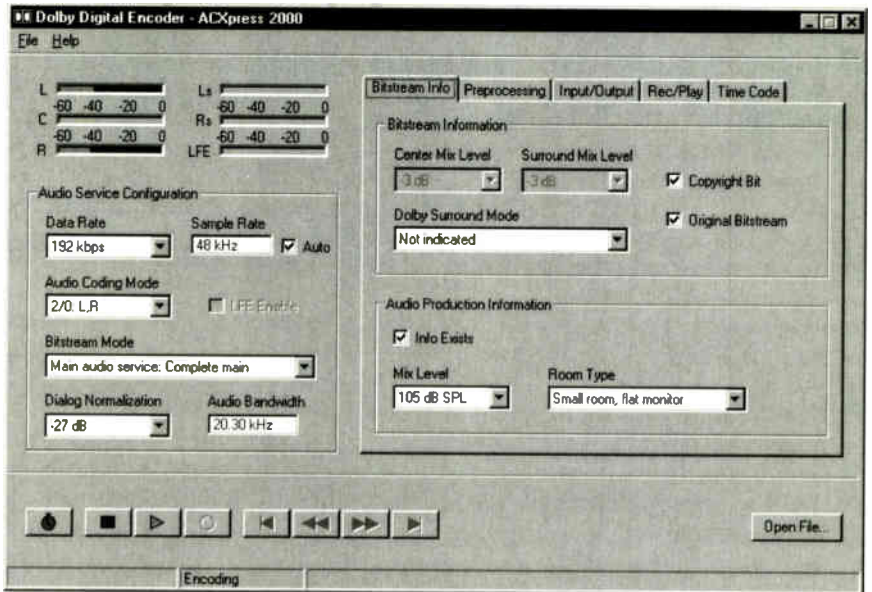


"Finally a great sounding DI that surpasses the actives"
Gary Stokes,
FOH Engineer, Sarah McLachlan

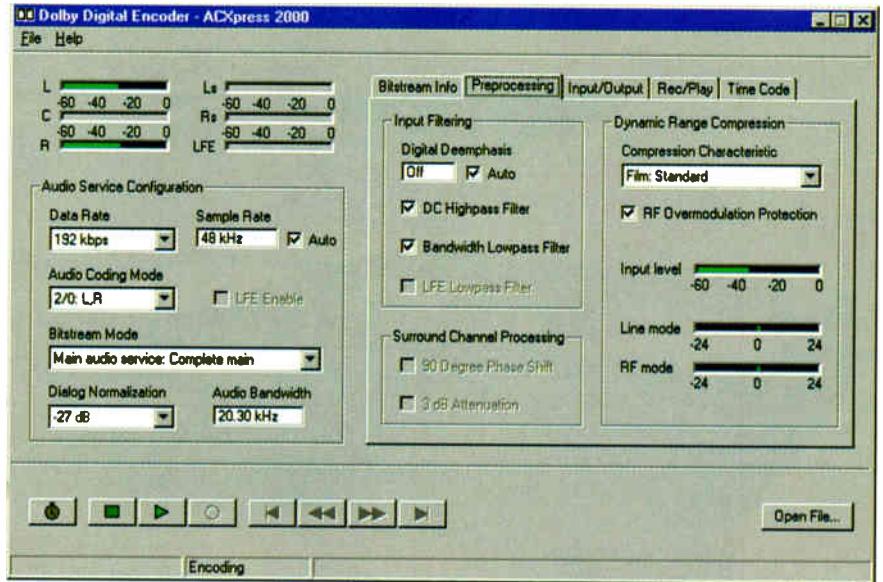


CableTek #114 - 1585 Broadway, Port Coquitlam, B.C. V3C 2M7
Tel (604) 942-1001 - Fax (604) 942-1010 - e-mail: cabletek@sprynet.com

CIRCLE #091 ON PRODUCT INFO CARD



Above: Spruce's Bitstream Information screen allows the user to select parameters such as room type.
Bottom: Spruce's Preprocessing window.



fascinating hand with DSD. For those professionals spending too much time making a living to have heard about such things, DSD uses an oversampled delta sigma modulated A-to-D converter to generate a 2.8224MHz, 1-bit signal, a rate chosen as a simple multiple of the lowest common high-fidelity PCM sampling rate, 44.1 kHz. Sony and Philips NV have banded together yet again to promulgate the Super Audio CD, a competing dual-layer, hybrid DVD technology using a Red Book-compliant base with the second, semi-transparent layer containing DSD data. Not to take all this sitting down, Dolby Labs is reported to be negotiating with hi-fi manufacturer Meridian to sublicense a lossless system invented by British engineers Peter Craven and the late, great Michael Gerzon. There are several other provisions being consid-

ered for lossless compression, including one referred to as "bit shifting." Rather than encoding an entire data word, only bit cells with data are stored, and null data is removed. So, if only 19 bits of the 24-bit AES payload contain data, then only those bits are carried along.

Looking at production tools, there are several ways of recording the higher sample rates but only SADIe and Sonic Solutions have full editing systems capable of handling 88.2/96. At present, only Sonic has a complete production solution that can not only handle 176.4/192 and simultaneous dual sampling rates but can also perform authoring and real-time 5.1 Dolby Digital encode/decoding chores to boot.

The inclusion of 88.2 in the spec means that masters recorded at that rate can be converted to 44.1 distribution with simple decimation rather than ei-

Fill Your Rack With Switchcraft®...



TTP96FA Series

Introducing the Front Access Patchbay Series... an exciting new reason to make Switchcraft your source for audio panels.

Our innovative front access patchbay gives you space where you've never had it before and convenience you've never dreamed of, in a quality package you've come to expect from Switchcraft. Our heavy duty slide-out tray gives you access to the 96 nickel-plated steel frame jacks **from the front** of the unit.

But that's only the beginning! See the photo above for all of the features and benefits, which make this panel

ideal for use in studios, tape editing rooms, mobile facilities and anywhere space is limited.

While you're at it, check out the patching products below. Don't forget our high quality patchcords, and industry-standard Q-G® microphone connectors.

Switchcraft is your one-stop shop for all of your broadcast interconnect needs. Call (773) 792-2700 ext. 243 today for a copy of our Audio Video Products catalog.



MT48/52 Series

- 1/4" Nickel-plated steel frame jacks
- Rugged cable tie bar
- 3 1/2" or 1 3/4" panel height



TTP96 Series

- TT Nickel-plated steel frame jacks
- Rugged cable tie bar
- Extra wide labeling strips
- 1 3/4" panel height



TT Patch Panels with EDAC's

- Extra wide labeling strips
- Fully-wired with EDAC connectors



Patch Kits

- Choose from a variety of normalizing configurations
- 3 1/2" or 1 3/4" panel height (1/4" or TT)

Switchcraft®

5555 North Elston Avenue • Chicago, IL 60630

(773) 792-2700 • Fax: (773) 792-2129

Switchcraft®-Consistently Excellent Since 1946SM

www.switchcraft.com

24 Bit / 96 kHz

We are there !



WINDOWS™ 95/NT

Samplitude 2496

Samplitude 2496 Mastering/Multi-Tracking Software. Shown above: Multitrack Screen, FFT Filter, Noise Reduction, Multi-Band Dynamics Module.

Where are you ?



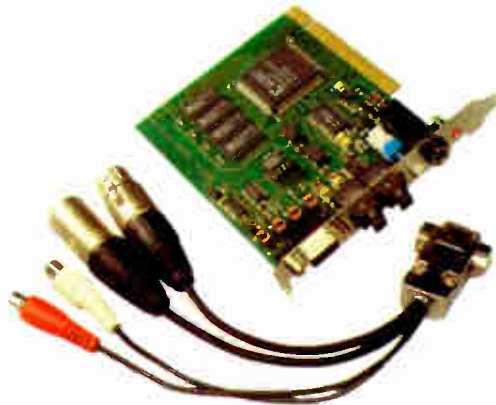
ADDA 2496 DSP

AD/DA Converter: Wordclock, Dynamic Range >128 dB, Real-Time Resample, 44.1/48/88.2/96 kHz, 135dB s/n, Store 24 Bit, 96 kHz on 16 Bit DAT.

The SEK'D 24/96 Mastering/Multi-Track system represents a price/performance breakthrough in state of the art high resolution audio.

If you are still wondering about high resolution audio, this is the time to explore the precision craftsmanship and astonishing audio quality that is finally possible at a less than astonishing price.

For more information, please call SEK'D America (1-800-330-7753) or one of the fine Pro Audio dealers listed in this ad!



PRODIF 96

Digital Transfer Card: Sample rates: 32, 44.1, 48, 64, 88.2, 96 kHz, <2 ns in PLL mode. Analog Out: 20-Bit, 96 kHz, Dynamic Range >94dB

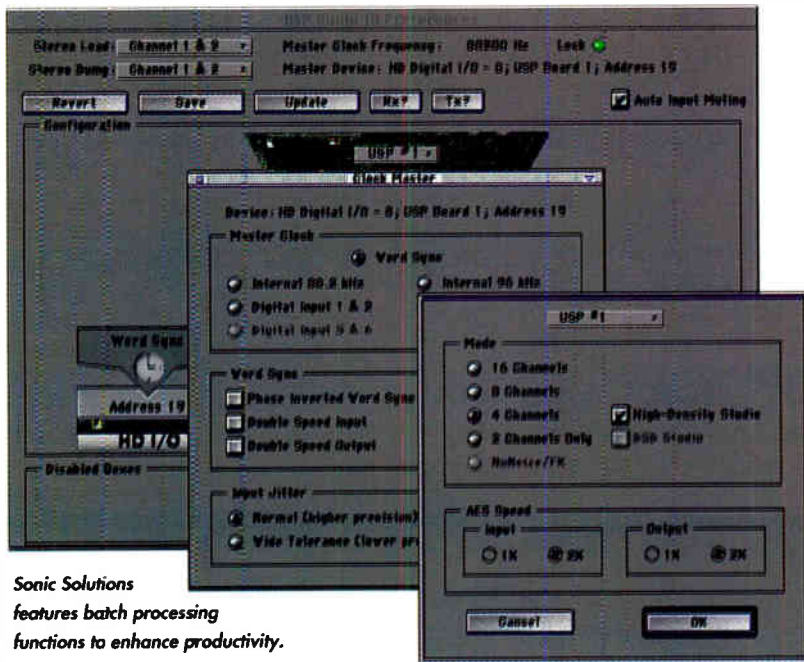


Join us !

SEK'D America
 P.O.Box 5497
 Santa Rosa, CA 95402
 Tel: 707-578-2023
 Fax: 707-578-2025
 eMail: info@sek.com
 Web: www.sekd.com

SEK'D Pro Audio dealers: Draco Audio, AZ, 520-325-6543 – Apex Audio, CA, 714-596-1185 – Sound Chaser, CA, 800-549-4371 – MIDI Classics, CT, 860-651-1349 – Interactive Microsystems, IL, 847-426-1950 – Parsons Audio, MA, 781-431-8708 – Non Linear Productions, NY, 212-732-3773 – Studio Cat Software, OH, 888-873-8855 – Smoky Mountain Recording Co., Inc., TN, 423-428-9088 – Wright Spirit Music, TX, 210-497-3389 – Bayview Pro Audio, WA, 888-718-0300

CIRCLE #098 ON PRODUCT INFO CARD



Sonic Solutions
features batch processing
functions to enhance productivity.

ther the two-step 96-to-88.2/88.2-to-44.1 or ultracomplex single-step conversions that 96 k requires. High-definition pioneers Pacific Microsonics have long promoted 88.2 as the best origination sample rate and now hope to see it used for 96 k release as well.

Prior to finalization of the 1.0 spec, a

separate DVD committee will come to terms with the record labels' hot button of the week; some form of intellectual property protection. Anti-piracy proposals currently floating around range from sublime to ridiculous. But the resulting copy management scheme hopefully will be more robust than the regional

restrictions built into Part 3 to prevent motion picture titles from flooding foreign markets prior to local theatrical release. Already, for the cost of a few DVD titles, current DVD-V players can be hot-rodded by savvy overseas technicians to bypass the built-in regionalization lockouts. Regional codes, along with parental blocks, won't be included in the DVD-A spec. What to do about adult DVD-A titles?

Not content to sit munching Belgian bonbons, the Working Group is beginning the task of building Part 5 "VAN" spec, a bridge format between DVD-V and DVD-A. VAN discs, while a member of the DVD-V family, will be playable on universal DVD-A players if so authored. What the details shape up to be is still a mystery but, like the (bring up the verb) inexorable March of Time, I'm sure we'll be ready for it! ■

Oliver Masciarotte is principal of Seneschal, a company based in San Francisco offering digital media engineering and consulting. OMas, as both a NARAS and SMPTE member, enjoys helping folks meld audio and video technology into a unified experience. Visit him at www.Seneschal.com.



Burlington A/V Recording Media, Inc.

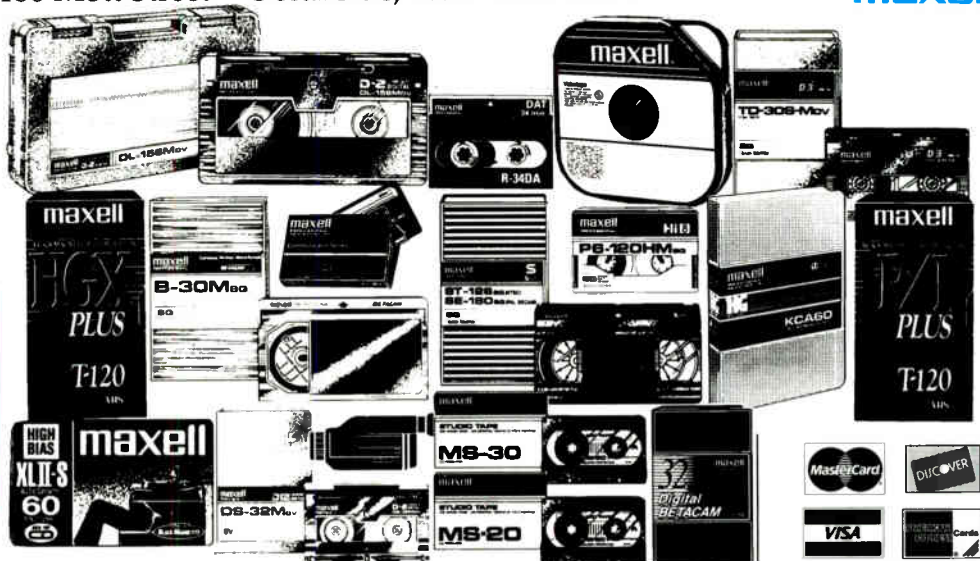
106 Mott Street • Oceanside, New York 11572



maxell

- Shipped From Stock
- Priced Right
- Immediate Delivery

USA & Canada
1-800-331-3191
NYC Area:
516-678-4414
Fax: 516-678-8959



Visit our Website: <http://www.burlington-av.com> • E-mail: sales@burlington-av.com

Call or Fax for FREE CATALOG!

CONSTRUCTING A NEW AUDIO SIGNAL PATH

**PRODUCTION MIXING
FOR ADVANCED TV**

by Peter M. Baird

[The talk of the TV world is the arrival of Advanced Television, Digital Television, High-Definition Television. How multichannel audio fits into the equation is of great concern to broadcast audio engineers around the planet. In this first part of an ongoing series relating to audio for digital television, production mixer Peter Baird provides one engineer's proposal for making the most out of discrete multichannel audio. — Eds.]

I admit it, I can't wait for broadcasting in the Advanced Television Standard to begin. I love mixing variety television, and the lure of a 5.1-channel sound field for a talk show with a live audience and band is irresistible. No more need to squish the dynamic range down to prevent clipping, no more aggressive de-essing to protect the signal from the transmitter's pre-emphasis circuit. Television mixers, to paraphrase Tomlinson Holman, will now have the opportunity to concentrate on the art of mixing, rather than the craft of optimizing sonics to suit an inadequate delivery system.

The understandable terror in the minds of many TV mixers hinges on several factors: monitoring environments, console capabilities and the dreaded broadcast chain, which we all seem to wear like Jacob Marley. The first two factors are presently the subject of heated debate, but the third only seems to be discussed in wirehead circles. What follows is my version of what the audio path

might look like in the next few years—I hope that all of you TV-types will be interested enough to respond and, if warranted, shoot great gaping holes in my predictions.

Dolby AC-3 is the audio standard for digital television transmission. (See the Advanced Television Standards Committee A/52. The entire standard can be downloaded from www.atsc.com, but A/52-53-54 are the juicy bits.) For those of you who have been napping, AC-3 is a very flexible bit-rate-reduction scheme to get audio down from the 6 megabits per second required for six channels of 24-bit linear PCM (left surround, left, center, right, right surround, low-frequency effects) to a broadcastable 384 kbs, a data compression of about 15:1. However, since AC-3 was optimized for minimum data rate, rather than for some maximum number of encode/decode generations,

dolby called Dolby E, a compression scheme to boil down eight channels of audio to a single AFS pair using a (fairly benign) 4:1 data-rate-reduction scheme. Dolby optimized the new process for multiple encode/decode cycles, so it should be possible to introduce Dolby E into the signal chain without degradation.

With these two things in mind, here is how *my* ideal television program distribution works.

The producer wants her show to be a full 5.1 extravaganza. After all, she's paid for an audience, one or more hosts, musical guests, and probably has a \$6,000 television in her office. Fine, you think. I'll just make this 2-channel music console jump through hoops (see *Mix*, April 1998) and set up six monitors in this phone booth-sized control room (see TMH Corporation, Audio For Advanced Television,



PHOTO: GARY VAN PELT

The author, seen here at Crystal Cathedral Studios in Garden Grove, Calif., wonders where he's going to run all these patch cords now that he needs discrete 5.1-channel monitoring in his daily life.

multiple codec generations may seriously degrade some parts of the audio signal, and are discouraged. This scares me. Dolby Labs came to its own rescue, however, and just introduced a new stan-

Film sound columnist Larry Blake is on vacation this month.

www.tmhlab.com). That done, you stand there with six patch cords in your hands and no idea how to send them to the 4-channel VTRs in the tape room, or the 2-channel fiber to the network. At this stage it would be possible to AC-3 encode the mix and record it as a data stream

—CONTINUED ON PAGE 148

615 MUSIC

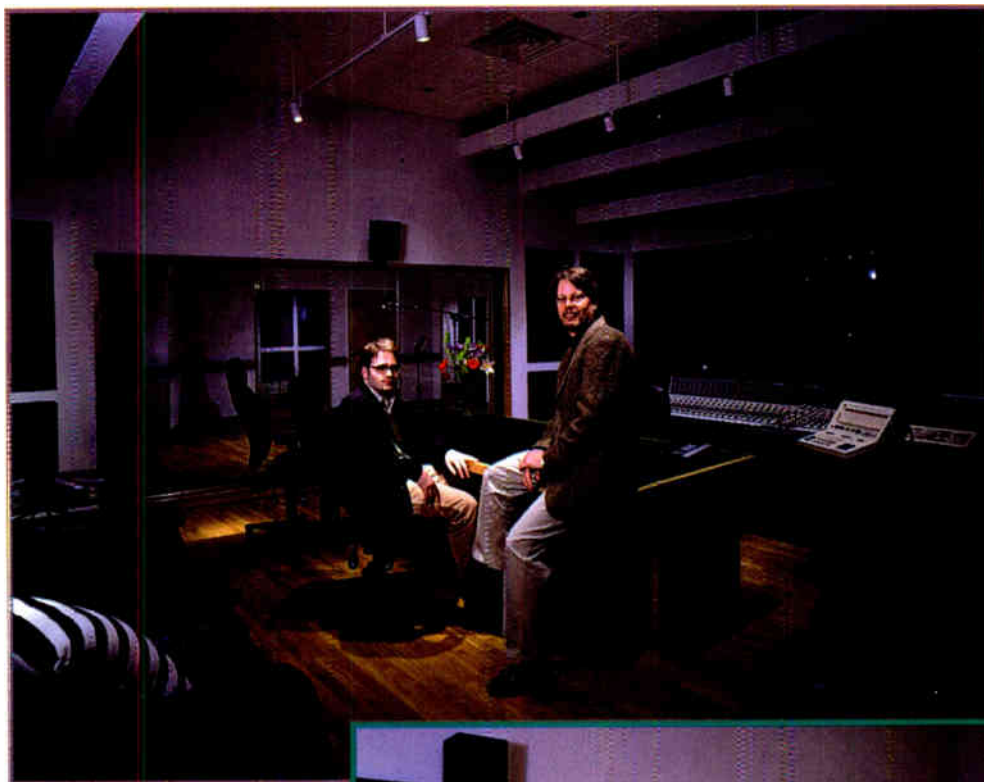
TV MUSIC FROM
NASHVILLE'S
MUSIC ROW

by Loren Alldrin

Flashback to the 1970s: On 16th Avenue South, near the heart of Nashville's Music Row, stands a two-story house owned by the artist Lobo. Peek inside and you'll catch a glimpse of such charming decor as barn wood, brown shag carpet and Steinway piano crates. Strain your ears and you may hear the magical notes of a Lobo classic like "Me and You and a Dog Named Boo" sneaking out from the recording studio.

Today, what you'll see and hear on this particular piece of real estate is a touch different. What was once a house and detached garage has been transformed into a large studio facility, a familiar song for this part of Nashville. And though parts of the original home and two-car garage are still under there (somewhere), about all that really remains of Lobo's pad is the street address and a few carefully preserved remnants of '70s hipness. Call it progress, evolution or sacrilege—where Lobo once crooned, Nashville's 615 Music now creates some of the catchiest music to jump from a television speaker.

Started nearly 14 years ago as just another "jingle house," 615 Music (pronounced "six-fifteen") now counts hundreds of television stations, major networks and high-profile advertising firms among its regular clients. Music created in the facility has graced such promos and shows as A&E's *Biography*, *Treasures* and *Mysteries*; NBC TV; *The Rosie O'Donnell Show* launch; ABC Sports; Tri-Star



615 Music Companies senior audio editor Drew Rydberg, left, and 615 Music president Randy Wachtler in the Russ Berger-designed main room, above.

Pictures; the Home & Garden Network; TNN; Pizza Hut; Toyota and others. The newly renovated facility houses a respectable 24-track recording studio, digital audio editing suites, programming/composition rooms and business offices. 615 Music also offers a 51-CD production music library targeted at television and film producers.

THE FACILITY

Seven months of construction were completed earlier this year, bumping the size of 615 Music's facility from 4,200 square feet to 8,000. The original house and garage have been joined into one large building, getting a complete facelift in the process. The whole first floor is now devoted to music composition, recording and editing, with offices filling the upstairs. Of the two-story garage, only three walls remain: the



fourth has been pushed out an additional 10 feet. This area is home to 615 Music Studios, the recording facility used primarily for in-house productions.

"One of the goals of the renovation was to have separate composition rooms," says 615 Music president Randy Wachtler. "The way this business works is you're really busy, and then you're not, then you're busy again. During certain times, I would have four or five programmers here with every nook and cranny filled. I'd have guys in the control room and tracking room of the studio itself, and we couldn't even record. The goal was to get

rooms where we could put composers for a few weeks without disturbing the rest of the building. Now, we can set up a keyboard player in a room, give him a timecoded VHS or Beta tape, and let him lock up and score while we're recording in the other rooms."

615 Music enlisted the services of the Russ Berger Design Group for the acoustic design of the studio, editing bays and composition rooms; architect Scott Wilson and contractor Randy Robinson worked with 615 Music to realize the designs. The studio boasts a 30x25-foot control room with ele-

—CONTINUED ON PAGE 151

POST NOTES

Projects: Video Post & Transfer, Dallas, mixed the surround sound tracks for what is claimed to be the first digital TV signal broadcast in the U.S., from WFAA-TV in Dallas in late February. The audio was prepared on VP&T's SSL OmniMix by senior audio engineer Joe Macre...SPG Studios in Burbank, where 65% of the work involves foreign-language dubbing, has expanded its services to include feature dubbing and TV series mixing on its 96-fader Euphonix CS2000P console. Most recently, chief engineer Carlos Solis mixed HBO's special *From the Earth to the Moon...* Xtreme Studios, an SSL G+-equipped mobile in Seattle, completed recording the orchestral score for *The Newton Boys*, a 20th Century Fox film. The Danny Barnes score was recorded in a Seattle-area chapel by engineer Tim Boyle, with assistance from Xtreme's owner, Steve Smith...For the third straight year, the *Bad Animals* (Seattle) audio crew for *Bill Nye The Science Guy* (Dave Howe, Mike McAuliffe and Tom McGurk) has walked away with two Daytime Emmys—sound editing and sound mixing...Over at Clatter&Din, Vince Werner won a Puget Sound Radio Broadcasters Society award for his sound design on a Washington Mutual spot; and Peter Barnes mixed a series of TV spots for Microsoft...Music Annex (S.F.) engineer Robert Iriarthorpe hosted voice recordings for a new PBS children's series called *Adventures With Kanga Roddy*, with stars Joe Montana and Ronnie Lott from the 49ers, Pat Morita, and Mickey Thomas from Jefferson Starship. Also, engineer Amy Hunter mixed the 30-minute documentary short *Human Remains*, which won a Jury Award at Sundance this year...A few blocks away at One Union Recording Studios, Joaby Deal continued with the voice recording for Pixar's *Toy Story 2*, via land patch to Chicago Recording Company, and John McGleenan kept on recording voice-overs for Disney/Pixar's, *A Bug's Life*—both in-house and via land patch with DOME Productions in Canada...Scott Liggett of the Alan Ett Music Group, Studio City, CA, composed, arranged and produced the TV and radio spots for Fox Sports' coverage of the Stanley Cup...While we're still on the Fox channel, James von Buelow of SoundHound in NYC handled all the effects and mixing on a Fairlight MFX workstation for *Clemente*, an hour-long sports special. Von

C.A.S. AWARDS WINNERS

The Academy Awards get all the attention each spring, but on March 7, the Cinema Audio Society hosted its 34th annual awards banquet at the Universal Sheraton hotel. The C.A.S. Career Achievement Award went to legendary re-recording mixer Richard Portman. The award for outstanding sound mixing in a motion picture went to the *Titanic* team of Gary Rydstrom, C.A.S., Tom Johnson, Gary Summers and production mixer Mark Ulano, C.A.S. The award for outstanding sound mixing for Movies of the Week, Miniseries and Specials went to Wayne Artman, Robert L. Harman, Frank Jones and production mixer Jay Patterson, C.A.S., for their work on the MOW *Death on Everest*. The award for outstanding sound mixing in a television series went to Rusty Smith, C.A.S., William Freesh and production mixer Russell Fager, C.A.S., for their work on *Chicago Hope*. ■



Richard Portman, left, with emcee Robert Stack.



The *Titanic* team, L to R, of Mark Ulano, Gary Summers and Gary Rydstrom. Not pictured is Tom Johnson.

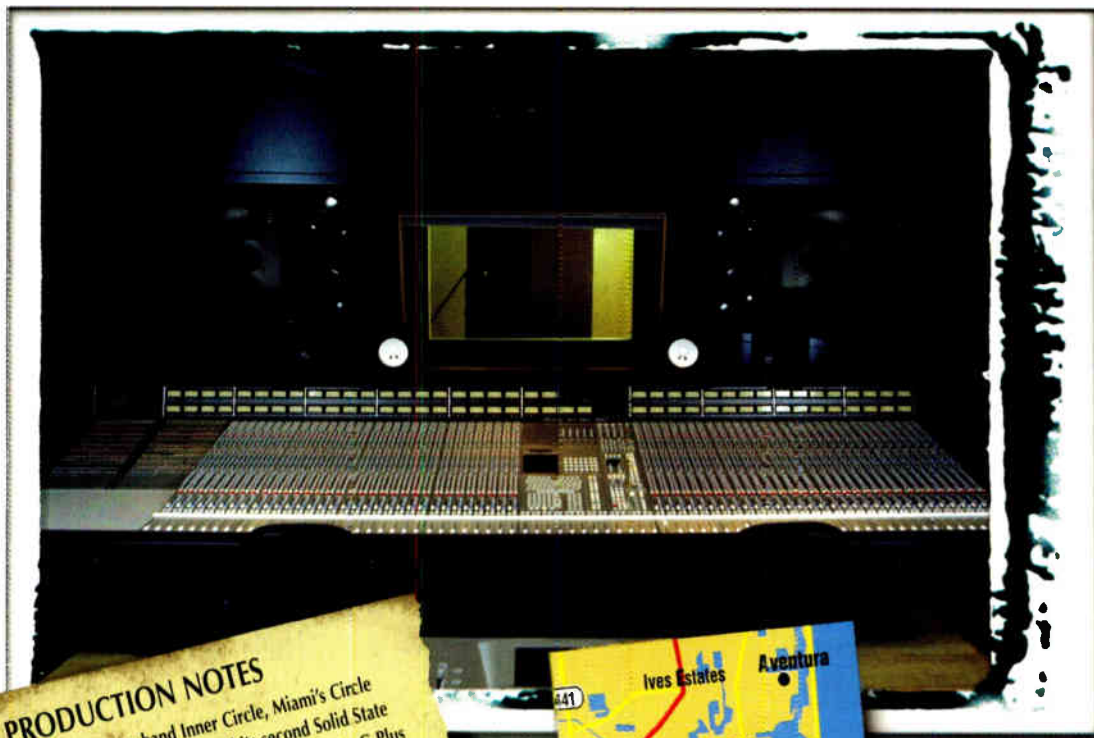


The *Death on Everest* team of, L to R, Frank Jones, Jay Patterson and Wayne Gordon, who accepted on behalf of Wayne Artman. Not pictured: Robert L. Harman.



The *Chicago Hope* crew of Rusty Smith, left, and Russell Fager. Not pictured is William Freesh.

Great Studios Of The World



PRODUCTION NOTES

Owned by reggae band Inner Circle, Miami's Circle House studio recently installed its second Solid State Logic SL 4000 G Plus console. "We've used the G Plus on all of our records, including our latest album, 'Da Bomb'" says Ian Lewis, engineer/producer/writer and Inner Circle bass player. "We love the EQs, especially on the low-end, and the aggressiveness in the mid-range. With reggae, you need that kick on the bass and snare. SSL and reggae are the perfect match."



North Miami Beach,
FL 33160
USA

Solid State Logic

International Headquarters

Begbroke, Oxford, OX5 1RU, England

Tel: +44 (0)1865 842300

Fax: +44 (0)1865 842118

E-mail: sales@solid-state-logic.com

<http://www.solid-state-logic.com>



New York
+1 (1) 212 315 1111

Los Angeles
+1 (1) 213 463 4444

Tokyo
+81 (0)3 5474 1144

Paris
+33 (0)1 3460 4666

Milan
+39 (0)2 2622 4956

Toronto
+1 (1) 416 431 9131

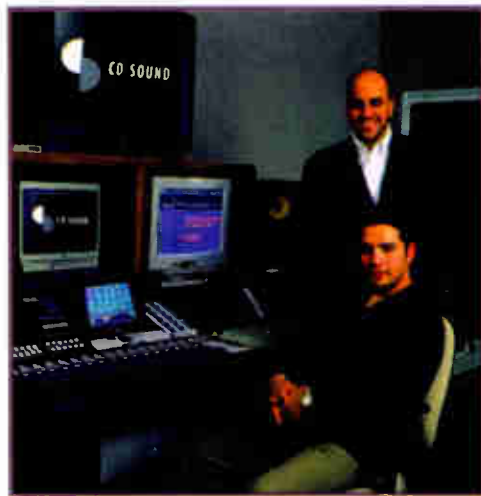
Singapore
+65 (0) 285 9300

Buelow also regularly uses the Fairlight for his ongoing work with the A&E *Biography* series...Sports ads are big in spring: Ray Rettig of Cotton Hill Studios, Albany, NY, mixed a :30 spot for Spalding, featuring basketball's youth phenom Kobe Bryant...Ed Bair of Bair Tracks in Atlanta edited and mixed a string of spots for the Burt Bacharach



The Bad Animals crew of Dave Howe, Mike McAuliffe and Tom McGurk picked up their 12th Emmy for sound—two this year for post on Bill Nye The Science Guy.

TNT special from the Hammerstein Ballroom at Manhattan Center. Bair recorded the voice from New York via ISDN lines, then edited in Pro Tools 4.1, mixed on an Otari Concept 1 and layed back to Digital Betacam...Engineer Don Poole of Ron Rose Productions, Tampa, FL, mixed a series of :60 radio spots promoting the 40th annual Grammy Awards...Speaking of awards shows, Paul Sandweiss mixed the live music broadcast for the American Music Awards from his mobile on three Yamaha 02Rs, cascaded together...At Interlock Post Production in Hollywood, mixers Mark Rozett, C.A.S., and Ken Novak completed the mix for the film *Dust and Stardust* using the new TimeLine/Tascam digital dubbers...The big news out of Hollywood, however, was the recent refurbishing of the Hitchcock Theatre at Universal, with the addition of a Harrison console and the signing of the mix team of Rick Kline and Chris Carpenter...Purchases: Fairlight continues on its no-end-in-sight sales drive, with Nashville's Audio Productions adding an MFX3^{plus}, new trailer company CD Sound (Los Angeles), a division of Creative Domain, adding a FAME and an MFX3^{plus} Studio



Creative Domain executive vice president/COO Joel Johnston, standing, and post-production supervisor Pedro Jimenez, seated, at CD Sound

Hamburg in Germany taking in six MFX3^{plus} systems and World Wide Sound in London putting in another...As we announced in our NAB report last month, Margarita Mix has selected five Poststation systems from Digital Studio Processing for its new Santa Monica facility...TV and radio stations are going fully digital now, in anticipation of digital broadcasting. Soundtracs Virtua

Unique family

RQ Series

- Over 35 years of experience
- Open natural sound
- High standard of construction
- Excellent sales support

You expect all of the above when you buy a Calrec Broadcast console. And you get it. You get the same in your rack.

Calrec Audio Rack Mount Signal Processors, available in four formats.

RQQ 2200 Twin mono equalisers and filters

RQP 3200 Pre-amplifier, EQ, Compressor and Expander/Gate

RQP 4400 Four stereo microphone Pre-amplifiers

RQD 6400 Twin stereo compressor and limiter






Calrec Audio Ltd.
 Nutclough Mill, Hebden Bridge,
 West Yorkshire, HX7 8EZ, UK
 Telephone : +44 (0) 1422 842159.
 Fax : +44 (0) 1422 845244
 E-mail : enquiries@calrec.com
 Website : www.calrec.com



For Further Information Contact : Independent Audio
 Telephone : 207 773 2424 Fax : 207 773 2422 e-mail ia@gwi.net

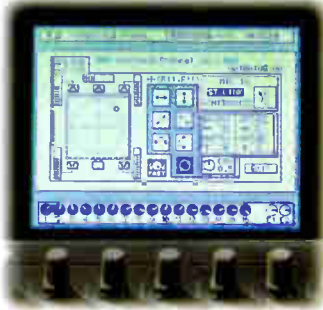
CIRCLE #096 ON PRODUCT INFO CARD

Revolutionary.



Evolutionary.

The Yamaha O2R Version 2 adds a powerful new suite of mixing tools to the digital mixer that has radically changed the way that professionals work. With its unique capabilities, O2R ushered in a new era in creativity and productivity. O2R Version 2 proves that the revolution is still going strong. In fact, there are far too many new features to mention here. For the full manifesto, call (800) 937-7171 ext. 656. Viva la revolution!



Surround Sound panning on every input—a must for TV, film and multichannel music mixdown.



New AutoMix Features: Offline editing, 96 scenes/bigger mixes, touch sensitive fader emulation and lots more.



Remote Control: Use O2R faders and keys to control outboard mixers, effects, sound modules and transports via MIDI.

O3D

Same stuff, smaller package plus new 32-bit effects and mouse control. A powerhouse in music and post applications.



O2R Version 2



YAMAHA
SMART MIXING

©1998 Yamaha Corporation of America, Pro Audio Products, (800) 937-7171 Ext. 656 or visit us at www.yamaha.com. P.O. Box 6600, Buena Park, CA 90622.
Yamaha Canada Music Ltd., 135 Milner Avenue, Scarborough, Ontario M1S3R1 (416) 298-1311.

CIRCLE #097 ON PRODUCT INFO CARD

Bringing the Store TO YOUR Door

AUDIO, VIDEO, TV & LIGHTING EQUIPMENT
Full Compass
CataloG

Catch the Tidal Wave of
Audio & Video Products in
Your **FREE** Catalog or Surf the
Web! www.fullcompass.com

Our store is at your fingertips.
Check out our customer support—
you'll be impressed!

CIRCLE #693 ON PRODUCT INFO CARD

FULL COMPASS

Audio • Video • A/V • Lights

1-800-356-5844

consoles have gone into TV Berlin, FR2 in France, TVB in Hong Kong, TV Nova in the Czech Republic and International Broadcast Facilities in Covent Garden, as well as M2 Television Facilities of Camden, England. Also, Superdupe of NYC put a 48-fader Soundtracs DPC-II in its new 5.1-channel mixing suite, manned by mixer Gary Arnold... Meanwhile, SSL Aysis Air systems have been purchased by WLS-TV in Chicago and WRC in Washington, D.C.... Soho-based Gemini Audio has installed the latest Genesis operating platform and put in full networking facilities across its SoundStation Sigma, Delta and Sabre systems... Harrison film console sales: 4MC has put in its second of three planned SeriesTwelve consoles; De Lane Lea Sound Centre installed a 140-input SeriesTwelve in Studio One, then put it to work on *Spiceworld*, mixed by Peter Maxwell and Mick Boggis; Australian house ATLAB ordered a SeriesTwelve; and Feltwave in Copenhagen took delivery of a 72-in SeriesTwelve... Back in San Francisco, DubeyTunes Studios has opened its third suite, the Violet Room, based around the West Coast's first in-



Ed Bair of Bair Tracks, Atlanta, handled the daily voice and music spots for TNT's promo coverage of the NBA playoffs, from his 48-fader Otari Concept I console (with DiskMix moving fader automation) and 32 tracks of Pro Tools. Voice was sent daily from New York via ISDN; the music was an edit of Tears for Fears' "Elemental."

stalled Digidesign Pro Control automated mixing surface and 32 tracks of Pro Tools... Bob Whyley is now mixing the *Tonight Show With Jay Leno* on a 104-fader Euphonix CS31000B console... National Mobile Television placed an order

for a Calrec Q2 dual-inline analog board, to be installed in mobile unit DX-6 this month and to be used on sports programs. NEP, meanwhile, has ordered its third Q2 for use on NBC Sports events... Tecnison of Madrid has

Originality ...

or copycats?



Originality is obvious when you see and hear it. In audio workstations, only MicroSound frees you from all fears and track limitations. All fears of crashing or losing files are removed even from a power loss... simply overlap floating segments to mix and play on-the-fly... adjust anything in the project anytime without destructive undoing... hear the sonic perfection of sample accurate fades. Why limit yourself with a tape recorder copycat?

MicroSound Originality... freedom to create your best! Call Today!

"Quality Digital Audio Since 1977"
Celebrating Our 20th Anniversary

microsound

Digital Audio Workstations

Voice: 1-919-870-0344 Fax: 1-919-870-7163 Web: www.mtu.com Email: info@mtu.com

Micro Technology Unlimited * 6900 Six Forks Road * PO Box 21061 * Raleigh, North Carolina, USA 27619-1061

installed a 32-channel, 128-input SSL Avant digital film console; and Avon Recording Studios of Hong Kong has added an SSL 4048 G Plus console to complement its 9000 Series desk...Dallas-based Luminous Sound Studios has built a Pro Tools room with ISDN digital phone patching for recording voice-overs and mixing spots. The primarily commercial post house also does album recording on an SSL 6000E and has picked up some ADR work from Los Angeles...Tim O'Keefe, Geof Gibson and Peter Carpentier, principals in Sound Surgeon, an audio post house in San Diego, held a grand opening party



LIVE FROM NEW YORK

Stacey Foster, technical consultant for NBC's *Saturday Night Live*, sat in front of the network's newly installed Solid State Logic SL9000 J Series console, which is being used for live broadcasts of *Saturday Night Live* and the *Rosie O'Donnell Show*.

do
they
really
know
pro audio?

A music store is a great place to buy your musical instruments. But sophisticated recording equipment like workstations, tape machines and high end signal processing are not the forte of music stores. Never has been, never will be.

At EAR, professional audio for recording, production and sound reinforcement has been our speciality since 1977. We offer expert advice from veteran professionals in the industry and sell professional audio equipment at nationally competitive pricing.

This business means more to us than just a quick sale. We're here for the long haul.

**PROFESSIONAL AUDIO
IS WHAT WE DO!**

Digital Multitrack
Audio-Video/Workstations
Recording Consoles/Mixers
Signal Processing
Studio Monitors/Microphones

EAR
PROFESSIONAL AUDIO/VIDEO

2641 E. McDowell Rd.
Phoenix, AZ 85008
602.267.0600
Fax 602.275.3277
<http://www.EAR.NET>
info@EAR.NET

recently to show off their Yamaha ProMix03/Pro Tools 4.0 room...Award-winning radio producer Bruce Goldberg has joined Howard Schwartz Recording in New York and has formed Home Run Radio, an all-in-one production shop that covers "all the bases"... Finally, Audio Plus Video International, the Northvale, NJ, subsidiary of Video Services Corporation, will open a 13,000-square-foot facility in Burbank by late summer. ■



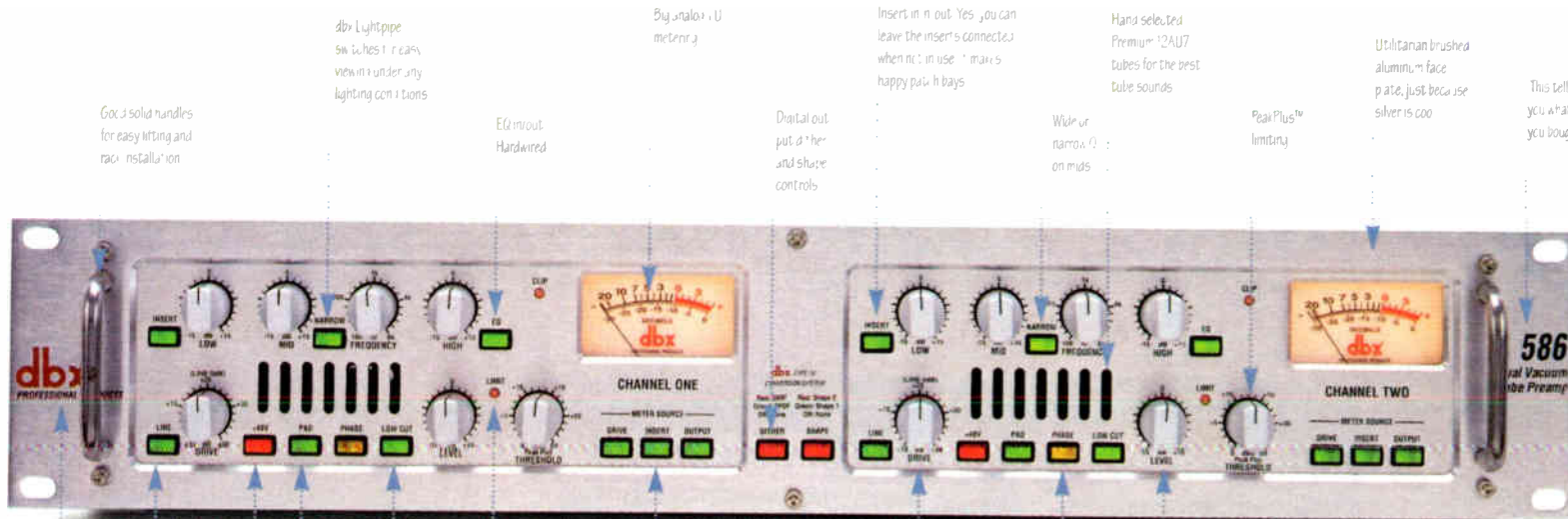
National Sound creative director/composer Peter Fish created the soundtrack, a complex combination of sound design, Malaysian drumming and orchestra, while John Arrias, shown here, mixed the discrete 6-channel "Dark Ride" special venue audio presentation for Petrosains Discovery Centre in Kuala Lumpur. For the project, Arrias says, he mixed in a 20-foot-square studio with six speakers at arm's length, essentially sitting on the subwoofer. Other news from National: The company has formed a new division, 101 Original Music, a boutique studio focusing on the ad market, headed by Fish, composer Dave Porter and composer Greg Laporta.

CIRCLE #100 ON PRODUCT INFO CARD

This should put an end to that "beauty is only skin deep" nonsense!

SILVER SERIES

CIRCLE #101 ON PRODUCT INFO CARD



Good solid handles for easy lifting and rack installation

dbx Lightpipe SW switches for easy viewing under any lighting conditions

EQ in/out. Hardwired

Big analog VU meters

Digital output level and phase controls

Insert in/out. Yes, you can leave the inserts connected when not in use. It makes happy path bays

Wide frequency response on mids

Hand selected Premium 12AU7 Tubes for the best tube sounds

PeakPlus™ limiting

Utilitarian brushed aluminum face plate, just because silver is cool

This tells you what you bought

Mic/Line from the front panel

20dB Pad

Limiter with light you went over the line

Switchable from drive, insert or output metering

Drive control for a wide variety of tube sounds: soft and warm to hard and in your face!

Detented pots for easy setup and tactile feedback

XLR and 1/4" inputs per channel. Mic or line, line is switchable between instrument or line levels

Full 48V phantom power

12dB/OCT 75Hz Bessel Low cut filter

Optional dbx Type IV™ Conversion System

Optional dbx transformer balanced outputs

Output switchable between +4 10 operation

In phase, out of phase, in, out, in, out, rise and repeat

Separate 1/4" send and return inserts on each channel



Call your dealer now. You'll be surprised at the small price tag

We promise

dbx has long been known as the leader in signal processing technology, and mic preamps have always been a strong part of that reputation. Our 586 Dual Vacuum Tube Preamp carries the heritage of those past products into the vacuum tube arena. As usual we have left no stone unturned to bring to the 586 all the standard features one could possibly want in a preamp, including custom designed analog VU meters that monitor tube level, insert path or output levels, +48V Phantom Power, 20dB pad, phase invert, and low cut filter. Line/Instrument and mic inputs make the 586 versatile enough to use with virtually any source device. Add to this impressive list of standard features extras like a three band EQ with sweepable mids and adjustable mid Q (with hardwire bypass switch), insert loop, and the new patent-pending PeakPlus™ limiting topology and you've got a winner.

All this would be enough, but you've come to expect more from us than just "enough", and we deliver the goods with the 586. Hand-selected and matched premium 12AU7 vacuum tubes ensure ideal triode gain matching, distortion, microphonics and drive characteristics. What does all that mean? It means you get the best tube sound with the most versatility available today.

Have you ever wanted to go directly from the wonderfully warm sound of tube processing to the digital domain without losing that great sound? Well, now you can. With the optional TYPE IV™ Conversion System output, you can capture the essence of tube processing directly into the digital world, without leaving the box. The digital output offers the ability to communicate in either AES/EBU or S/PDIF at 16 or 20bit word lengths. In addition, TYPE IV™ offers the ability to select noise shape algorithms and dither types that best suit your music and your medium. So get down to your pro audio dealer today and hear the beauty for yourself.

Save The Planet!



It's The Only Market We've Got

dbx Professional Products • 8760 South Sandy Parkway
Sandy UT 84070 • Phone (801) 568-7660 • Fax (801) 568-7662
email: customer@dbxpro.com • URL: <http://www.dbxpro.com>

H A Harman International Company

dbx
PROFESSIONAL PRODUCTS

—FROM PAGE 138, *ADVANCED TV*

on one of the channels of the VTR, but several vicious problems ensue: Conventional VTR editing becomes impossible without a codec cycle, and everyone who needs to make slight changes in the show for timing, etc. will have to do another codec cycle. Those cycles will add up quickly and do absolutely no good to your mixes. Instead, you put those six cords into that brand-new Dolby E encoder and send the resulting pair to the VTRs and/or the network feeds.

Many different things can happen now. Some shows will deliver live, but most will have at least some video edit-

ing, if only for commercial insertion. Let's look at the second path.

In a show that delivers hours or days from shooting, only very minimal editing is done, and there is usually no audio post-production. To get the full 5.1-channel mix to the viewer, the video editor will have to have source machines with a Dolby E-encoded multichannel signal on a pair of tracks. Unlike an analog 4:2:4 matrix, this pair must be decoded to be heard, which means that at least one Dolby E decoder will be required, in this case probably hanging on the output pair of the record machine. The only way to monitor audio will be through that ma-

chine, either in playback or E-to-E. The good news is that this system will allow standard insert and assemble cut editing, including audio-only cuts, without affecting system timing. Keep in mind that the editor is cutting all 5.1 tracks at once and cannot access them individually. For shows that have a larger video post budget but still no audio post, the editor will probably require an E-type decoder on each source machine that needs it, and so will be able to manipulate individual parts of your 5.1 mix that were never meant to be separated (shudder). Note that this will require a shift to at least a 6-bus mixer in the edit suite with LOTS of inputs—Zaxcom, Mackie, Yamaha, et al., are you listening? (To be fair, I'm told that Zaxcom has a 6-bus mixer out now, but large amounts of inputs will still be a problem.) On film shows we will work the way we always have, save that audio post will deliver a Dolby E-encoded 5.1 master.

Now that the show is finished, it will either go straight to local transmission or via fiber/sat to the network. In the second case, the Dolby E-encoded pair will sail right along with the video on the existing path. At the network, when the show airs, the signal will be played back, decoded back to six PCM channels, and routed into the digital master control console. This is where net insertions will happen ("Next on *Frasier*, Niles acts neurotic!") and any sonic stamping the network swears it won't do. The resulting feed, still 5.1 and still largely what you sent, gets re-encoded, Dolby E again, for the trip back to the affiliate as an AES pair.

At the station, the Dolby E-encoded network feed is decoded back to its component parts as linear PCM and run into the station's digital master control mixer, along with all the local origination stuff ("Coming up at 11, Local Man Sued by Hedgehog...") and finally sent as a discrete 5.1 mix to the AC-3 encoder, which should by law be entrusted only to people who own transmitters, optical film dubbers or DVD authoring machines. The next stop for the encoded signal is the transmitter itself—and the consumer.

Here we have a system that utilizes existing VTRs and long-distance signal paths and can deliver a full Complete Main (CM) service with very little degradation. Complete Main? Could it be I haven't mentioned metadata yet? Part of the AC-3 specification calls for the embedding of data about the (audio) data, or metadata. Fun things can be specified here, like type of service (8 possible, including 5.1 Complete Main), audio coding mode, the kind of room

Full Sail is one of the most extraordinary educational experiences in the world, offering hands-on training in thirty-two cutting-edge studios. Full Sail's powerful list of lab equipment includes the **SSL 9000J**, **Neve Capricorn**, and **Neve VR** super consoles, **Studer 48-Track** Digital and Analog Recorders, **Arri 35mm** and **16mm** film cameras, **Quantel** and **Avid** digital video editing systems, and **Silicon Graphics** and **Intergraph** graphics workstations. The only thing more impressive than our gear is the long list of successes, credits and awards that thousands of Full Sail grads have earned.

If you're serious about your dreams, we'll take your dreams seriously. sm

FULL SAIL

Real World Education®

School of
Audio • Film • Video • Digital Media
Game Design • Show Production

3300 University Boulevard Winter Park, FL 32792
Financial aid available to those who qualify. Job placement assistance. Accredited by ACCSCT.

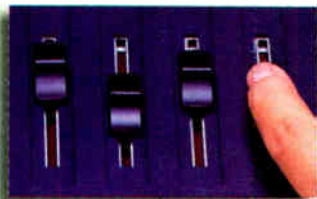
1 W
• W
8 W
0 W
• W
2 W
2 W
6 W
• W
7 W
6 W
2 W
5 W

CIRCLE #102 ON PRODUCT INFO CARD

A Different Slant on Reverb



As a new sports car beckons you to the open road, the Wedge's totally unique desktop design makes creating great reverb a breeze. It's the first reverb that's fun to drive.



Just push the Wedge's edit button and start adjusting your reverb with the four edit sliders. It's easy to get creative with the Wedge's powerful parameters like decay, frequency damping, swirl, early reflection room shape, width, density and diffusion.

For as long as effects processors have been bolted into racks, customizing your reverb sound has been about as much fun as setting the time on a digital watch. But the Alesis Wedge™ offers an ingenious new angle to the way you approach reverb and ambient effects.

Unlike racked effects, the Wedge is a dedicated Desktop Master Reverb, cleverly designed to be used on or near a mixing console where you do your most critical listening... in the sweet spot of your mix. And with four edit sliders to access several effects parameters at once, you'll find yourself tweaking aspects of your sound you would never dream of editing in a rackmount box. Result: more inspiration for recording and mixing, and less limitation on your creativity.

There's more to the Wedge than its great design, like all-new algorithms that represent the finest, most detailed, best-sounding reverb you've ever heard, especially in an affordable processor. Don't limit yourself to the rack; instead, think differently and try out a new slant on reverb.

The Wedge. At your Alesis Dealer now.



Instead of using a snare drum to set up your reverb, the Wedge offers the innovative Impulse Audition™ feature, which sends a full bandwidth audio signal to help you get flawless reverb for every application.



WEDGE™
DESKTOP MASTER REVERB W/IMPULSE AUDITION

If you're on the net, check out the special Wedge page with audio files at www.alesis.com/wedge. For more information on the Wedge Desktop Master Reverb, see your Authorized Alesis Dealer or call 800-5-ALESIS. © Wedge and Impulse Audition are trademarks of Alesis Corporation.

Alesis Corporation

1633 26th Street Santa Monica CA 90404 800-5-ALESIS www.alesis.com

ALESIS

CIRCLE #103 ON PRODUCT INFO CARD

ALESIS SIGNAL PROCESSING

SEE US AT NAMM BOOTH #3287

In the Studio?

FREE Guide Saves You Time and Money!

Nothing is more frustrating than making CDs or cassettes and finding out that there is something wrong with your master tape. **DISC MAKERS' Guide to Master Tape Preparation** provides insider information, as well as common sense tips, on preparing an error-free master tape on the first try. *No matter where you record or manufacture your product, you need this 48-page booklet before leaving the studio.*

Call Today For Your FREE Guide:

1-800-468-9353

www.discmakers.com

\$7.95
value

DISC MAKERS
EXPECT MORE

CIRCLE #104 ON PRODUCT INFO CARD

ANNOUNCEMENT CD of 100 Free Sound Effects

- No Cost - No Obligation
- Production Ready
- From The Hollywood Edge Library
- No strings attached
- For working sfx pros only

Available Now – Call

1-800-292-3755

www.hollywoodedge.com

"Best Sound Effects Library without a doubt," - Oliver Stone

"Excellent," - Martin Scorsese

"Kicks Butt!" - John Hughes

CIRCLE #105 ON PRODUCT INFO CARD

you mixed in, preferred dynamic range compression and a really slick thing called dialnorm.

Dialnorm is a digital word embedded in the metadata that specifies a level under the absolute digital peak level in the program that the dialog averages. So what, you say? AC-3 decoding systems will use this dialnorm level to set playback levels so that all programming can have the same average dialog level. This means, in theory at least, turning up *The English Patient* to a comfortable level won't deafen you when the news breaks in. To accommodate playback systems with only four, three, two or a single speaker, downmix instructions are also carried in the metadata. Dolby, I think, needs to research ways of telling third-party digital mixers the downmix instructions automatically so that a stereo mix can be produced from the 5.1 mix just ahead of the AC-3 encoder for presentation to the analog transmitter inputs. (Analog NTSC, the present system, is mandated to be around until at least 2006.) Dolby implemented metadata in the Dolby E spec, as well as in the AC-3 stream, so that the mixer can specify metadata items from the mix stage (and so the network can change them randomly). Keep in mind that anytime the E-type signal is decoded, the metadata must be strung around any mixing and reinserted at the next encode stage.

My point here is that as television mixers we will be required to deliver product conforming to this standard very soon. Public spectra (satellite, STL, ENG links etc.) will always be in short supply, and the networks will always resist spending more money on Telco bits per second than they absolutely have to. Eventually, some trunk transmission and video editing datastreams may be enlarged to the point that we can stay discrete longer than we can right now, but don't hold your breath. Changes like that cost big money, and if the present plant can be used for a while longer, count on the broadcasters doing so—after all, they just spent really huge dollars redoing video transmission. If using Dolby E makes it possible for us to use the existing chain and stay discrete at the same time, I think it represents a good compromise. Besides, wouldn't you just love to put 32 tracks on a single DA-88 tape? ■

Peter Baird is a Los Angeles area-based TV production mixer who thinks Ed Greene is a national treasure. He can be reached at PMilesB@aol.com.

—FROM PAGE 139, 615 MUSIC

vated producer area, 40x30-foot main tracking room and four isolation booths (one with a 7-foot Kawai grand piano). Thanks to planning and a massive floor-to-ceiling main window, sightlines are maintained between the control room and all recording booths.

At the heart of the control room is an Otari Series 54 console with DiskMix 3 automation. A small machine room houses an Otari MTR-90 MkII analog recorder; other decks include a Tascam timecode DAT and various standard DAT and cassette machines. Monitors include soffit-mount and console-top Genelecs. Studio B, which shares a tracking booth with a nearby scoring room, has a SADiE workstation and will soon offer a Yamaha O2R console. As with the main studio and scoring rooms, Studio B has lock-to-picture capabilities.

Though fully ready for 5.1 monitoring, 615 Music is waiting on the right digital mixer/recorder combo to make the big switch. In an industry where speed is paramount, the owners are hesitant to invest in a system that will slow them down. "We do so many television projects, themes and quick-turn-around projects," says Wachtler, "that I find it incredibly handy to bring a reel of tape in, plop it on the machine and go. What I don't like about some of the digital systems is that you have to save

and download to get to a project—it's just too time-consuming. We're going to wait a little longer and really dive into a system that gets 32 or 48 tracks on a single disk. We want to be able to drop the disk in, take it off when we're done and put it on the shelf."

In the interest of flexibility, every production room in 615 Music is tied into the main studio and digital editing rooms. This allows the studio to record from up to six booths in addition to the main tracking room (for large orchestral dates, for example). The extensive wiring also allows composers and programmers to feed tracks directly to the editing rooms without going through the studio itself. Currently, one of the two editing suites is online with a SADiE workstation; the other will be online soon. "With almost every project we do," says Wachtler, "we like to go through SADiE as the end mastering phase. This allows us to tweak and edit sounds, as well as add sound effects. We went with SADiE because its EQ and compression sound really good."

The main studio area of 615 Music is self-contained with a full kitchen and lounge area. It can be closed off from the scoring, reception and office areas, which makes it possible for clients to book 615 Music Studios—available for outside projects 30 to 40 percent of the time—without affecting day-to-day operations.



Emmy-winning composer Stephen Webber, standing left, was at the Skywalker Sound scoring stage recording the music for the upcoming animated film *Zoetrobics*. Pictured with Webber, seated left to right, were co-producer Watson Reid, sound designer Andy Martin, Skywalker engineer Bob Levy and, standing right, director/ animator Ed Counts.

1-888-437-6375
Call us
NOW

- Keyboards •
- Recording •
- Pro Audio •

Hermes Music

Synthesizers • Digital Pianos
Pro Audio • Software
Recording Gear • Samplers
Amplifiers • Mixers/Effects

1-888-437-6375

The
Number
To call for
the
**ROCK
BOTTOM**
LOWEST PRICES
Anywhere



HERMES MUSIC

7325 San Pedro, San Antonio,
SAN ANTONIO, TX 78216
<http://www.Hermes-music.com>

1-888-437-6375

MASTER SYNC

AARDSYNC II

A problem free studio...

...begins with the AARDSYNC II. Having all your digital audio devices locked to one jitter-free master clock solves every click, pop, out-of-sync, digital incompatibility problem you ever had.



- Pro Tools®
- Sonic Solutions™
- Tacam® DA-88/38
- Yamaha® O2R/O3D
- ADAT®
- NTSC/PAL Video
- Sony® PCM-800
- DAT Machines



SEE US AT NAMM BOOTH #3417



Aardvark

<http://www.aardvark-pro.com>

Ph 313•665•8899 • Fax 313•665•0694 • 202 E. Washington Ste 306 • Ann Arbor • MI • 48104

CIRCLE #107 ON PRODUCT INFO CARD

THE MUSIC

615 Music's bread and butter is scoring and sound design for television shows, promos, network launches, station themes and the like. Rather than have a handful of full-time staff composers, Wachtler prefers to draw on the wealth of outside talent available in Music City. "A lot of our competitors have one or two people that do everything," he says. "Because of all the great programmers and musicians and arrangers in this city, we can have different creative minds behind these projects. It's really kept our music varied, and I think clients really like that. I can give them something really different."

615 Music's commitment to quality and diversity is evident in its new production music library, which is targeted a notch or two above the usual highly programmed fare. Laced with acoustic instruments, real musicians and plenty of true orchestral music, the 615 Music library is picking up interest from major networks. The library is not a buyout, which helps attract composers and writers.

When asked why he named his company after Nashville's area code, Wachtler says, "I wanted to tie the rest of the world to Nashville. I felt there were a lot of great musicians here, and not just in country music. I take a lot of pride in the fact that we've had the NBC network here to record their fall themes a couple years in a row. They're one of the first companies to do that, to record their whole theme out of Nashville. L.A. has been very receptive to what we do here; New York's a little slower. Still, we do a lot of work for A&E and The History Channel, and none of it's country—it's all orchestral. We put the History Channel on the air—I came up with their basic logo notes to launch them.

"We're highly service-oriented," Wachtler continues. "Clients feel like we'll bend over backwards for them and give them a little extra. That may hinder growth a little because we really interact with them a lot. We're not the cheapest—this is an era where a guy without much invested could compete with us out of his house. But I still think clients like to be treated well, and they like to get away from the office to a place like this where they're treated nicely. We have a great vibe here."

Loren Alldrin is a Nashville-based producer and writer.

SONY HAS ELEVATED ITS STANDARDS ONCE AGAIN

Have you ever seen such a heavenly DAT?

Do you think the Big Guy will let us keep it?

Only in my dreams...

He'll have a devil of a time taking it back!



THE DAT STORE INTRODUCES THE PCM-R500 DAT RECORDER

featuring

SONY'S LEGENDARY 4D.D. MECHANISM WITH 4 DIRECT DRIVE MOTORS, SUPER BIT MAPPING RECORDING, MULTIPLE ANALOG AND DIGITAL INS AND OUTS, ... AND A JOG/SHUTTLE WHEEL!

sigh

ALSO AVAILABLE AT THE DAT STORE: COMPACT DISC RECORDERS • DIGITAL AUDIO TAPE RECORDERS • DIGITAL VIDEO CASSETTE RECORDERS • HARD DISK RECORDERS • MINIDISC RECORDERS • BLANK MEDIA AND ACCESSORIES

2624 WILSHIRE BOULEVARD • SANTA MONICA • CALIFORNIA • 90403

PHONE: 310.828.6487 • OPEN WEEKDAYS 9 A.M. THRU 6 P.M. AND SOME SATURDAYS • FAX: 310.828.8757

THE DAT STORE SPECIAL Z NG IN OTHERWOPDLY DIGITAL DELIGHTS

CIRCLE #108 ON PRODUCT INFO CARD

REPORT FROM AMSTERDAM

TOP 10 PRODUCT HITS

FROM THE 104TH AES CONVENTION

by George Petersen

From the start, I knew that 1998 would be a special year for audio shows, as AES hosts its conventions in Amsterdam and San Francisco, two of the world's great party towns. And in every aspect, ranging from the delightfully warm May weather to a fascinating assortment of new products, the Amsterdam show did not disappoint. Here are my picks for the Top 10 hits of the show:

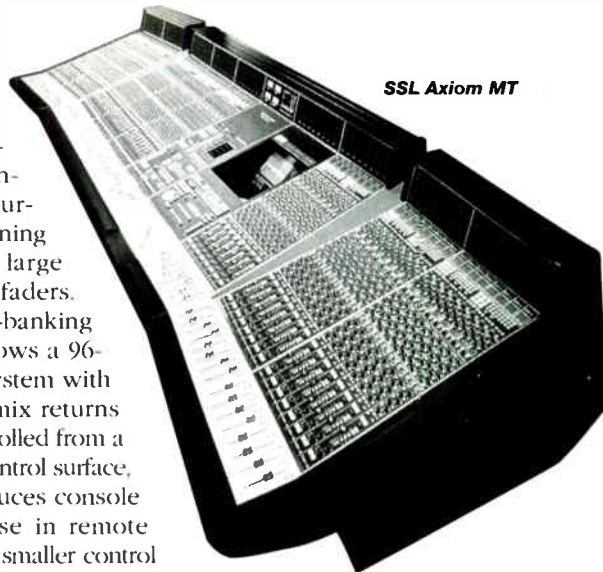
Solid State Logic (www.solid-state-logic.com) stole the show with the first public showing of Axiom MT, its long-awaited digital music production console. Axiom MT combines the digital horsepower of its proven Axiom mixers with the familiar control surface of the 1,500 SSL analog consoles in use worldwide. Anyone who's mixed on an SSL board can sit down and start working on an Axiom MT in a matter of minutes, without having to endure getting lost in countless pages of submenus or spending hours overcoming a learning curve. The console's in-line design provides up to 96 channels controlling 192 inputs, with every

control dynamically automated—including surround panning on both large and small faders. A channel-banking facility allows a 96-channel system with over 200 mix returns to be controlled from a 48-fader control surface, which reduces console size for use in remote trucks and smaller control rooms, while users can access nearly every control without leaving the "sweet spot."

Standard equipment includes 48 multitrack buses, 12 main mix buses, 12 aux buses (configurable as stereo or mono), 4-band parametric EQ with HP/LP filters, compressor/limiter/gate/expander on each channel and machine control functions of up to four serial- or one parallel-controlled transport, with individual track arming from each channel. Based on traditional SSL systems, Axiom MT's automation capabilities are extensive, with all channel functions dynamically automatable or recallable via 64 Instant Reset snapshots. A comprehensive digital router allows for sending any source to any destination with all patching stored and recalled on a session-by-session basis. Pricing is said to be comparable with SSL's 9000 J Series; deliveries are slated to begin in October.

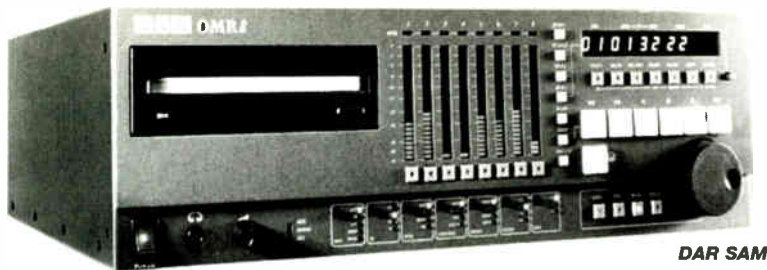
Sennheiser (www.sennheiserusa.com) provided an amazing technology demonstration by showing its optical microphone, which operates on the simple principle of bouncing a light beam off a diaphragm and picking up the reflective light with a photodiode. Besides special-purpose situations requiring use in mic-hostile environments (near power transmitters or strong electrical/magnetic fields), the 1/4-inch-diameter optical capsule is ideal for unobtrusive miking for stage or film applications. On headphones at the show, the prototype sounded very good, comparable to the company's MKE2. On a related note, to commemorate its 70th anniversary, sister company Neumann (www.neumann.com) has released a limited number of gold-plated U87 mics. Order yours today!

Digital Audio Research (www.dar)



SSL Axiom MT





DAR SAM

uk.co) launched its SAM (Scalable Audio Multitrack), a disk-based, 8-track digital dubber/recorder that can be expanded MDM-style from 8 to 1,024 tracks by adding more boxes. SAM is based on three-rackspace modules, each with on-board 24-bit DACs and ADCs, with options available for eight channels of AES/EBU I/O and a wide range of storage media, including removable hard drives, MO disks and Jaz drives. Audio is stored as .WAV files, compatible with the current OMFI spec, and support is planned for the upcoming AAF and AES 31 specs. Recording resolution can be set for 16/20/24 bits, up to 192 kHz; looping, full-bandwidth scrubbing and forward/backward lock to biphase or timecode should all appeal to the post user. Pricing is about \$9,000.

Eastern Acoustic Works (www.eaw.com) has entered the powered speaker market with the KF400a, a full-range system in a flyable, 163-pound trapezoidal enclosure. Components include a 15-inch woofer, 8-inch horn-loaded cone mid, and 1.4-inch compression driver/CD horn tweeter, delivering long-term peaks of 122 dB, all driven from custom onboard biamplication from Cyberlogic. Two dozen systems have been in beta use worldwide; deliveries begin this month.

AES marked the official launch date for Octagon, the digitally controlled, large-format post/music production console from D&R Electronica (www.d-r.nl). Available in 60- or 84- dual-input frames for up to 168 inputs in remix, Octagon offers stereo/LCRS/5.1/7.1 mixing and monitoring, with a TFT status/operations screen, two automated joystick surround panners, master/CRM inserts for direct interfacing with decoders and Recall on all pots and Reset on all important switches. Each dual-input module has two identical pathways with 4-band parametric EQ and 12 aux sends. Options include stereo modules, external stems/matrix inputs, high-resolution RTW or NTP metering and D&R's software-driven dynamics processor for compression/gating functions on every input. Octagon's SMPTE-based moving fader automation runs on D&R's proven Powerfade software and is standard.

Introduced ten years ago, the West-

lake Audio (www.westlakeaudio.com) BBSM-10 has earned a reputation as one of the finest monitors in the industry. Now Westlake offers the BB-10SWP, a matching subwoofer that stands up to the quality of this established audio classic. The combination provides smooth, solid reproduction down to 26 Hz and remains remarkably consistent at any level. Based on an 18-inch woofer, the sub includes a massive 55-pound crossover, and the system can be



Westlake BB-10SWP, shown with BBSM-10 monitor.

operated passively, or bi-/tri-amped.

Also making its European debut was the Iasys electroacoustic analyzer from AudioControl Industrial (www.audiocontrol.com). Housed in a lunchbox-sized chassis, Iasys is an ideal tool for anyone involved in sound system design, tuning, installation or optimization, and it provides quick answers to problems concerning crossover points, delay, polarity, coherence and frequency response. Pricing is \$3,995.

Designed for project studios or surround mixing, the System 600A from Tannoy (www.tannoy.com) is a powered monitor based around the company's successful 6.5-inch dual-concentric coaxial driver in a compact cabinet with on-board biamplication and internal magnetic shielding. The sound? Sweet and smooth—on- and off-axis! Tannoy could have a winner on its hands with this one.

E-mu Systems (www.emu.com) provided a sneak preview of its digital mixer, now code-named "Ivy." Designed around 16-in, 16-out analog I/O modules, Ivy is software-based (Mac or PC) with a three-rackspace main unit that handles optional TDIF/ADAT I/O cards. Standard are four stereo effects sends, eight stereo aux returns and 8- or 16-bus operation; the system can be expanded up to a maximum of 96 channels by adding \$500 16-channel I/O modules. For those who dislike on-screen mixing, a \$2,500 hardware controller will be available. Shipping is planned for Q1 1999.

Last but certainly not least is the DigEQ Programmable Equaliser/Dynamics Processor from LA Audio (www.laaudio.co.uk). Housed in a two-rackspace chassis with a large, high-resolution LCD readout, DigEQ offers simultaneous 24-bit processing by dual 31-band $\frac{1}{3}$ -octave graphic, parametric and shelving EQ, with variable high/lowpass filters, compressor/limiter and noise gate. The unit's simple, single-key-press interface allows for fast adjustments on-the-fly in live performance situations. Options include digital I/O, delay and an internal RTA module. Up to 15 dual-channel slave units may be controlled from the master, or the entire system can be externally controlled via an optional wireless or wired remote, or via a MIDI-equipped Mac or PC. Retail is \$3,499; slave units are \$2,199.

Of course, there was plenty more at AES, and we'll be presenting other product hits from the show in our regular new product sections in the months to come. Meanwhile, AES comes to San Francisco from September 26-29 and returns to Munich next year from February 13-16. See you there! ■



LA Audio DigEQ



DRIVE OUR BUSES IN ANY DIRECTION YOU WANT.

You decide where these busses go. Unlike conventional mixers where the busses are fixed, the unique GA (Group/Aux) Diversity features allow you to configure four busses for use as aux masters or group busses to suit different applications. So in the morning, the GA console can be a FOH console. In the afternoon, it's a monitor console. And by night, it's both. The Yamaha GA console is what you make of it.

The GA console, which comes in either 24-input (GA24/12) or 32-input (GA32/12) versions, has some other nifty features as well. You get four band EQ on the

inputs, three band EQ on the outputs, a two-mix matrix, PFL, AFL and channel on/off switches. And you get the rugged construction, reliability, and sonic performance you have come to expect in a Yamaha console.

What's the fare? All of this flexibility costs only \$2,499 (GA24/12) or \$2,999 (GA32/12) which makes these consoles just the ticket for installations and rental companies with small budgets and big demands. For more information, please call (800) 937-7171 ext. 655 or visit your Yamaha Commercial Audio dealer.



©1998 Yamaha Corporation of America
 P.O. Box 6600, Buena Park, CA 90622-6600
 For more information, please call (800) 937-7171 ext. 665

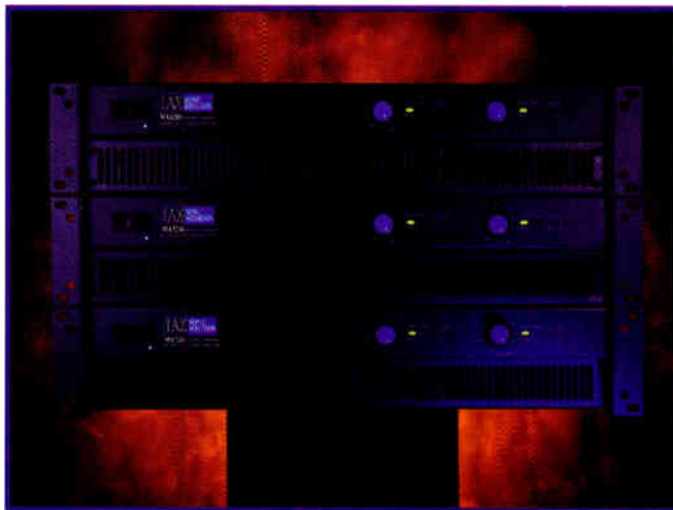
GA32/12
GA24/12



PREVIEW

LEXICON SIGNAL PROCESSORS

Lexicon (Bedford, MA) has introduced two new rack-mount signal processors: the PCM 81 digital effects processor and the PCM 91 digital reverberator. The PCM 81 includes all of the familiar PCM 80 effects plus AES/EBU I/O and enhanced effects algorithms and delay. Two digital 24-bit signal processors generate 300 stereo reverbs and effects, including pitch shift, ambience, modulation and dynamic spatialization effects. Stereo delays can be up to 20 seconds in length. I/Os include balanced analog, full AES/EBU and S/PDIF digital I/O; the unit can output both AES/EBU on the XLR connector and S/PDIF on the RCA connector. Delay tempos can be controlled via MIDI or with the front panel TAP control



and Model 300 reverbs and includes all of the features of the PCM 90, plus Dual Reverb algorithms and dynamic spatialization effects. Features include Key Word search and sort function, and preset parameters may be assigned to a user-definable Soft Row. Customized programs may be stored on PCMCIA memo-

400 W/8 ohms). All three 2-channel models may be bridged for mono operation (and increased power). Addi-



tional features include low distortion, high slew rate and advanced power supply and circuit protection designs for improved reliability. Inputs are balanced XLR. Prices are \$1,640 for the MA 7200, \$1,170 for the MA 5200 and \$840 for the MA 3200.

Circle 328 on Product Info Card

JASONI ILLUMINATED STUDIO SIGNS

Jasoni Electronics (Las Vegas, NV) offers illuminated studio signs in a familiar retro style. Both "Recording" and "On The Air" signs



measure 14 inches long, 3½ inches high and 2¾ inches deep. Prices are \$119 each.

Circle 329 on Product Info Card

FRONTIER DESIGN 20-BIT DIGITAL CONVERTER

The Tango™ 20-bit digital conversion system from Frontier Design Group (Lebanon, NH) offers ADAT optical digital I/O and eight TRS outputs; zero, four or eight balanced inputs are optional. I/Os can be set for +4dBu and -10dBv operating levels. Featuring 128x oversampling delta-sigma A/D and D/A converters with 20-bit resolution, Tango is compatible with a wide range of

digital recorders, mixers, effects devices and digital I/O cards, including Frontier's WaveCenter. Additional features include word clock in/out, 39-51kHz sampling rate, and front panel level and clip indicators. Price fully configured is \$898.

Circle 330 on Product Info Card

DOD DIMENSION SERIES PROCESSORS

DOD (Sandy, UT) has introduced a new line of cost-effective rackmount signal processors. Called the Dimension Series, the first



or footswitch, and Dynamic Patching™ enables internal and external sources to control any aspect of an effect. A front panel PCM card slot permits the use of additional algorithm and program cards—the Dual FX, Post FX and Music FX cards for the PCM 80 all work with the PCM 81 and add over 40 algorithms and 750 presets. The PCM features 450 presets derived from Lexicon's 480L

ry cards. I/Os are similar to the PCM 81's.

Circle 327 on Product Info Card

LAX SONIC SOLUTION MA SERIES AMPS

LAX Sonic Solution (Bell Canyon, CA) introduces its MA Series of amplifiers with the MA 7200 (1,100 watts into 2 ohms, 650 watts/8 ohms), MA 5200 (900 W/2 ohms, 500 W/8 ohms) and MA 3200 (680 W/2 ohms,

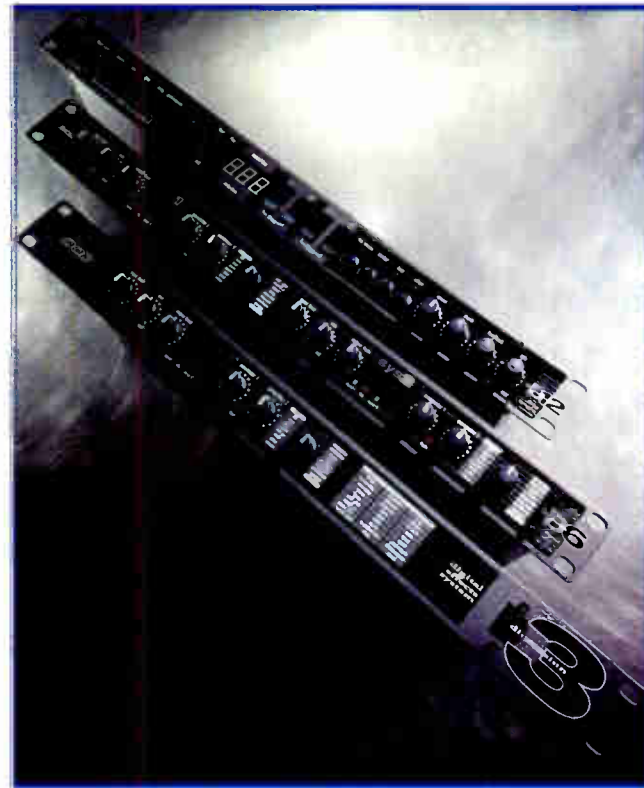
PREVIEW

units include the Dimension3 2-in/2-out and Dimension6 4-in/4-out digital multi-processors and the Dimension12 digital sampler/delay/editor. The D3 and D6 units offer 16 effects programs (selected via a rotary pot), each offering two user-adjustable parameters. Programs include reverb, delay, chorus, flange, phase shift, rotary speaker, pitch/detune and tremolo pan. LEDs indicate signal present, clip and bypass. The D12 offers up to 24 seconds of sampling, real-time "Stutter" control, reverse function, a jog/shuttle editing wheel and LED display. Effects include loop, tap tempo, delay and gate. All I/Os are TRS. Prices are: Dimension3, \$159.95; Dimension6, \$279.95; Dimension12, \$279.95.

Circle 331 on Product Info Card

DRAWMER MX50 DUAL DE-ESSER

Drawmer (distributed by Transamerica Audio Group, Thousand Oaks, CA) offers the MX50 Dual De-Esser, a rackmount unit that outputs both at +4dB (balanced) and -10dB (unbalanced) levels. The MX50 may be operated in full- or split-band mode; the latter reduces signal levels only above a user-selected frequency. De-essing may be applied over a variable fre-



quency range (800 to 8k Hz); de-essing action may be automatic, or users may adjust to taste. An Air switch restores frequencies above those being de-essed. Price is \$549.

Circle 332 on Product Info Card

HOT OFF THE SHELF

Audio Control Industrial (ACI) is now shipping the lasys test and analysis tool, a self-contained audio analyzer that can automatically test

and equalize a sound system, measure and set delays, and optimize crossovers. Version 1.15 software includes 1/3-octave spectrum analysis. A serial port allows export of test data to any other computer or DSP system. Price is \$1,300. Call 425/775-8461 or visit www.audiocontrol.com...Crown International released Crown IQ for Windows 3.0, featuring enhanced custom controls, a Scenes Sequencer that

allows complex events to be stored and recalled, an Administrator Password feature, and a Chat Utility that allows user communication across Crown's IQ NET™.

Call 800/342-6939 or visit www.crownaudio.com...

Analog Devices has introduced a new SHARC 32-bit DSP chip suitable for integration within professional digital audio devices. Price is \$10 in quantities of 100,000 units. Call 800/262-5643...

The Brauner VT1 Tube Microphone is now distributed in the U.S. by the Transamerica Audio Group, Thousand Oaks, CA. Call 805/241-4443...

Horizon Music Inc. offers an 8-channel digital snake that may be run for 1,000 feet with no signal loss. The 24-bit, 44.1/48kHz system supports S/PDIF/AES formats; price is \$1,895 for the A/D front end, or about \$3,000 per/channel for full A/D and D/A conversion. Call 573/651-6500...

TRF Production Music Libraries has released eight new CDs in the company's Pyramid production music series. Categories include Opening Themes, Children/Cartoon/Comedy, Action & Suspense, Christmas, Top 40 Soundalikes, Americana and Jingles. Call 800/899-MUSIC...

DK Audio has announced price drops of up to 22% across the entire line of DK Audio Master Stereo Displays. The MSD600C MkII (\$4,195) is a combined phase meter, audio vector oscilloscope and level meter, and operates on both analog and digital inputs. Call DK's U.S. distributor, TC Electronic, at 805/373-1828 or visit www.tcelectronic.com. ■



TOOLBOX MAGIC

Whirlwind custom panels and wiring systems ensure the reliability and performance of installations throughout the world. But many of our favorite products in the field are housed in smaller venues — toolboxes, toolbags, briefcases and gadget drawers. These are the magic items that get you through the day on an installation or trouble-shooting mission, and we dedicate them to everyone who has had to make a system work on a deadline.



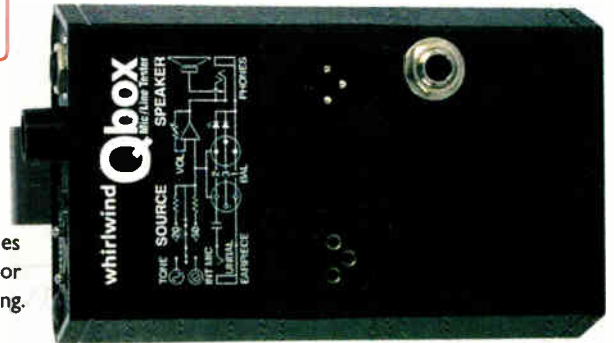
MICPOWER provides phantom power for most condenser mics from two 9V batteries.

The TESTER quickly and reliably checks cables with almost any combination of XLR, Phone, and Phono connectors for shorts, opens, or cross wiring.

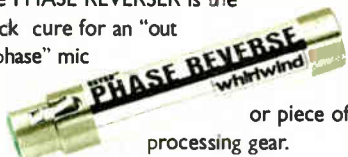


On-Off Switch with Battery Good LED

The Qbox[®] packs a built-in speaker with amp, a built-in mic with preamp, a built-in reference tone generator and Voltage Present LEDs for detecting phantom or 3-wire intercom power. It drives headphones and carbon earpieces and operates at mic or line level. A real life saver for audio line testing.

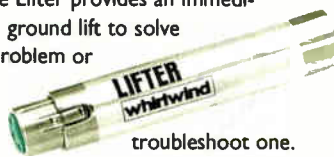


The PHASE REVERSE is the quick cure for an "out of phase" mic



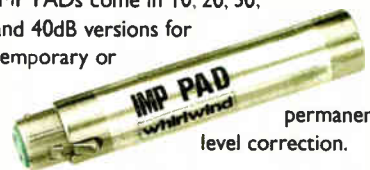
or piece of processing gear.

The Lifter provides an immediate ground lift to solve a problem or



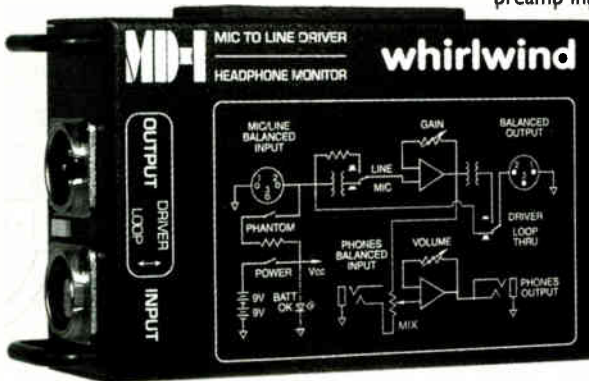
troubleshoot one.

IMP PADs come in 10, 20, 30, and 40dB versions for temporary or



permanent level correction.

The MD-1™ combines a studio-quality mic preamp with a transformer-isolated line driver and a built-in headphone amp. The mic input and headphone driver have individual gain adjustments and phantom power is switch selectable. An innovative Mix control mixes the preamp input and a separate aux input to permit simultaneous headphone monitoring of an additional line level signal.



The LINE BALANCER SPLITTER balances and isolates or splits line level signals. With individual ground lift switches on each output and both XLR and 1/4" TRS for maximum flexibility.



We're building more building so we can build more for you.



whirlwind™

TOLL FREE (U.S.) 888.733.4396 • 716.663.8820 • FAX 716.865.8830 • <http://www.WhirlwindUSA.com>

SOFTWARE AND HARDWARE FOR AUDIO PRODUCTION



STEINBERG NUENDO SHIPPING SOON

Slated to ship next month is Steinberg's (Hamburg, Germany) Nuendo workstation for the Silicon

Graphics platform. Nuendo combines native, floating-point audio processing with EQ, real-time effects, VST-compatible plug-in architecture, MIDI functionality and up to 256 tracks of digital audio, in an expandable system based around SGI's powerful Octane machine. Audio can be recorded, processed and played back at various sample rates and in 16-, 20- and 24-bit resolution; in addition, Nuendo supports the Studio Central open framework for media asset management, hardware controllers such as JLCoper and Mackie HUI units, and allows direct import of OMF projects.

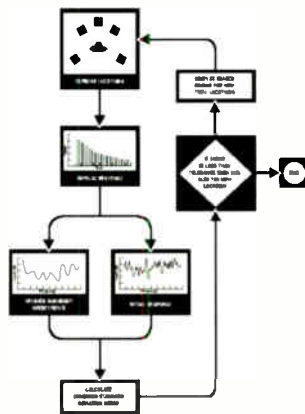
Circle 333 on Product Info Card

TC WORKS NATIVE ESSENTIALS

TC Works (Hamburg, Germany) debuts Native Essentials, the most recent in a line of processing plug-ins for Direct-X-compatible applications, such as Cake-walk, Sound Forge, Wave-Lab, Cool Edit Pro and Cubase VST PC. At \$349, the software is an entry-level bundle featuring basic reverb, EQ and dynamics processing. The Reverb module provides a variety of settings, with adjustable reverb type, decay time and mix parameters. The equal-

izer is a 3-band parametric, with a virtual joystick user interface; band characteristics can be combinations of shelving, parametric and notch, and the EQ features TC's proprietary SoftSat algorithm. The Dynamics Processing module features a mode that can switch between soft- and hard-knee; the section can be used with inserts, and SoftSat is featured.

Circle 334 on Product Info Card



RPG ROOM OPTIMIZER FOR WINDOWS

RPG Diffusor Systems (Upper Marlboro, MD) introduces Room Optimizer, a Windows 95-based acoustical analysis application that determines optimum listener and loudspeaker placement, and illustrates and lists optimum locations for placing acoustical absorptive and diffusive wall treatments in critical listening rooms. When given room dimensions, the program uses an iterative approach to calculate the impulse response, the speaker-boundary response and modal response for each trial combination of listener and loudspeaker positions. Search ranges allow the

user to find the best locations within physically accessible and desirable areas, and any type and combination of up to 20 monopole, dipole, bipole, multipole loudspeaker woofers can be optimized for flattest bass response. In addition, Room Optimizer determines the optimal height of speaker stands, listener platforms and seating, and supports symmetry and displacement relationships among loudspeakers for faster solutions.

Circle 335 on Product Info Card

UPGRADES AND UPDATES

Digidesign (www.digidesign.com) announces Pro Tools 4.2. Major features include full direct support for ProControl, plus addition of stereo sends with automatable panning for TDM-equipped Pro Tools systems, real-time Auto Fade-In and Fade-Out on Open Region Boundaries and the ability to control MMC-compatible devices, allowing Pro Tools to directly control transport functions and transmit location information...Liquid Audio's (www.liquidaudio.com) Liquid Music Server 3.0 is now available on the Microsoft Windows NT server platform...Antares (www.atares-systems.com) announced the release of AutoTune for Digital Audio Labs' (www.digitalaudio.com) V8 workstation. Other companies announcing support of the V8 system include KS Waves, featuring V8 support

in its new DSP bundle for Windows, and QSound Labs, with three new V8-compatible plug-ins...



Slated to ship this month is Digigram's XTrack 3.0 and XTrack LC, the newest versions of its editing software. XTrack 3.0 enhancements include JLCoper CS-10 compatibility, and an Active Movie Container to allow expanded plug-in use. XTrack LC is a low-cost, scaled-down version of XTrack for basic editing operations. Visit www.digigram.com...New from Orban (www.orban.com) is Version 2.0 of the Audicity digital audio workstation featuring Windows networking capability...Merging Technologies recently released Keops, a 16-track PCI card offering professional I/O and processing for the Pyramix Virtual Studio, featuring 32-bit internal processing and optional timecode sync. Visit www.merging.com...SpectraFoo is now available as a TDM plug-in for Pro Tools and Pro Tools 24, for an introductory price of \$500. Call 914/298-0451...Mac-sourcery released Version 2.3 of BarbaBatch, adding support for QuickTime 3.0 streaming audio, Real Audio 5.0 and more. Visit www.macsourcery.com. ■

MANLEY VOXBOX

TUBE PREAMP/COMPRESSOR/EQ/DE-ESSER/LIMITER

All-in-one vocal processors are nothing new; in fact, I reviewed the first such device—the Symetrix 528—11 years ago. And since that time, literally dozens of similar units have come out. However, when Manley Labs—a purveyor of no-compromise gear for distinguished audio palates—unveiled its VoxBox, I had to check it out.

Priced at \$4,000, VoxBox is a single-channel unit combining a

the point, but the real secret lies inside the VoxBox. All construction is absolutely impeccable, from the bomb-proof chassis and heavy, ½-inch-thick aluminum slab front panel to the use of military-spec JAN tubes (6072A, 5751 and dual 6414), gold contact switches, *real* LC and RC networks, quality transformers, etc. In fact, each VoxBox probably has more money invested in parts alone than the retail price of most competing products. Other

for stereo operation.

I started out using VoxBox in Normal mode, recording jazz vocals using a Brauner VM-1 tube mic. After a few minutes of experimenting, I achieved a glorious sound: rich and full of detail. Well-versed in mic techniques, the vocalist needed only a touch of compression, rather than a heavy-handed dose. On the EQ side, a couple of dB cut at 3k and +4dB at 16k added just the right amount of



tube preamp, compressor, equalizer and de-esser, all in a sturdy rack-mount chassis. The tube preamp stage is cloned from the company's popular Manley 40dB preamp circuit and offers a choice of mic, high-impedance (100-kilohm) instrument and balanced line inputs, plus switchable highpass filtering. An internal jumper may be used to bypass the transformer on the line and instrument inputs, making them unbalanced. The 3:1 ratio compressor is a passive photocell design and is placed in the audio chain *before* the mic preamp. The passive equalizer is based on the classic Pultec® MEQ-5 but is "extended" with a total of 33 selectable frequencies—with plenty of overlap—for its high/low peak (up to +10 dB) and (-10 dB) mid dip bands. The unit's de-esser section is actually an opto peak 10:1 limiter that sounds like an LA-2A, with an added passive LC sidechain to handle de-essing chores. At the end of the audio pathway, a tube line amp ensures adequate gain.

The front panel is clean and to

small touches are also appreciated, such as the locking phantom power switch, five-way source switching on the illuminated Sifam meter and delayed power-up relays. Switching is absolutely silent, and any section can be switched in or out during recording without glitching. The feel and action of all the switches and pots is first-class throughout.

The rear panel has balanced XLR mic input, XLR and ¼-inch line and insert inputs, and XLR balanced and ¼-inch unbalanced preamp and EQ outputs. Let me explain: In "normal" mode, the EQ output is actually the main output. By routing through the preamp out, the user can access the compressor and preamp sections separately from the EQ/de-ess/limiter sections, which are accessible through the insert inputs. Actually, it's all simpler than this description, and using some creative patching and each section's bypass switches, almost anything is possible. And de-ess and comp link jacks allow linking two VoxBoxes

air for a natural sound. Later, I was cutting female vocals using a RØDE NT2—a great mic for the money, but not quite in the same league as the \$5,000 Brauner. The results were excellent, with the NT2 suddenly sounding a lot more like a C-12 than a C-414—larger than life, especially with the compressor in and +2 dB at 200 Hz for warmth.

However, one of the drawbacks of VoxBox's +40 to 50dB gain circuit is that it doesn't provide enough boost when using very low-output mics—such as older ribbon mics—in low-SPL situations. On one session with a soft-spoken narrator who requested an EV RE20, VoxBox didn't have enough gain, so my Millennia Media HV-3 preamp handled the gain, fed into the VoxBox line input: Nice combo!

Perhaps what I liked most about VoxBox was the unit's subtleties. One can create different sonic footprints by using the input pot and various combinations of the preamp gain switch settings. (The latter

BY GEORGE PETERSEN

—CONTINUED ON PAGE 162

SPL MACHINE HEAD

DIGITAL TAPE SATURATION EMULATOR

Since ADATs and DAWs became commonplace in project studios, manufacturers of tube processors have been steadily going “ka-ching!” all the way to the bank. Credit this to the disappearance of tape distortion, that lovely artifact of analog recording that was virtually stripped away by digital technology: To deal with this quandary, studio engineers have devised ways to get it back, at times with the aid of tube gear. A familiar company with a different twist on the solution is SPL—the German company perhaps best known for its Vitalizer Series—which has released Machine Head, a 2-channel digital tape saturation emulator. Designed to lure those wanting to stay in the digital domain, Machine Head seems to offer a path leading to the sound of 2-inch, 30 ips. Or does it? Let’s take a look.

Machine Head presents an attractive metallic red front panel and a chassis sturdy enough to deflect bullets. Closer inspection reveals solid construction complemented by an uncomplicated layout of controls and readouts. As we’ll see, this simple quality is mirrored in the unit’s operation.

A small, clear two-line LCD is sufficient to display the Preset Number, Input and Output Gain, Drive, Tape Speed and the amount of High Frequency (HF) Adjust. Four pots—corresponding to Input Gain, Drive, HF Adjust and Output Gain—provide a pleasing, weighted feeling as you dial in settings. A High Tape Speed button switches between its 15 and 30 ips virtual tape speed settings, which according to SPL, “simulates the pre-emphasis for high-speed recording.”

The unit can store 99 presets, letting users archive just about every combination they could possibly use; making A/B comparisons of dry vs. processed signals is simple. Three pairs of



meters monitor Input, Drive and Output PPM (peak levels) in dB. A clip LED lights when you’ve maxed out.

No analog I/O is available, but the rear panel has AES/EBU, S/PDIF and BNC word clock in/outs (with switchable 75-ohm termination); MIDI connectors accept program change commands for remote access to presets. SPL simplifies user upgrades of their software by including both RS-232 and RS-422 interfaces for PC and Mac connections. Upgrades are available from the company’s Web site.

SATURATE BEFORE LISTENING

The name of the game with this unit is to imbue your mixes with a warm ambience, lending power and punch to digital recordings. Machine Head aims to emulate saturation effects, including hysteresis and harmonics, that are encountered in analog recording. It spares you the crosstalk, echo, noise floor and artifacts due to an analog machine’s transport mechanism. To compensate for the high-frequency damping (yes, it emulates that, too), the HF adjust lets you either reintroduce highs or reduce them even more.

Operation requires establishing adequate input levels, driving the processor to taste and adjusting the output levels. On startup, tape speed is set to 15 ips, with the default settings zeroed. This is a tad deceptive because Machine Head actually introduces a +7 dB boost to the signal at inputs when Drive

is set to zero. SPL notes that this is to create adequate headroom to compute the tape saturation algorithm, but it makes proper gain-staging for A/B’ing a bit tricky at first. Drive is, of course, the main focus of Machine Head. Values are adjustable between -7 and +14, with suggested values for operation falling between +3 and +10 (corresponding to +10 dB and +14 dB).

I chose sources that I felt would benefit from the effect, including drum kit, congas, electric guitar and bass guitar. First, this processor’s treatment can be pretty subtle (if at times transparent). So, to avoid the “was-I-hallucinating-again?” factor, I played back mixes to fellow engineers and tried to confirm most of my concerns or delights.

Consensus: There was a pleasing warming in the low-mids. Also, use of the HF adjust had to be judicious. Boosting could reveal a crisp, metallic quality that wasn’t pleasant; cutting might muddy up the sound. Most of us didn’t find a tremendous difference in the mix when sticking to the suggested drive ranges and opted for more radical settings that made this unit more of an effects processor. For example, drastic saturation techniques achieved an enjoyable HF “smearing” effect on the drum kit. My favorite treatments were on congas and electric bass, both exhibiting a warm, round tone. Others liked how electric guitars cut through the mix. All commented on how clean the unit sounded. Given the option, most of those queried would

BY ALEX ARTAUD

—CONTINUED ON PAGE 162

SEE US AT NAMM BOOTH #540

AcousticsFirst™

Amazing Product Cures Flabby Bottoms

Recently, a Pennsylvania physician called to see if we could cure his "flabby bottom". We prescribed our Double Duty Diffuser. ▲ The long bass waves tend to roll around the room cancelling here, reinforcing there. The bottom end tends to sound boomy, mushy or flabby. ▲ The solution is a bass trap such as our highly efficient DDD. Similar devices have been around for years but only large sound stages and recording studios could afford them. Now, Acoustics First has a superior product for under \$200. ▲ And the Double Duty Diffuser does more than trap bass. It disperses high frequencies, eliminating standing waves and flutter echoes.



Toll Free

1-888-765-2900

Acoustics First Corporation

2247 Tomlyn Street
Richmond, VA 23230-3334 USA
Fax: 804-342-1107
E-mail: acoustics@i2020.net
Web: <http://www.acousticsfirst.com>

© 1998 Acoustics First Corporation

CIRCLE #111 ON PRODUCT INFO CARD

—FROM PAGE 160. MANLEY VOXBOX

doesn't work as a master volume control, but rather changes the slew rate and timbre of the circuit, producing sounds that range from mellow to aggressive, and everything in-between.) The de-essing section is best used for *naturalizing* rather than *neutralizing* sibilants. The compressor and limiter action is gentle and smooth, rather than sledgehammer, and the EQ—though sweet and musical—is no match for the clinical precision of a parametric or notch filter in hack-and-slash applications.

The VoxBox name implies a vocal tracking tool, but its Pultec EQ, de-esser and limiter are equally welcome at any mixing date. And besides being a lot of fun on miked instruments, the direct input was equally handy on bass, while my Gibson J-160E electro-acoustic never sounded sweeter. Hey, I could get to like this one—there's nothing like going first-class.

Manley Labs, 13880 Magnolia Ave., Chino, CA 91710; 909/627-4256; fax 909/628-2482. Web site: www.manley-labs.com.

—FROM PAGE 161. SPL MACHINE HEAD

have loved to take the unit home with them.

As for tape speed emulation, 15 ips was voted as more desirable (though one guy chimed in that it's hard to match an ATR-104). People wanted more of the effect they heard on 15 ips, not satisfied with twiddling the HF to close in on a sound.

YOU'RE GETTING WARMER...

SPL recommends Machine Head for mastering houses but also touts it as valuable for a variety of dynamics processing chores. So, even though it weighs in at a pricey \$3,489, it may also find its way into some recording studios. As pathways become increasingly digital, Machine Head provides an alternative that just might warm your mix. Check it out. Have a listen and decide for yourself.

SPL Laboratories, distributed by Beyerdynamic, 56 Central Ave., Farmingdale, NY 11735; 516/293-3200; fax 516/293-3288. Web site: www.spl-electronics.com.

Alex Artaud is the editor of the Spanish Edition of Mix.

West L.A. Music

WE WILL BEAT ANY DEAL!

EVERY MAJOR BRAND!

DIGITAL MULTI-TRACK RECORDERS • MIXING CONSOLES
HARD DISC RECORDERS • EFFECTS PROCESSORS • MICROPHONES
DAT AND CASSETTE DECKS • STUDIO MONITORS • CD RECORDERS
COMPUTERS • SOFTWARE • KEYBOARDS • SYNTHESIZERS • SAMPLERS
SOUND SYSTEMS • GUITARS • AMPS • DRUMS AND ACCESSORIES



Door's Drummer John Densmore with Dave Thibodeau.



Drum Manager Glenn Noyes backstage with Jay Leno.



Coolio raps with the friendly staff at West L.A. Music.

"WHERE THE PROS SHOP"

We Ship Everywhere! Call Now!

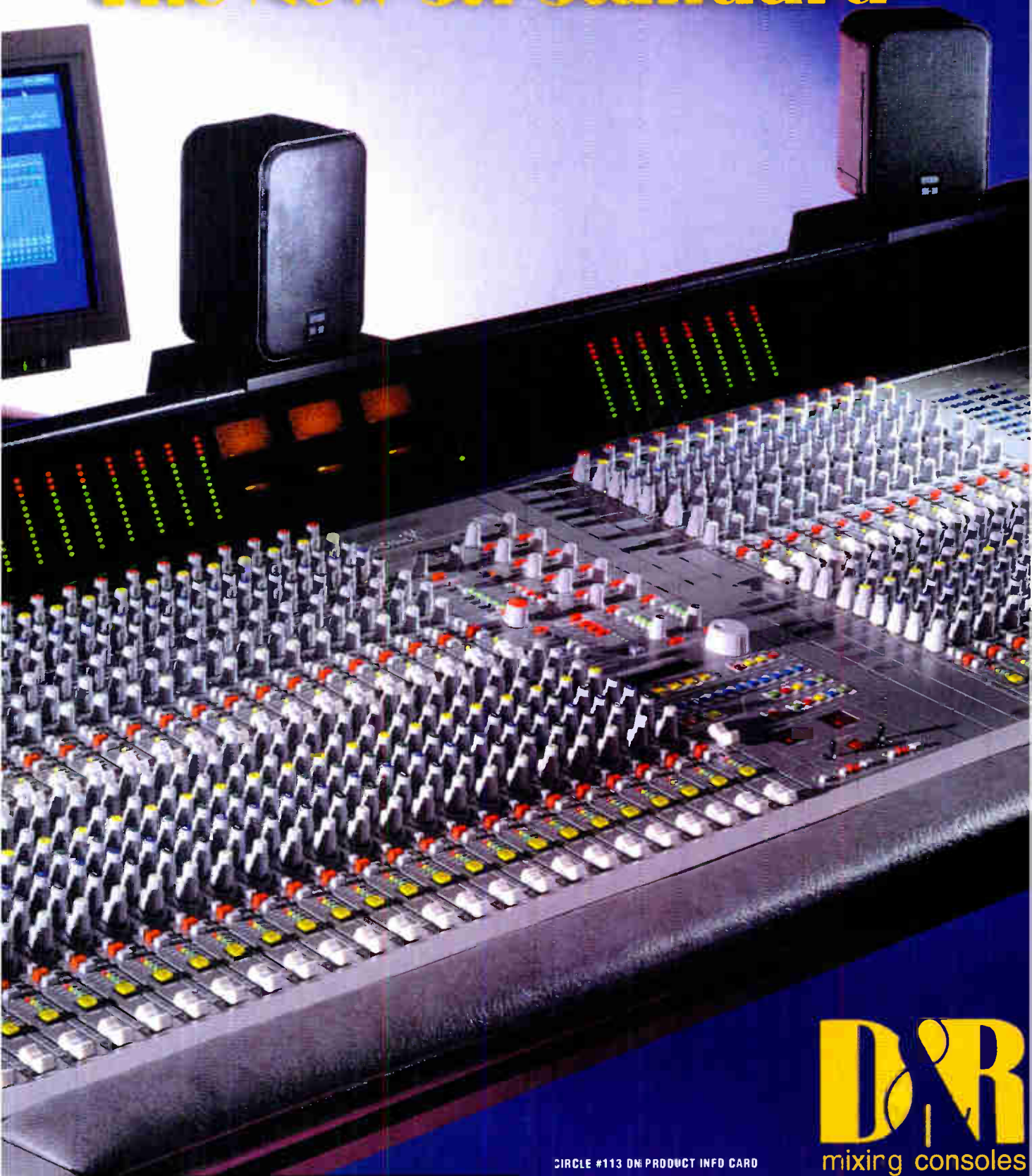
WEST L.A. MUSIC

11345 Santa Monica Blvd. Los Angeles, CA 90025
Two blocks West of the San Diego (405) Freeway
(310) 477-1945 Fax: (310) 477-2476

ALL MAJOR
CREDIT CARDS,
FINANCING,
AND LEASING.

CIRCLE #112 ON PRODUCT INFO CARD

Cinemix - The New 5.1 Standard



DOR
mixing consoles

CIRCLE #113 ON PRODUCT INFO CARD

Southern California
Coast Recording Supply
Hollywood, CA
213-462-6058

Northwest
Advanced Systems Group
Oakland, CA
510-654-8300

Northeast
Sam Ash Professional
New York, NY
212-586-1100

Southwest
Studio Tech Supply
Dallas, TX
214-358-0050

World Radio History

Television, Film and Music Consoles

Advance Digital Corp. 214-742 5345

Website: d-r.nl · E-mail: gkeeper@msn.com

FENDER SFX

THE NEXT GENERATION COMES TO INSTRUMENT AMPLIFIERS

On July 10, 1998, at the Summer NAMM show in Nashville, Fender will unveil SFX™ (Stereo Field eXpansion), arguably the most important breakthrough in instrument speaker technology since the introduction of the Leslie speaker. A bold statement, perhaps, but the SFX effect simply has to be heard to be believed. The system is also affordable, adaptable to existing amp rigs and based on acoustical principles so simple that once the word gets out, 100,000 audio engineers around the planet are going to kick themselves, wondering, "Why didn't I think of that first?"

Unfortunately, there's no way to create a usable stereo field from a standard combo guitar amp, whether the speakers are side by side or stacked atop each other. Move two cabinets to either side of the stage for maximum separation and the audience along the center aisle hears the spread, while listeners on either side hear mostly one side or the other. Essentially, SFX is a system for creating/playing back huge stereo effects from two speakers that are placed near each other, or within the same cabinet.

Licensed by Fender, the SFX system was developed and patented under the name CPS (Center Point Stereo) by Groove Tubes founder Aspen Pittman and Drew Daniels, who has served as AES Chairman in Los Angeles and is an electro-acoustic engineer who has worked for JBL, Tascam, Fender and Walt Disney Imagineering.

So how does it work? According to co-inventor Daniels, the process is extraordinarily simple: "The basic principle is like M-S [mid-side] miking in reverse." A stereo signal from a guitar preamp or effects loop feeds two speakers: One channel is routed through a sealed enclosure with its cone facing forward, representing the "mid" part of the signal. And like the "side" part of the M-S miking equation, the bottom speaker is mounted on a baffle (perpendicular to the top speaker) within an open-sided enclosure to generate a figure-8 dispersion, where one side is out of phase with the other.

"The SFX electronics process stereo signals into sum and difference signals," explains Daniels. The signals that started out as "left" signals are made into signals that add acoustically in the air around the cabinet, causing the SFX speaker array to steer the combined acoustical output of the two speaker elements toward the left side of the cabinet. Signals originally from the "right" are made into signals that subtract acoustically, causing the

SFX speaker array to steer the acoustical output toward the right side of the cabinet.

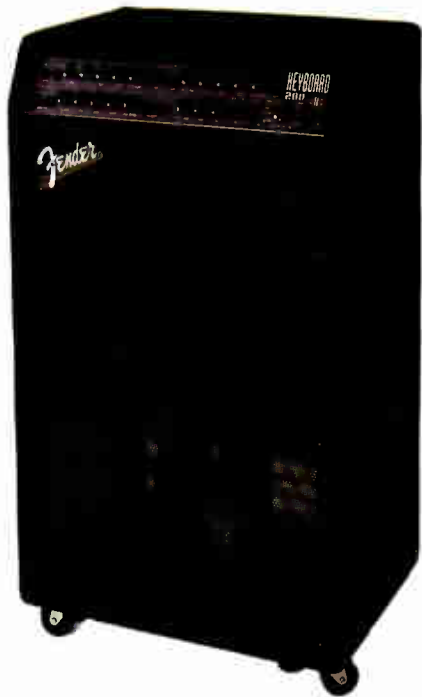
By simply adjusting the balance between the two speakers and feeding a stereo source (such as the onboard DSP effects built into the new Fender amps), a massive ambient field is formed that can envelope a medium-sized room. "Hearing SFX is like hearing surround TV for the first time," beams co-inventor Pittman. "It makes the amp sound huge and not just left/right, but deeper." Pittman does add a warning about using the system for the amplification of recorded playback material: "Compared to ordinary stereo, SFX is not as accurate. However, its surreal reproduction enhances stereo effect."

At NAMM, Fender will show three SFX amps: The \$999 SFX

Keyboard 200 has two stereo and one mono input for keyboards; the \$899 Acoustasonic SFX is designed for acoustic instruments; and for players who want SFX but already have a favorite amp, the \$749 SFX Satellite is an add-on single-12 cabinet with onboard amp and DSP.

While SFX technology is currently only offered in instrument amps, other applications come to mind, although large-scale concert P.A. probably won't be among them, due to the feedback considerations of very wide dispersion systems. However, SFX could be ideal in special venue or theme park installations, or possibly as a replacement for cinema surround speakers. It will be interesting to see where SFX goes next.

Fender, 7975 N. Hayden Road, Scottsdale, AZ 85258; 602/596-9690; fax 602/596-1381. Web site: www.fender.com. ■



BY GEORGE PETERSEN

DSP•FX

Virtual Pack

Includes Eight Stereo Plug-in Effects

- Reverb
- Multiband Parametric EQ
- Multi-tap Delay
- Multi-Element Chorus
- Analog Tape Flange
- Pitch-Shift
- Auto Pan
- Tremolo

• Intuitive graphic user interface

• All effects parameters controllable in real time via MIDI

• True 32-bit floating-point architecture yields precision sound at all dynamic levels

• Ultra efficient CPU usage

• Operates in stand-alone mode or within any DirectX-compatible digital audio recording application, including Acid™, Cakewalk™, Cool Edit Pro™, Cubase VST™, Logic Audio™, SAW32 Plus™, SAW32™, Sound Forge™, and Wavelab™



Eight Great Plug-ins: \$299 MSRP

(How Suite It Is....)

P.O. Box 4189

Santa Barbara, CA 93140-4189

Voice: 805-566-7777

Fax: 805-566-7771

E-mail: info@event1.com

Web: www.event1.com



MUSICIAN'S FRIEND DECLARES WAR ON HIGH PRICES!

BEST PRICES ON PRO GEAR FROM:

- Akai
- Alesis
- Behringer
- Ensoniq
- Fostex
- JBL
- Mackie
- Marantz
- Neumann
- Roland
- Sennheiser
- Sony
- Tascam
- Yamaha
- and much, much more!

- Money Back Guarantee
- Best Price Guarantee
- Our Easy Payment Plan
- 2-Day Express Delivery

CALL 1-800-776-5173 AND JOIN THE CAUSE!

Arm yourself with a **FREE** issue of Musician's Friend catalog and join the fight against high-priced music gear. With more than 3,000 top-name guitars, amps, keyboards, stage and studio gear available at the best prices you'll find anywhere, Musician's Friend is your trusted ally in the music gear trenches. Short on funds? No problem. Our exclusive Easy Payment Plan can help you capture the gear you need to make your music happen today.

CALL FOR YOUR FREE CATALOG TODAY!

OPEN 24 HOURS A DAY, 7 DAYS A WEEK



SHOP ANYTIME ONLINE AT: www.musiciansfriend.com

YES, SEND IT!

Rush me the next 3 editions of Musician's Friend **FREE!**



Join hundreds of thousands of satisfied musicians in receiving the #1 music catalog, absolutely free! **CALL 1-800-776-5173**, subscribe online at www.musiciansfriend.com, or mail this coupon to:

Musician's Friend, Dept. 76-004 • P.O. Box 4520 • Medford, OR 97501

NAME _____

ADDRESS _____

City _____ STATE _____ ZIP _____

MAIN AREA(S) OF INTEREST: GUITAR BASS KEYBOARDS DRUMS STAGE & STUDIO

STUDER D950

DIGITAL RECORDING/PRODUCTION CONSOLE

For facility owners who are considering an all-digital solution but remain apprehensive about reliability, the new Studer D950 Digital Mixing System represents a unique, fourth-generation solution. Available in two basic versions—the D950B with 2-channel stereo panning, and the up-market D950S, which offers up to 7.1-channel virtual-surround panning and a separate multifunction monitor panel—this latest offering from a firm with a proven track record in digital topologies is full of carefully considered and relevant features.

For many users, digital technology must be as reliable as analog; one simply cannot risk losing critical functions during a live date. Similarly, it is unacceptable for a console reboot process to take more than a couple of minutes. Studer's Swiss-based engineering team has addressed these issues. The D950's redundant power supplies ensure that motive power is lost only under extremely adverse situations. Audio paths continue to function if the external PC goes offline, and even the loss of the onboard system controller does not interrupt signal flow through the board (though such a loss dramatically limits the board's functionality). Reboot time is between 10 and 20 seconds, depending on the console topology being restored. For enhanced data integrity, the PC that handles automation chores and graphics displays reads and writes to mirrored hard disks.

Further, if a hardware or software error is detected in a specific DSP board, the D950's master CPU immediately reassigns its functions to any redundant DSP boards available within the system. A faulty board can even be hot-plugged and replaced *without* interrupting operation of the console.

ANALOG AND DIGITAL I/O CAPABILITIES

Derived from the familiar D940/941

music and broadcast consoles—but with dramatically enhanced and extended SHARC-based DSP functions—the new D950 comprises a user interface that connects via a simple, high-speed FDDI optical umbilical to a rack of I/O cards and processor engines. Up to four control surfaces can be connected to the same system core for shared access to resources in a multiroom facility—the only drawback is that all connected D950 systems must operate at the same sampling frequency. Users can select 44.1 or 44.8kHz sample rates, with all of the popular video-based pull-up/down offsets.

The D950 core features powerful parallel processing; the maximum DSP configuration of hot-swappable DSP cards provides almost 15GFlops of processing power. Each DSP engine is capable of 40-bit, floating-point computation and is fully scalable through load balancing—a topology that ensures 100% of the processing power is available for any console configuration. Each card will provide full DSP processing (EQ, dynamics, delay, etc.) for up to 12 signal paths. (If less processing is defined for specific module "types," then more channels can be accommodated per card.) Any DSP card that is left over, so to speak, automatically serves as a backup, and can be instantly accessed in the rare event of a system component failure.

Each DSP board shares access to a central backplane bus that enables distributed processing and

dynamic resource allocation. System boards can be supplied in a variety of formats, with or without eight on-board AES/EBU-format inputs (the first pair with integral sample-rate conversion) and eight AES/EBU-format output ports. The D950's DSP frame can accommodate up to 20 of these engines, in



addition to boards that handle a pair of optical MAIDI-format inputs and two outputs for direct D-to-D connection, for example, to a Studer D827 24/48-track DASH-format recorder. In the event of a power failure, an uninterruptible power supply operates the entire control system for up to 20 minutes. The D950 rack draws just 800 W of power, which should make it ideal for mobile applications and remotes.

Analog inputs/outputs are accommodated via outboard converters, including Studer's new range of D19 Series interfaces, including the D19 MicAD (eight channels of 20-bit mic/line-level A-to-D converters,

BY MEL LAMBERT



Studio Traps... "The power to create your own space!"

- Gino Vanelli

Brother to Brother • Yonder Tree • Storm at Sunup
Gist of the Gemini • Black Cars • Inconsolable Man
Powerful People • Live in Montreal • Nightwalker
Best of Gino Vanelli • A Pauper in Paradise



QSF BOOTH

Gino surrounds his mic setups with *Studio Traps* to dial in his vocals, piano and drum room. He rotates the traps to get his preference of either the dry studio sound or the bright, high presence effect of live sound.



ATTACK WALL

By enclosing his mix position with *Studio Traps*, Gino creates a control room that delivers world class performance. The *ATTACK Wall* can produce accurate and powerful bass, precise detail and pinpoint imaging without fatigue. His mix will always hold together.

* 100% SATISFACTION GUARANTEED *

800-ASC-TUBE

ASC ACOUSTIC SCIENCES CORPORATION

PO BOX 1189, EUGENE, OR 97440
541-343-9727/WWW.TUBETRAPH.COM

CIRCLE #117 ON PRODUCT INFO CARD

with or without front-panel level display), and the D19 MultiDAC, which provides eight channels of 23-bit D-to-A conversion. Outboard D19M MUX boards handle conversion in multiplex mode from analog line-level or digital AES/EBU-format signal to MAIDI format, or in individual mode with AES/EBU-frame outputs. (Companion D19M DEMUX boards are also available to provide analog line-level or AES/EBU-format outputs.) Finally, a separate monitoring/signaling rack provides a variety of control-room and studio outputs, talk-back and related functionality. A fully loaded DSP frame will accommodate a large number of audio signal paths (over 256 maximum, depending on the channel DSP load), with more than 128 summing buses and the ability to handle as many as 800 audio inputs and outputs via the system's built-in signal router.

Internal processing blocks can be configured during system setup to provide input selection, 4-band parametric EQ, channel insert, variable delay, dynamics control (compression, limiting, gate and expander), output limiting, stereo or multichannel pan, direct out and solo modes. The precise nature of the system topology is controlled via a Windows 95/NT-based configuration utility that runs on the D950's external PC. The latter also accommodates Studer's optional AutoTouch Dynamic Automation, which adds a dedicated control panel to the console, plus a timecode reader/generator and P2-format 9-pin serial control. Overall digital processing delay is quoted at 480 microseconds, a figure that remains consistent no matter how much DSP is dialed into a signal path, including multiband parametric EQ and filters.

The external PC runs a Windows-based shell that controls such functions as system management, control, configuration and automation. In conjunction with a large onboard color VDU, the PC can also be used to generate signal-flow diagrams and display various channel features that have been included in a system configuration file. (The system can be hooked up to a modem for remote diagnostics and software updates, and may also be controlled via a facility-wide digital control network.)

SYSTEM SETUPS AND ASSIGNABLE CONTROLS

The user interface/control surface comprises a variable number of input/output modules, plus centralized monitoring

and related functions that can be arranged by the user in any configuration. Input frames accommodate up to 12 or 16 channel strips, each of which can address ten individual "layers," arranged in five banks of two layers each. The operator can instantly address two separate mono/stereo signal paths via dedicated Layer #1 and #2 buttons on each channel strip; in this way a console equipped with five 12-module bays of channel strips, for example, can be set to instantly address a total of 120 simultaneous signal sources, with 60 on-surface controls available at any one time. Other banks are reached via a central Bank Select unit. For added flexibility, channel assignments can be swapped in their location anywhere on the surface.

The central control/monitoring section features a number of panels that can be arranged in virtually any configuration, including a pair of motorized joysticks (for the D950S Surround configuration), a MultiMachine Motion Controller with three serial control ports), and PEC/DIRECT paddles for film-style control of recorder and replay/bus switching.

Obviously, the D950's maximum configuration depends on the DSP power available within its main rack. Studer cites a "typical" system configuration based on a core array of 8-10 DSP-I/O cards that can provide:

- Multitrack Recording topology, with 48 in-line channels with delay, EQ in monitor path and dynamics in the input path, plus four stereo input channels with EQ, simultaneously routing to 48 buses and four master outputs, with four mono and four stereo aux buses.
- Mixdown topology, with 96 mono input channels with EQ, delay, dynamics and solo, plus four stereo input channels with EQ, routing to eight buses via 16 VCA-style groups, with eight master outputs, 12 mono and four stereo aux buses.
- Live Broadcast topology, with 48 mono inputs with EQ and delay, plus 24 stereo inputs with EQ, routing to direct stereo via eight control groups—each with overall EQ capabilities—with eight mono and two stereo aux buses, 12 clean feeds and two master outputs complete with limiter and final EQ.

To reconfigure the entire D950 to handle any of these assignments (and others), simply recall a setup file via the onboard computer or external PC; the entire process executes in less time than it takes to read the following paragraph.

In overall look and feel, the D950 resembles a conventional analog console. The on-surface controls evoke the clean, accessible layout of an analog design;

up to four surfaces can share a single DSP core, allowing maximum flexibility in multiroom installations. Each channel strip offers dedicated controls for input selection (one of three possible sources, including a test generator for system calibration and alignment); direct out; access to four of the multiple mono/stereo Aux Send buses; EQ In/Out; Filter In/Out; Compressor-Limiter In/Out; Expander/Gate In/Out; Insert On/Off; Pan (stereo or surround) In/Out; and Assign Select, which enables the quartet of rotary shaft encoders and soft switches to be used to modify parameter settings for the target channel. A meter section above each channel strip provides two bar graphs for mono or stereo signals, plus overload LEDs and indicators showing if the meters are switched to display gain reduction rather than input or bus levels.

FLEXIBLE DIGITAL ROUTING

A comprehensive, built-in digital routing system eliminates the need for a system patchbay, as all sources and destinations, including insert send/return points are accessible from the master software. The D950 can be configured with one signal path per channel strip. Alternatively, there may be up to ten virtual layers beneath the physical control surface, any two of which are instantly available to the user via dedicated buttons. (A remote truck might have a D950 with 16 channel modules capable of addressing 160 signal sources.) Up to 32 aux sends can be defined, four mono and four stereo auxiliary buses being the default.

The D950 features an easy-to-follow, completely intuitive user interface. All channel strips are identical, and non-dedicated controls can be allocated to any function from the central assignment section of the board or locally on the channel strip itself. A display next to the control clearly indicates its current function until the control is touched, when it displays the current parameter value; a row of companion LEDs provide a visual indication of the setting. Parametric EQ, filters, compressor/limiters, expander/gates, inserts and pan facilities can be displayed either on a per-channel basis, or globally.

All channel controls are easy to locate and use; knobs and switches are digitized, but not so large that they get in the way. The low color contrast between the legends and controls requires a reasonable amount of light on the desk to see everything clearly, although Studer may revise the current color scheme.

YOU MAKE the MUSIC WE MAKE it EASY!

WRITE FOR YOUR FREE CATALOG TODAY!

**GUITARS • AMPS • KEYBOARDS • DRUMS • PERCUSSION
PRO-AUDIO & RECORDING...AND OTHER COOL STUFF!**

1-800-800-4654

THOROUGHbred
J.MUSIC

MAIL ALL CORRESPONDENCE TO:
7726 Cheri Court Tampa, Fl. 33634
VISIT ONE OF OUR STORES IN
TAMPA, FL., CLEARWATER, FL., ORLANDO, FL., SARASOTA, FL.,
AND NOW OPEN IN NASHVILLE, TN.
visit our website at <http://www.tbred-music.com>

Mail the coupon to Thoroughbred Music to receive our FREE full color catalog. It's packed full of the best brands and selection (EM)

NAME _____
ADDRESS _____ ST _____
CITY _____ PHONE _____
ZIP _____

LOWEST PRICE GUARANTEE
50 STATE 60 DAY

CIRCLE #118 ON PRODUCT INFO CARD

STUDIO MANAGEMENT
SOFTWARE

STUDIO SUITE™

NOW SHIPPING! ~ The New Standard ~ NOW SHIPPING!

Your Studio Name Here

Tuesday, January 26, 1998

MAIN MENU

CONTACTS	PRODUCTION ORDERS	CALENDAR
TAPE LIBRARY & LABELS	SESSIONS	INVOICES
SONGS & TRACK SHEETS	MEDIA INVENTORY	RECORDING BUDGETS
ROOMS	EQUIPMENT INVENTORY	MAINTENANCE LOG
RECALL SHEETS	PATCHBAY LABELS	SAMPLE LIBRARY
PART STOCK	TO ORDER	BARCODES

Setup Open All Open Preferred Help About

only \$349.

by **AlterMedia™** Call **800/450-5740** www.studiosuite.com
International: 770/303-0970 email: info@studiosuite.com

CIRCLE #119 ON PRODUCT INFO CARD

The D950 offers both snapshot and dynamic automation. Each snapshot stores all console parameters, while dynamic automation offers all of the user creature comforts we have grown to expect from current-generation systems, including familiar timecode-based update, take-over and glide modes.

VIRTUAL SURROUND PANNING

Addressing the needs of multiformat facilities that handle a mixed bag of surround-sound and related sessions, the D950S packs a lot of functionality into a

fairly compact amount of space. Studer's remarkable Virtual Surround Panning (VSP) modular surround functions handle all formats from mono to 7.1-channel assignments. Optional motorized joysticks—the first I have come across—provide a visual indication of complex, automated dynamic panning moves.

The D950S' VSP function provides three-dimensional audio source positioning via a library of software panning functions that let you place sound sources in virtual 3D environments. Listener positions are calculated within the DSP engine by means of Studer-developed algorithms. In addition to the fa-

miliar intensity-panning functions—such as LCR, front/back, LsRs, divergence, etc.—the user can dial in frequency-dependent panning filters and delay-based effects. In this way, it is possible to position a source in a surround mix as though it had been recorded within a three-dimensional environment, complete with sound reflections from distance walls and surfaces.

In operation, the D950 enables an adjustable number of discrete echoes to be produced and routed as non-correlated, diffuse signals to the surround channels, without using external processors. Echoes are modified using assignable Ambiance, Source Distance and Room Size controls, allowing the natural reproduction of audio sources from various distances and positions within a "virtual" room. Special dynamic effects, such as the gradual disappearance of a close sound into the diffuse room, can also be achieved by accentuating spatial components. A realistic simulation of Doppler Effect is also offered.

For example, consider the panning of a distant source through the listener's position and exiting via a diffuse pan into the left and right surrounds. Via the D950's position-specific ambience algorithms, the signal source picks up different amounts of reverb and diffusion, depending upon its relative location to the sweet spot. While such effects could be generated using a combination of time-dependent reverb and ambiances from an effects processor, coordinating these with the pan location can be tedious. With the movement of a single control, it is possible to create the same kind of automatable effect on the D950. It's a remarkable achievement, and one that offers exciting potential for DVD remastering, Audio-DVD production and related applications. All VSP parameters are dynamically automated within the console's AutoTouch automation.

Studer plans to offer an interface that enables the user to not only visualize what's happening to sound sources via the computer screen, but also position a sound source *dynamically* within a virtual room with a mouse. Room parameters will be calculated automatically, freeing the user to concentrate on more creative aspects of a mix.

The central Multiformat Monitoring Unit provides monitor format selection with loudspeaker designation display; pre/post decoder monitoring; meter-to-monitor switching; additive mode selector; and, depending on the format selected, a readout of loudspeaker channel names. Each speaker output may be

**What's better than a great new
gold sputtered, large-diaphragm,
German-design microphone for under \$700?**



**2 for
the same
price!
(including shock
mounts!)**

**Introducing the
new
A-51**

**gold sputtered, large-diaphragm
studio condenser microphones,
starting at \$349**

from: Audio DeutchKraft, Inc.

ADK

**PO Box 82282 • Portland, OR 97282-0282
Phone: 503-772-3007 • Fax: 503-772-3097
Visit our website at: www.audiok.com**

"...more features and higher-resolution
D/A converters..."

Mix Magazine

"...more back panel ports than in a
wine cellar."

EQ Magazine

"...the price vs. performance ratio is
key and Panasonic has the secret."

EQ Magazine

"...One word: wow!"

Radio and Production

SV-3800



.....
50,000+
and growing!
.....

When Panasonic first introduced the 3000 Series Pro-DAT Recorder/Players, we believed that we created the finest solutions for professional use whether in high-end recording facilities or local studios. Now that over 50,000 have been installed, we're happy to know that the professionals obviously agree.

Better sound, greater flexibility, easier use, all combined with uncompromised quality make Panasonic the leader in the field. No other DAT solution is used in so many places, and in so many ways as Panasonic.

Why wait any longer? The best DAT solution is here. Look for the SV-3800 at your Panasonic dealer, and join the professionals who know great audio when they hear it.

Panasonic/RAMSA Audio—50,000 professionals can't be wrong.

RAMSA

World Radio History

For more information call: 714 372 7077

Panasonic

FIELD TEST

individually soloed or muted. For film mixes, loudspeaker outputs can be calibrated. A Dynamic Stem function allows stems to be reconfigured as different sound sources are processed. There are no restrictions on the number of stems, their width or name, aside from an upper bound limit of 96 simultaneously available group and track buses.

The D950S' modular machine-control system is expandable to match different applications. Surround mixing normally requires access to and control of a number of playback and record machines, ranging from a simple, two- or three-machine configuration, to several dozen machines for a complex dub. A simple, one-machine control interface is included in the D950's AutoTouch Dynamic automation system; an expandable multi-machine control system is also available.

The D950S can be supplied with an optional Record/Monitor Control Unit (RCU) which, in conjunction with the machine-control system, controls recorder track arming as well as the record status of each machine track. Up to 64 machine tracks can be accessed and controlled individually, or in

groups. The RCU has control switches for multiformat monitoring paths and allows switching between Send (Bus) and Recorder returns (PB)—the familiar PEC/DIRECT switching. Four RCUs can be defined in a system to enable multiple-operator formats.

WRAPPING IT UP

The Studer D950 Digital Console offers unique solutions for many diverse applications. Primarily, it provides a higher degree of flexible configurability than I have ever seen in a console of this type. With full routing access to every source and destination, plus a flexible array of interconnect and insert points, plus powerful signal processing, it is possible to build highly customized topologies with ease. Once built, these topologies can be quickly recalled and modified.

In extended listening tests, the system's D19 Series front- and back-end converters provided clear, transparent audio. The dynamics and EQ sections are easy to operate and can be used to extremes without generating sonic anomalies. The system's total reset and AutoTouch dynamic automation functions dramatically simplify mixing chores. And in failure-critical environ-

ments—i.e., broadcasting, live performance and theatrical installations—the D950's extended reliability, with DSP and power-supply redundancy, ensure that audio continues despite electrical and related maladies.

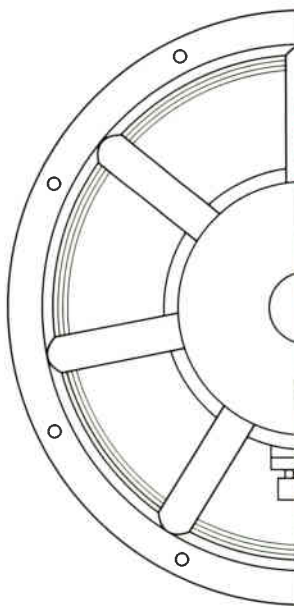
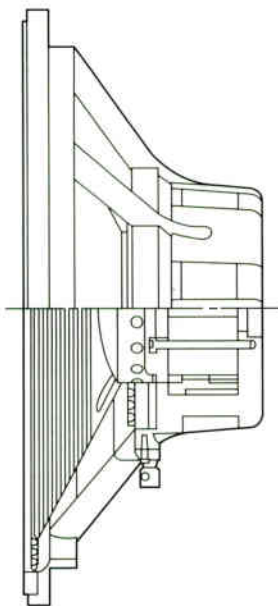
With access to more than 200 audio paths, plus flexible bus structure, configurable stems, full surround VSP-format panning, ten layers, integrated machine control, multiple-operator layouts and PEC/DIR controls, the D950S is ready for film and high-end video facilities.

The D950's design is based on scalability rather than modularity, an approach that reduces upgrading costs. Additional DSP boards allow the basic functionality to be upgraded at minimum cost. As a bonus, the ability to run multiple surfaces from a single DSP rack can result in more economies of scale. Priced from \$350,000, the Studer D950 is definitely a system worth checking out.

Studer North America, 1449 Donelson Pike, Nashville, TN 37217; 615/360-0465; fax 615/360-0274; e-mail: sales@studer.ch.com. ■

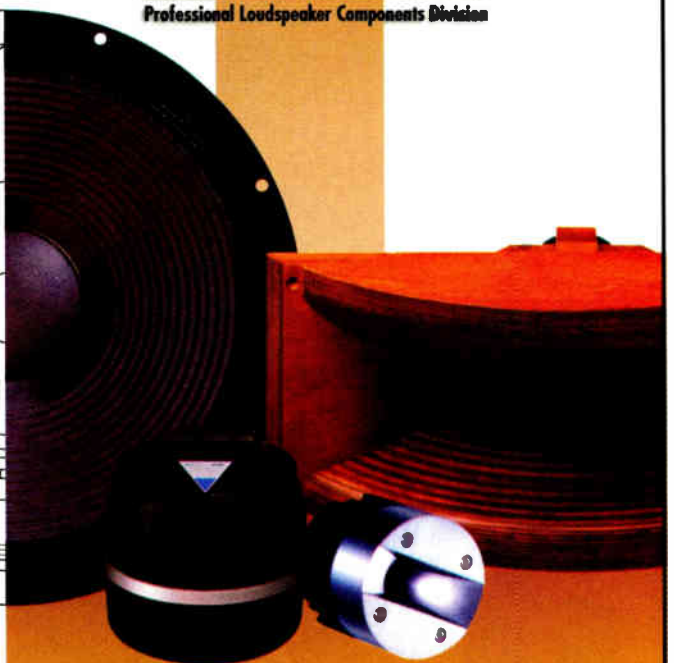
Mel Lambert completed this review before becoming international marketing director for Otari Corp.

EXPERIENCE THE EVOLUTION OF SOUND



PIONEER
The Art of Entertainment

TAD Technical Audio Devices
Professional Loudspeaker Components Division



TAD Technical Audio Devices
Professional Loudspeaker Components Division

PIONEER
The Art of Entertainment

Pioneer Electronics Service, Inc., 1925 East Dominguez Street, Long Beach, CA 90810
Telephone: 800-872-4158 • Visit Our Website - <http://www.tad-pioneer.com>

SPEAKER COMPONENTS FOR PROFESSIONAL SOUND SYSTEMS

CIRCLE #121 ON PRODUCT INFO CARD

" Euphonix is the future of mixing consoles - the specific combination of digital control and the high-quality analog signal path rivals traditional consoles that are noted for their sound and far surpasses other consoles that have sacrificed some sound quality in favor of control."

Mark Isham, Film Composer
Night Falls on Manhattan, Michael Hayes,
Gingerbread Man

" Given what we were looking for, along with dependability and signal quality, there was really only one choice for Westwind - the Euphonix CS3000."

Todd Langner of Westwind Media
Brooklyn South, Total Securities, Bella Mafia,
Under Wraps, Magnificent Seven

" The Euphonix sounds incredible and it has all the technology of tomorrow's console - it can do so many things that no other console can."

Chuck Howard of Curb Studios
Hal Ketchum, Wynonna, Eddie Arnold,
Blake & Brian



www.euphonix.com

CS3000



Euphonix
digital control audio systems

World Headquarters Tel: (650) 855 0400

Los Angeles (West US) Tel: (818) 766 1666

New York (East US) Tel: (212) 302 0696

Nashville (Central US) Tel: (615) 327 3933

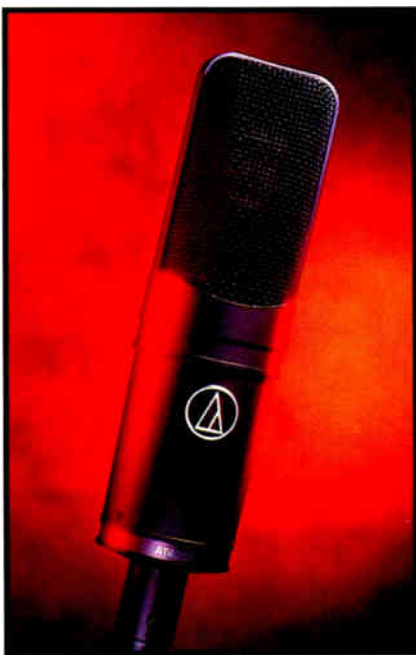
London (Europe) Tel: (171) 602 4575

Tokyo (Japan) Tel: (03) 3288 4423

AUDIO-TECHNICA AT4060

TUBE STUDIO CARDIOID MICROPHONE

Anticipated since 1994, when Audio-Technica first unveiled its AT4050 large-diaphragm studio condenser, A-T's tube mic project may have been one of the worst-kept secrets in audio. Everybody knew this one was coming, but after beta testing on major-label sessions for a year or so (these guys at A-T are *really* careful), the AT4060 tube mic (\$1,695) is finally here. Deliveries



begin later this month, and this is one serious mic to reckon with.

The mic is a side-address design, shaped similar to the AT4050, although the AT4060 has a larger body and weighs in at a substantial 640 grams. The brass body has a tough matte-black finish. The cardioid condenser capsule uses an aged, 21.3mm-diameter vapor-deposited gold diaphragm. In keeping with its minimalist design, the AT4060 has no pad or HP filter in the audio path, and its extremely stable 6922 tube provides remarkably low noise for a tube mic. Combined with its maximum SPL handling of 149 dB (0.5% THD), the AT4060 offers enough dynamic

range for nearly any session, whether hyper-analog or 20/24-bit.

A 10-meter cable with 6-pin Neutrik XLRs connects the mic to a 1U power supply with detachable rack ears. Of little use in a control room (unless your facility is prewired for 6-conductor mic lines), a rackable PS would ideally be mounted in a case, for transport/setup when several AT4060s are used on a session. The PS front panel has an AC switch and power LED; the rear has switches for ground lift and 120/230 VAC operation, along with the 6-pin XLR input and 3-pin male XLR output. The mic includes an industrial-strength shockmount: a cast aluminum frame with thick elastic cording suspending an inner cradle that holds the mic securely, yet provides superb isolation from kicks, slams, stomps and seismic phenomena.

Tube gear requires a warm-up period, so I powered up the AT4060 and listened to about five minutes of occasional pops, burps and some cool-sounding frequency sweeps that sounded like outcasts from the soundtrack of Ed Wood's 1959 classic *Plan 9 From Outer Space*. After ten minutes, the AT4060 stabilized and was ready to go.

Using a Millennia Media HV-3 preamp, my first session with the AT4060 was recording male narration for an industrial training cassette series (hey, don't laugh—these gigs pay *really* well). I noticed that the AT4060's frequency response seems to go all the way down to subsonics—what would have been an attenuated breath pop on a lesser mic sounded like a hurricane on the AT4060. This thing would be great on pipe organ! My trusty Popper Stopper® screen about 2 to 3 inches in front of the mic took care of the breath noise, while placing the narrator 8 to 10 inches back from the AT4060 offered

unhyped, natural reproduction.

On both male and female vocals, the AT4060's proximity effect was just enough to add a nice bass edge to a singer who knows how to work a mic, yet it was never overbearing. More impressive perhaps was that the proximity effect was linear across the LF band, free of peaky frequency hot spots that can make certain notes jump out and muddy up a performance. Spec'd with a 20kHz bandwidth, the mic has a -3dB downpoint around 18 kHz—more than ample to capture the shimmering airiness on breathy vocals.

In the upper middle range of the scale, the AT4060 exhibits a *very* gently rising presence boost starting about 2 kHz, gradually edging up to a 2- to 3dB crest around 6 kHz and remaining linear to past 10 kHz. This worked out extremely well on male and female voices for a pinch of clarity and definition, without the brittleness that can result from a mic with exaggerated top end. This presence provided a nice openness on grand piano, 12-string guitar and sax—instruments that can become shrill with the wrong mic.

Although it takes SPLs of 149 dB, I resisted the urge to use the AT4060 inside a rock kick, where air turbulence can permanently deform a delicate mic diaphragm. However, the AT4060 was nice and round on a double-headed jazz kick and excelled as a close mic on guitar and bass cabinets, offering power and punch while faithfully capturing the amps' sound.

The bottom line? If you need a quality studio mic with an unexaggerated, natural sound that's suitable to both male and female voices, as well as being an excellent all-around performer in a variety of studio tasks, the AT4060 could be just the ticket. Thumbs up on this one!

Audio-Technica U.S., 1221 Commerce Dr., Stow, OH 44224; 330/686-2600; fax 330/686-0719. Web site: www.audio-technica.com. ■

BY GEORGE PETERSEN

MEYER SOUND LABS HM-1S

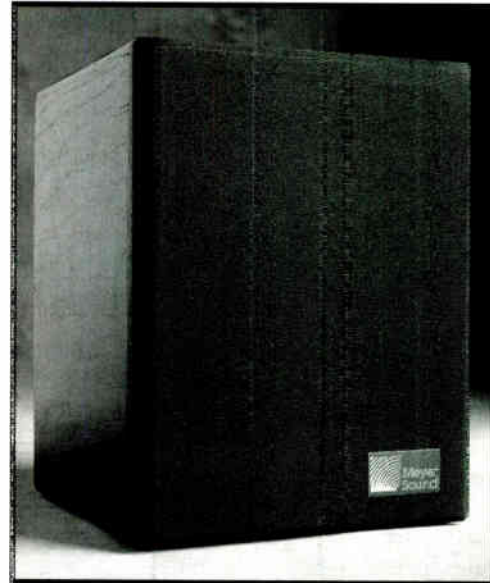
POWERED STUDIO REFERENCE MONITORS

In 1989, Meyer Sound debuted the HD-1 studio monitor system, a self-powered, near-field speaker with an extremely detailed sound—and a heady price of just under \$5,000 a pair. Despite its relatively high cost, the HD-1 quickly became the standard against which competing systems are measured. Though Genelec can justly claim equal credit, the HD-1 is largely responsible for one of the fastest-growing product categories of the past decade—the self-powered, near-field reference monitor.

In 1997, Meyer introduced the HM-1, a compact self-powered speaker designed for the installation market. However, it soon became clear that, with only a few (primarily cosmetic) changes, the diminutive HM-1 could be refashioned as the HM-1S, an entry-level self-powered monitor for the project studio market. The HM-1S sys-

tem, reviewed here, comprises a pair of HM-1Ss and an accompanying subwoofer.

Each HM-1S costs \$1,300, while the subwoofer adds another \$650. A 48VDC power supply (PS-1) is also required and costs another \$400, though a pair of HM-1S and a subwoofer can be powered from a single PS-1. The HM-1S has a very small footprint; dimensions are 11.5x8.9x9.7 inches (HxWxD). At 11 pounds, the HM-1S is no brute to move. Inside the black fiberboard and oak veneer cabinet is a 7-inch graphic cone woofer and a 1-inch, soft-dome, concentrically mounted HF driver. The system is bi-amplified; each driver is powered by one side of a 200-watt/channel 2-channel amp, and contains frequency and phase alignment circuits, voltage limiting for driver



protection and an active crossover. (A complex crossover curve between the high- and low-frequency drivers makes it difficult to cite a specific crossover frequency.)

Concentric drivers are known to provide real benefits in phase accuracy but can suffer from IM distortion and off-axis coloration. The phase-correction circuitry is designed to help alleviate these problems, and IM distortion is reduced at the source by a foam barrier placed between tweeter and woofer.

Front LEDs indicate for power, signal limiting and thermal overload status. The rear panel contains an XLR input, 2-pin EN3 power supply input connector, 3-pin EN3 subwoofer output, a fan power supply output and the fuse.

A PIN HOT DIGRESSION

Those who have read my writing in *Mix* over the past 14 years have encountered my subtle slaps, complaints and outright diatribes concerning equipment having XLRs wired with pin 3 carrying the signal hot (+) connection, a configuration that flies in the face of IEC and other standards. To those who have struggled with this issue while try-

BY LARRY THE O

Lab Analysis: Meyer HM-1S

by Mike Klasco

PHYSICAL CHARACTERISTICS

The Meyer HM-1S cabinet is very solid and features well-crafted construction, metal threaded inserts for the woofer and a black ash finish. The ¾-inch MDF appears to be veneered on both sides. (We chose not to cut the cabinet in half to confirm this observation!) The exterior has 0.25-inch radii edges, and the coaxial woofer is recessed flush with the baffle. Two-layer thick open-cell foam separates the back wave of the woofer from the electronics. The electronics are mounted into the cabinet with metal inserts. Two 1.6-inch-diameter flared bass reflex ports with small radii on both ends are located on the front baffle. Grille cloth is stretched over a standard wood frame (easily removed from the front baffle) and status LEDs are located inside deep holes just above the driver.

The transducer is a 6.5-inch woofer with a ¾-inch dome tweeter mounted coaxially in front of the woofer. The tweeter has a neodymium magnet and has a phase "equalizer" in front of its treated fabric dome.

The woofer's curvilinear woven composite cone and rubber surround offer higher performance and are more stable (less sensitive to humidity) than a paper cone and foam surround. The stamped steel frame has a unique tweeter bridge with an acoustic foam blanket surrounding the tweeter. The large spider is slightly bumped on its periphery. The woofer voice coil is 1-inch in diameter. The magnetic

—CONTINUED ON PAGE 228

Earthworks

- 9/95- Earthworks began shipping microphones
- '96- TC30K nominated for TEC Award
- '97- TC30K wins Editor's Choice Award EM magazine
- '97- TC40K nominated for TEC Award
- '97- TC30K wins Crystal Harp Award MMM (Europe)
- '98- Both Z30X and LAB102 nominated for TEC award (vote for us)

"the QTC1 produces an absolutely beautiful sound." *Dave Foister, Studio Sound, 3/98*

"the QTC1 performed extremely well and produced a beautifully imaged recording." *Doug Mitchell, AudioMedia, 3/98*

"Earthworks QTC1 - clean, quiet and high output with a level of accuracy not found in many microphones." *Tom Jung, Pro Audio Review, 4/98*

"For voice-over radio work it (Z30X) was outstanding. I also loaned it to another project studio & they fell in love with it ...the LAB102 doesn't seem to have a real sound of its own. It just adds gain without coloration." *Mike Sokol, EQ, 5/98*

"There are so many products on the market, promising so much, that the reality rarely lives up to the hyperbole. Your mics deliver everything promised and at a great price. I don't know how I ever got along without these mics." *Rick Reed, end user*

You need Earthworks!

real: +1 603 654 6427
virtual: www.earthwks.com
fax: +1 603 654 6107

ing to get a performance, recording session or installation off the ground, the mere mention of the issue can cause rolling of the eyes, followed by the inevitable war stories.

For years, Meyer Sound's products have fallen into this category. Then, Meyer's recent self-powered sound loudspeakers were fitted with the sensible transitional stratagem of a pin 2/pin 3 switch, allowing compatibility between older and newer Meyer products. Finally, the HM-1S has XLRs wired with pin 2 hot. After spending so much time riding the Whine Train on this subject, I am compelled to laud Meyer for complying with the international standards.

OPTIONAL SUBWOOFER

The optional subwoofer for the HM-1S is also of reasonable size (17.5x12.3x9.3 inches, HxWxD) and hefty (33 lbs.) and contains a single 10-inch speaker. Each HM-1S is capable of powering the subwoofer on its own, or two subs can be used (one powered by each HM-1S) if stereo extra-low frequencies are desired; the necessary cable is included. It is also possible for a pair of HM-1Ss to drive a single sub with a summed mono signal, via an optional \$25 cable. As this last setup is the most likely in a small studio, I wish this cable had been included with the HM-1S. Frankly, the output of a single subwoofer was easily sufficient to match a pair of HM-1Ss, and I can't imagine needing a pair of subwoofers in a normal studio situation.

According to Meyer, the sub is not always necessary for extended low-frequency response. In a free-field situation, the HM-1S' response goes to around 70 Hz. The response in the spec sheet (not included in the documentation but accessible on Meyer's Web site) is for half-space loading. In that case, the amplitude response goes down to 42 Hz (± 2.5 dB, 100 to 20k Hz; -6 dB from 42 to 100 Hz). If your HM-1Ss are set up for half-space loading (essentially up against a wall), the sub is not necessary.

Most project studio owners, however, will be putting the HM-1S on or very near the console (I put them just behind). In that scenario, the subwoofer—which crosses over at 100 Hz—adds 8 dB to the HM-1S response, from 42 to 100 Hz.

By the way, the DC power and subwoofer cables are not the type you'd typically find at an audio retailer. They aren't exotic connectors: merely atypical for audio products, so you may want to buy spares if you regularly travel with

your HM-1Ss. Especially when used without the subwoofer, the speakers are easily transportable to different studios.

LISTENING TESTS

I evaluated the HM-1S primarily at my personal studio, Toys in the Attic, and used them in a variety of contexts, including editing, mixing and sonic restoration. I also listened to some familiar CDs, always a valuable tool for checking out speakers. Finally, I asked a few colleagues, most notably fellow LucasArts sound designer (and a former Russian Hill Recording engineer) Jeff Kliment to listen and offer opinions. The results were entirely consistent. Though somewhat unfair, I found myself considering the performance of the HM-1S in relation to the HD-1, to see what traits of Meyer Sound's designs carried through and what compromises had been made to account for the lower price point.

Of the CDs, the two most revealing examples were Los Lobos' *Kiko* and a Sony Classical recording of Pierre Boulez conducting the New York Philharmonic and the Ensemble Intercompain through a number of pieces by Edgard Varèse. Varèse's *Ionization*, scored for 13 percussionists, is ideal for evaluating a speaker system's frequency and transient response, imaging and detail. In recent years, imaging of studio monitors at all price ranges has improved greatly, and one would certainly expect speakers in the HM-1S' range to excel in this area. The HM-1S does not disappoint: Sitting in the sweet spot, I was easily able to pinpoint the placement of every percussion instrument in the ensemble.

Meyer's literature hails the HM-1S' "wide coverage pattern or 'sweet spot' (even wider than the HD-1's)." The beam width is specified as 100x100. I'm afraid my ears tell me differently with both models. Though both the HD-1 and HM-1S provide good balance and tone for working over a fairly wide area, there is, for both speakers, one spot at which everything just locks in and the image snaps into place.

In both cases, I find that the sweet spot extended a surprising distance perpendicularly (straight back from the speakers)—up to four or five feet—but move your head laterally more than three or four inches and things change significantly. Again, the sound is still balanced and tonally accurate enough for me to work with, but it loses the "lock" that presents the precision localization. Move a few feet to the side and the accuracy is gone. In a project studio,



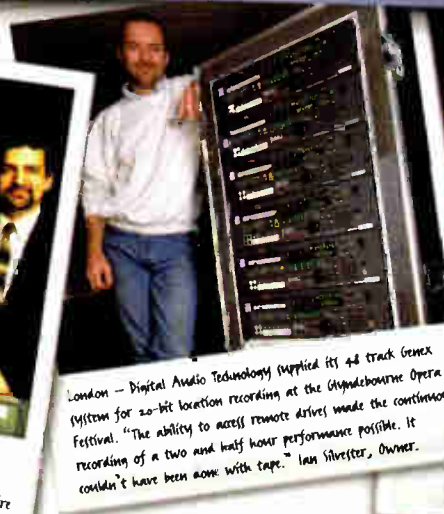
... - At the world famous
... Road Studios, "Our GX8000s
... between the studios and on
... for use on a wide range of
...". Neil Aldridge, Chief Engineer.



... - Mastering the new George Strait album at
... Master. "Everyone was astounded when
... heard it at 88.2kHz compared to 44.1kHz. Its
... ability has also been amazing." Denny Purcell.



Montreal - Major multinational TV production company
CINAR uses 15 GX8000s in a variety of applications.
"By recording at the maximum possible dynamic range, we're
preparing for new formats as they become available."
François Deschamps, VP of Studios.



London - Digital Audio Technology supplied its 48 track Genex
system for 24-bit location recording at the Glyndebourne Opera
Festival. "The ability to access remote drives made the continuous
recording of a two and half hour performance possible. It
couldn't have been done with tape." Ian Silvester, Owner.



Hollywood - Recording the new 24th
Century Fox feature at the Newman Scoring
Stage. "We liked the sound of the live mix
so much that we didn't remix it at all." John
Surlander, Grammy award winning Scoring Mixer.

AROUND THE WORLD IN 24-BITS



Up to 24-bit / 192kHz sample rate · Simultaneous recording of 8 x 20-bit tracks
on a standard 2.6Gb MO disk, using internal A-D converters · Forwards,
backwards or varispeed lock to timecode or bi-phase · SCSI interface
for links with external editors (SADiE, etc.) · Sample accurate synchronising
of up to 8 machines · New GXR48 remote control



Manufactured in the UK by Genex Research. Exclusive worldwide distribution by HHB Communications.

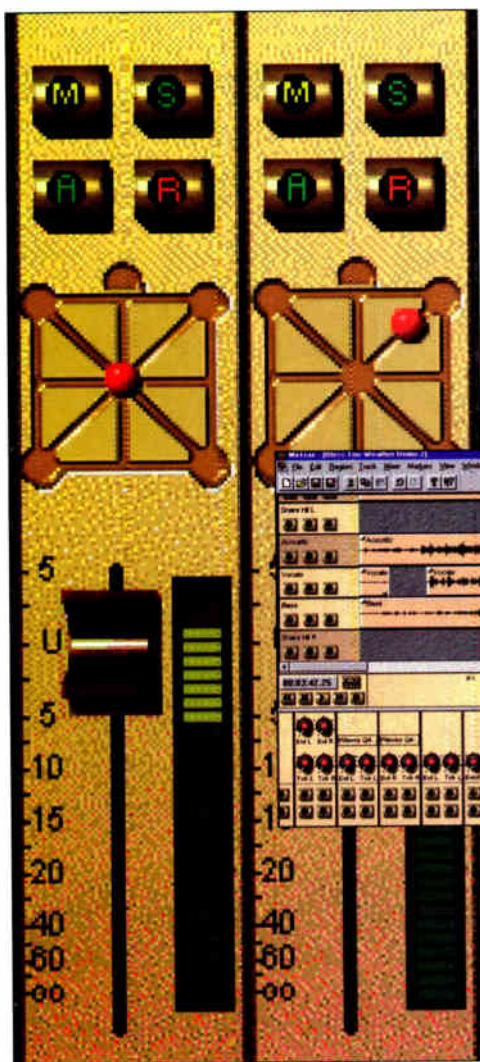
HHB Communications USA - 626 Santa Monica Boulevard, Suite 1119, Santa Monica, CA 90404, USA Tel: 310 319 1111 - Fax: 310 319 1311 - E-Mail: sales@hhbusa.com
HHB Communications Canada Ltd - 260 King Street East, Toronto, Ontario M5A 4L5, Canada Tel: 416 867 9000 - Fax: 416 462 1080 - E-Mail: hhbcan@istar.ca
HHB Communications Ltd - 73-75 Scrubs Lane, London NW10 6GU UK Tel: 0181 962 5000 - Fax: 0181 962 5050 - E-Mail: sales@hhb.co.uk
Visit HHB on line at: <http://www.hhb.co.uk>



CIRCLE #124 ON PRODUCT INFO CARD

Mx51™

5.1 SURROUND THE EASY WAY



Mx51™ from Minnetonka Software; the elegance of MxTrax and the power of V8™ come together to deliver a revolutionary new tool for surround sound production.

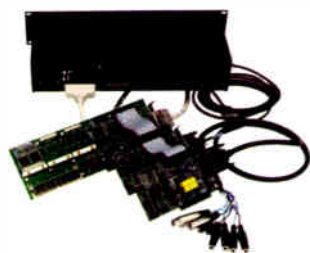
Finally, a professional audio workstation designed specifically for true multichannel format mixdown. With Mx51 software, a Digital Audio Labs V8 system, and a PC, surround mixes are a breeze:

- Individually pan each channel with Mx51's five way pan controls.
- View surround panning on all channels simultaneously.
- Dynamically automate all surround panning in real time.
- Automatic 5.1 bussing on V8's mixer.
- Easy-to-use adjustable subwoofer crossover

Plus get all the power of the standard MxTrax/V8 combination, including:

- 16 *true* hard disk tracks
- Drag and drop automated digital mixer
- True ADAT & DA88 integration*
- LTC and VITC video sync*
- Optional realtime 3rd party effects from the V8 audio gearhead partners

Breakthrough tactile interface lets you *feel* surround panning as you *bear* it.



Why the V8?

The V8 from Digital Audio Labs is a modular audio workstation platform for the PC. Systems can be configured with a choice of analog and digital I/O, MDM interfaces for ADAT and DA88, and realtime DSP options Contact Digital Audio Labs for information:

(612) 559-9098 www.digitalaudio.com

V8™
APPROVED

 **Minnetonka**
AUDIO SOFTWARE, INC.

17113 Minnetonka Blvd. • Suite 300
Minnetonka, MN 55345 • (612) 449-6481
www.minnetonkasoftware.com

*Some options require additional hardware.

Prices and specifications subject to change without notice.

CIRCLE #125 ON PRODUCT INFO CARD

World Radio History

FIELD TEST

this means that sequencing at the keyboard rack is fine, but when programming sounds there, frequent trips back to the sweet spot will be necessary for critical judgments. On the other hand, many quality consumer speakers might offer even coverage over a much greater lateral area but can never attain the HM-1Ss knockout localization.


In that sweet spot, however, you can't help but be struck with the thought that there is definitely something John Meyer knows about making speakers that lets the HM-1S reproduce detail like no other speaker I have heard, save the HD-1. This is the trait that originally endeared the HD-1 to me, and it has clearly been carried through to the HM-1S. Listening to CD re-releases of Beatles albums on the HM-1S, I heard overdubbed instruments I had never even noticed before in countless listens. The incredible detail was also very helpful during editing of music tracks in Pro Tools 24. Constructing crossfades can be tricky, but I always felt very sure of what I was hearing while monitoring such work on the HM-1Ss.

Not surprisingly, *Ionization* also showed the HM-1Ss to have genuine depth in the sonic field, a property I have heard discussed much more than I have actually heard on speakers. Front-to-back placement seems to be much more difficult to reproduce than lateral placement, and I have to think Meyer Sound's phase correction technology is the reason the company's speakers have such depth, detail and accurate transient reproduction.

Kiko and the Varèse recording produced the same impression of the HM-1S' frequency response. Reproduction seemed quite flat across the spectrum, but the extremes showed a few rough spots. Cymbals are one of the best sources I know for assessing high-frequency reproduction, and the HM-1S' rendering of cymbals lacked the crystalline clarity I would expect in a premium speaker. It sounded like the frequencies were being reproduced but not absolutely cleanly.

A FEW ANOMALIES

The low end exhibited a few anomalies, also. There seemed to be a bit of a "hole" in the response somewhere just below 100 Hz, with a rather substantial boost below the hole. It is here that it becomes crucial to keep in mind that one never listens to speakers, one listens to speakers *in a room*. In my room,



SAVOY JAZZ • ROCK & ROLL HALL OF FAME • STRICTLY R
REPRISE • RAVE MUSIC • SON MUSIC • BLUENO
WARNER BROTHERS • SONY • MAW REC
HYBRID • DIGIT • WOOD • BEGGA
BYM • ALULA • ATLANTIC •
RISTA • RE • TA • ROCK
VOY JAZZ • RAVE MI
ISE • H • F • RO
CHWO • NER
JSIC • WILLIA • L DUNGEON
CK NORTH SO • BRID • ARISTA
GAR'S BANQUET • HALL OF FAME
STRICTLY RYTHM • T MUSIC • DENO
• TOUCHWOOD • MA • UPAYA • ROCK & RO
RTH: **DIGITAL MASTERING AND EDITING** ON
SANDY JAZZ • ROCK & ROLL HALL OF FAME • WARNER B
ARNA • E • S • H
QUET • WARNER BROTHERS • TOUCHWOOD • MAW
YBRID • ALULA • DIGITAL DUNGEON • ATLANTIC • WARI

Rick Rowe

SADIE CDR REDBOOK • SONY PCM 1630 • DAT • EXABYTE DDP

TRANSFERS FROM ANY / TO ANY FORMAT
AUDIO POST:
DIALOG EDITING/SYNC • MULTITRACK MIXING • SOUND DESIGN
SOUND FX EDITING • MIX TO PICTURE

630 9TH AVE SUITE 1012 NY, NY 10036 • 212.262.2626 • OUTSIDE NY 1.800.847.4123

CIRCLE #126 ON PRODUCT INFO CARD

PROJECT STUDIO EXPERTS



WORLDWIDE DELIVERY

The Largest Selection Of The Best Products In The Business



- ▶ DIGITAL & ANALOG MULTITRACKS & CONSOLES ▶
- ▶ EFFECTS, MONITORS, MICS & PRE-AMPS ▶
- ▶ KEYBOARDS, GUITARS & ELECTRONIC PERCUSSION ▶

CALL NOW

800-264-6614



OUTSIDE U.S. - 860-442-9600

FAX: 860-442-0463

CARUSO MUSIC

94 State Street • New London, CT 06320 USA • E-mail: sales@caruso.net • <http://www.caruso.net>

CIRCLE #127 ON PRODUCT INFO CARD

Brauner



**studio
consultants,
inc.**

321 West 44th Street
New York, NY 10036
(212) 586-7376

Brauner introduces the VMI and VMI-S (stereo) tube microphones. This new family of tube mics has been developed by Dirk Brauner with both a deep understanding of the classic designs of the past and an uncompromising desire to advance that tradition.

The warmth and musicality are there, but so are a youthful clarity and a noise floor notably lower than other tube mics, new or old. These microphones, hand-built in Germany, will delight the traditionalist yet are quiet enough for the most pristine modern recording techniques.

Hearing is believing. In the Northeast, call SCI for information and a demonstration.

Aardvark, API, Apogee Electronics, Audix, B&B Systems, Brauner, Bryston, Calrec, Drawmer, Gefen Systems, Genelec, Lexicon, MediaFORM, Middle Atlantic, Mytek, PrismSound, PMC, Sonic Science, Sonic Solutions, SoundField, Sound Ideas, Star Case, Westlake, White Instruments, Z-Systems and other exceptional audio products.

Equipment, support, and design services for professional audio facilities and broadcasters in the New York area—since 1971.

CIRCLE #128 ON PRODUCT INFO CARD

Heard any good movies lately?



You can't beat surround sound for sheer thrills. So get into the act with a StudioComm for Surround monitoring system.

You could be monitoring 4, 6, or 8-channels with less fuss than ordering popcorn. Without the big ticket price.

StudioComm for Surround was made for the part. It was designed to the specific needs of the industry's leading players. No wonder it's a hit!

For the big picture, visit our web site or give us a call. StudioComm for Surround from Studio Technologies.

**STUDIO
TECHNOLOGIES
INC.**

5520 West Touhy Avenue • Skokie, IL 60077 USA
847.676.9177 • www.studio-tech.com
See us at NAB Booth RL4019

CIRCLE #129 ON PRODUCT INFO CARD

FIELD TEST

I tried moving the subwoofer forward and back and, to a lesser degree, side to side. I produced numerous different responses but never found a position that was satisfyingly flat. I also tried moving the HM-1Ss around (moving left and right symmetrically, for the most part), though less radically, but this also failed to establish an even-sounding low-frequency response.

This made me a bit nervous when mixing and mastering on the HM-1Ss, as I did not feel confident I was hearing "the truth" in the low frequencies. I cannot say that the recordings I made had uneven bass response when played back on other systems; still, nervous is not a feeling I like. It is only fair to add that, having never had speakers with such extended LF response in this particular room (which is not acoustically designed or well-treated), I can't say for sure that the room was not at fault.

Assuming the HM-1Ss were best suited as near-field speakers, I and set them up in the classic equilateral triangle, a meter away from me and each other. To my surprise, I discovered, the best listening position was in the mid-field, on the point of an equilateral triangle about two meters in each dimension. The amplifiers in this system are certainly up to the task of providing adequate SPL at that distance: They are spec'd to produce a maximum of 120 dB with the subwoofer in the system. (Did I say yet that these speakers can get rip-yer-face-off loud in the close field?)

I also listened to the HM-1Ss without the subwoofer. Obviously, the difference in the LF was significant and would be difficult in a mastering situation, but for mixing pop music it was excellent.

I put the tonal capabilities of the HM-1S to a severe test while restoring rare jazz recordings from the collection of noted jazz authority John Fell. The tapes and private label pressings had been recorded from the early '40s to the mid-'60s and exhibited an equally large range of sonic problems: noise, distortion, poor tonal quality, and all the other ills typical of old recordings. By hurling an array of software at these poor old gems, I attempted to make them not only sound decent, but match each other closely enough to make a reasonable CD master. For such a task, one must have absolute trust in the tonal accuracy of one's loudspeakers. With the HM-1Ss, I could clearly hear the noise level and quality in the tracks as I la-

bored to reduce it, as well as the artifacts that can result from hitting the audio too hard with the multiple bands of filtering typically used in the denoising process. The restored recordings made on the HM-1Ss translated superbly when auditioned in other settings.

FUTURE SURROUND

Before the actual release of the HM-1S, I had the opportunity to borrow several prototype models (without the subwoofer) to use as center and surround speakers for mixing the non-interactive "cut scene" portions of LucasArts Entertainment Company's Jedi Knight game in Dolby Surround. Although it is generally recommended that identical speakers be used all the way around for surround mixing, I found the HM-1Ss to be a superb complement to the HD-1s I was using for left and right channels. For those of you who own HD-1s and anticipate more surround mixing with the growing popularity of 5.1 surround systems, I strongly suggest you consider the HM-1S and subwoofer for expanding your system.

Two HM-1Ss, a subwoofer, and power supply, come to more than 75% of the cost of a pair of HD-1s, which is considerably more than many other premium speakers intended for project studios. What you get for your money is small size, phenomenal detail and imaging, extended low frequency response, and plenty of sheer volume when you want it. Additionally, you have a good center and surround speaker match for HD-1s.

I should add that I could listen to the HM-1S for long periods without feeling fatigued, and decided that they were actually fun to listen to, which is often not the case with precision monitors. What *don't* you get with the HM-1S? The only flaws I found were imperfections at the frequency extremes.

Everyone now recognizes that today's "small" studio is often quite well-appointed. If you are in the market for a small, gloriously revealing monitor system of the highest quality, Meyer Sound's HM-1S and subwoofer are a must.

Meyer Sound Labs, 2832 San Pablo Ave., Berkeley, CA 94702; 510/486-1166; fax 510/486-8356. Web site: www.meyersound.com. ■

Larry the O produces, engineers and consults under the rubric Toys in the Attic, performs Celtic Meltdown music with Annun (say "ab-noon") and is a sound designer for LucasArts Entertainment.



LEARN THE ART OF RECORDING

You can get the practical, real-world skills needed to successfully start your career as a recording engineer, producer or studio musician. • Hands-on approach, learning by doing • Previous experience not required • Complete 300 hours of training in less than 2 months • 6 studios filled with the latest equipment • Small classes, excellent personal attention • Job placement assistance • Financial aid available • Low cost, on-campus housing



For free brochure, call or write today

1-800-848-9900 1-614-663-2544

THE RECORDING WORKSHOP

455-X Massieville Rd
Chillicothe, Ohio 45601

Ohio State Board of Proprietary School Registration #80-07-0696T

CIRCLE #130 ON PRODUCT INFO CARD

Equi=Tech™

...Balanced Power Systems



U.S. Patent No. 5,640,314 - other Pat. Pend.

WALL CABINET SYSTEMS

- Complete Turn-key Systems for Hard-wired A/C Power Distribution
- 4 Sizes Available: 50, 75, 100 and 125 Amps
- Lifetime Warranty on Power Transformer
- Unlimited Technical Support



Balanced Power Technology
by Equi=Tech Corporation

Equi=Tech Corporation • P.O. Box 249 • Selma, OR 97538
Tel: 541/597-4448 • FAX: 541/597-4099 • <http://www.equitech.com>

CIRCLE #131 ON PRODUCT INFO CARD

ALESIS XT20

20-BIT DIGITAL MULTITRACK RECORDER

On January 17, 1991, Alesis started a not-too-quiet revolution in the audio industry with the introduction of the Alesis ADAT. Actually, Alesis wasn't the first manufacturer of modular digital multitracks, but compared to the \$30,000+ pricing of the Akai A-DAM and Yamaha DMR8, the \$3,995 cost of the original ADAT brought digital multitracking to the masses. Now, seven years later,

its large, multicolored, custom vacuum fluorescent display, which indicate whether the machine is operating in 16- or 20-bit mode. The display also includes tape locator data, meters, status indicators and other session data. During the formatting process, the user selects whether the tape is going to be 16- or 20-bit, and after that point, the XT20 automatically sets itself to the format of the tape inserted into it.

Recording grand piano—perhaps the most revealing of instruments—the results were immediately noticeable. The XT20 recording had a smoother, more natural timbre, particularly in the upper registers, while the bass was more well-defined. Compared to the XT, the XT20 seemed rounder and—dare I say—more analog-sounding. The noise floor was substantially less in the XT20, and the overall sound had more clarity.

Next, I recorded another piano passage, but this time I reduced the preamp's output so that the maximum peaks were in the -36dB range on XT20 and XT meters. Listening to the playbacks at a normal volume, the XT20's reproduction of low-level detail was clearly better than the XT, especially in terms of instrumental decays and the reproduction of reverb tails, which on the XT20 continued on long after the XT's signal had disappeared into the dither.

Tracking drums in a multitimic situation, the differences between the 16- and 20-bit machines jumped from subtle colorations and reverb tail details to punch and fury, with the XT20 delivering sparkling realism, especially in the very percussive attacks of snares, timbales, cowbell, crotales and splash cymbals. Yeah!

There are numerous reasons to check out the Alesis XT20: It runs and sounds infinitely better than the original ADAT, while priced \$1,000 less—even a better deal in terms of 1998 dollars. These days, as 16-bit audio gear edges closer to the verge of obsolescence, the XT20 is definitely a solution to consider, whether you're looking at a \$2,999 8-track, an \$8,997 24-track system or as a multichannel 5.1 mix format that's 20-bit/48kHz DVD-compatible right out of the box.

Alesis, 1633 26th Street, Santa Monica, CA 90404; 310/255-3400; fax 310/255-3401. Web site: www.alesis.com. ■



Alesis offers ADAT's third generation with the XT20, providing high-resolution 20-bit recording at an affordable \$2,999 (including LRC mini-remote and fiber-optic dubbing cables), a price that's \$500 less than the previous 16-bit ADAT XT and \$1,000 less than the original black-face ADAT.

Like the upscale Alesis M20 and Studer V-Eight recorders, the XT20 records using the ADAT Type II format, storing up to 67 minutes (at 44.1 kHz) of 8-track, 20-bit linear uncompressed recording on an ST-180 S-VHS tape. The Type II recorders provide backward compatibility for the recording and/or playback of tapes made on the 110,000 machines using the original 16-bit ADAT format. The 20-bit tapes will not be playable on the Alesis, Fostex and Panasonic Type I ADAT decks. However, up to 16 ADAT decks (of any vintage) can be interlocked for as many as 128 tracks, in sample-accurate sync, merely by connecting the standard Alesis 9-pin sync cables between transports.

Operationally, the XT20 is nearly identical to its ADAT XT cousin, except for a champagne color faceplate and some extra icons in

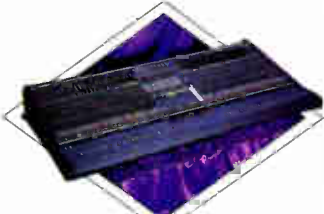
The XT20 shares the same software-controlled transport of the ADAT XT—the tape rewind/fast-forward/seek times of the two decks are identical.

On the analog I/O side of things, the XT20's rear panel is the same as the XT, with -10dBV RCA jacks and servo-balanced +4dBu I/O on a 56-pin EDAC (Elco-compatible) connector, along with the familiar sync, BRC, LRC, punch-in/out jack and optical digital I/O connectors.

In the studio, the XT20 recorded and played tapes (20- or 16-bit) flawlessly, although on one particular session, I tried using the XT20 as a slave to an XT—bad idea. After a slew of error messages, I simply redesignated the XT20 as the master and went on without further hiccups.

I began my listening tests by connecting a Dirk Brauner VM-1 tube mic to a Stax mic preamp and routing the signal from the pre's two sets of outputs directly into an XT20 and an XT, with the two ADATs running in sample-accurate sync, for repeatable, A/B comparisons.

BY GEORGE PETERSEN



Midas introduces a thoroughly modern monitor console - with multi-functional abilities that could double its rental potential for you.

As the world's first 48-input monitor console with 20 mix buses designed specifically with stereo in-ear monitoring in mind, the compact Midas XL250 is great value for money.

Also fully equipped for most house mixing tasks, and with the Midas touch of pure audio quality and superb equalisation, it takes some beating as an all-round performer.

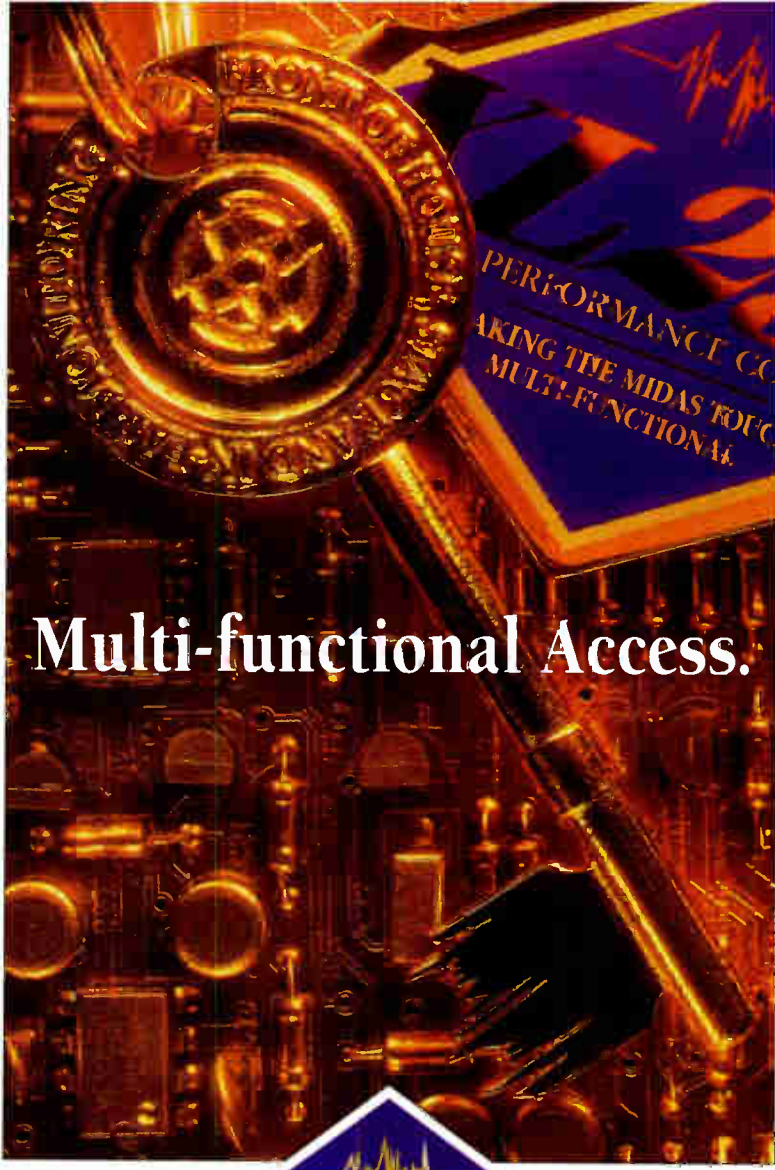
Best of all, it's also simple and intuitive to use in the Midas tradition.

Just like the Midas XL3 and XL4, multi-functional power doesn't mean compromising on features, sound or ergonomics, on stage or in the house.

Our latest Midas XL3-derived microphone preamp is ultra quiet, clean, stable and wide-ranging. It's a perfect match for the XL3 equaliser's responsive control, character and sonic performance, with fully parametric mid bands and traditional Midas swept shelving treble and bass.

For mixing monitors, the XL250 gives you everything you need for stereo-hungry productions.

Out of a total of 20 mix groups, 1 and 2 are always discrete sends (level/level) and 3 through 18 are either 16 discrete (level/level) mixes or 8 stereo (level/pan) in-ear mix sends. 19 and 20 can double as a ninth in-ear mix bus, or conventional



Multi-functional Access.



stereo mix bus for sidell or front-of-house use.

All 20 mix groups, on 100mm faders, can be routed directly to speaker outputs or used as audio subgroups for front-of-house. And with every send on individual pots they're clear as daylight to use. A stage full of in-ear mixes plus multiple mono wedge sends won't daunt the XL250, or you.

What else?

Whether you're thinking monitor or house, you can assign eight overlapping automate masters to any input or group.

Direct outputs supply your recording or extra effects sends, and stereo input modules return multiple stereo effects to the mix without reducing the console's overall usability.

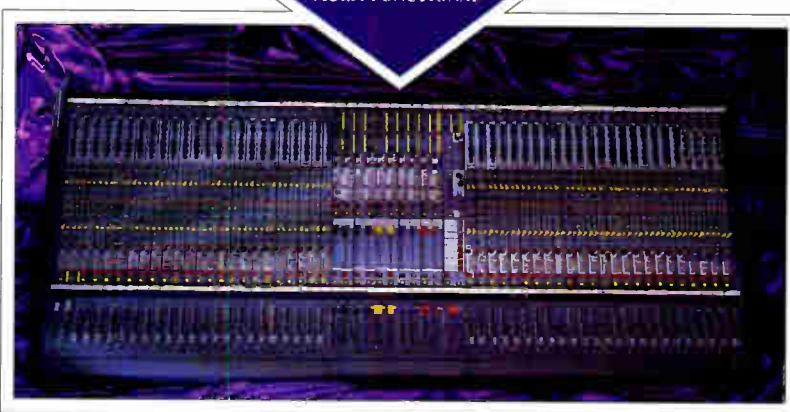
An advanced Solo system gives you the choice of 'auto cancel' and 'input priority add' modes - for fast access to channels and groups or for building complex solo scenes.

There's full channel metering right there on the modules, and a simple, fast and flexible Talk system to provide a brilliant range of options for every situation.

With the Midas XL250, multi-functionality equals maximum rental power.

Every single Midas console is designed for pure performance.

But discover the multi functional Midas XL250 and see how our new performance will add up for you.



EV1 Pro Audio Group, Clark Technik Building, Waite Marsh Road, Kidderminster, Worcestershire CV11 7HJ, England. Tel: 01952 7415151 Fax: 01752 715771
 EV1 Pro Audio Group, 449 (5th) Road, Budaran, MI 49107, USA. Tel: (616) 695 4750 Fax: (616) 695 0470
 Web site: <http://www.ev1audio.com> Email: info@ev1audio.com

CIRCLE #132 ON PRODUCT INFO CARD

RECORDING NOTES

RECORDING PAGE & PLANT'S "WALKING INTO CLARKSDALE"

by Steve Albini

[Editor's note: One of the more intriguing studio matchups in recent years brought together former Led Zeppelin titans Robert Plant and Jimmy Page with noted indie rock engineer Steve Albini. Albini is known for his studio work with such cutting-edge bands as Nirvana, PJ Harvey, The Breeders, The Pixies and Bush, not to mention countless struggling groups you've probably never heard of but which benefited enormously from his expertise and no-nonsense approach to recording. Here, Albini offers a look at the technical side of the Page/Plant sessions, which resulted in their new bit album.]

In the Spring of 1997, I was approached by Jimmy Page

and Robert Plant about working on an album of new material. These two having been responsible for many of the defining moments in the history of recorded rock music, I was initially intimidated. But choking back my trepidation, I suggested we do a short session together, to see if our working methods were compatible, and if all went well, we could proceed in the autumn.

Sessions for the Page and Plant album *Walking Into Clarksdale* were conducted in two London studios, RAK and Abbey Road Studio 2. The RAK session in June 1997, was a four-day affair intended to be an introduction of sorts, and principal work on the record was done at Abbey Road throughout the autumn of 1997.

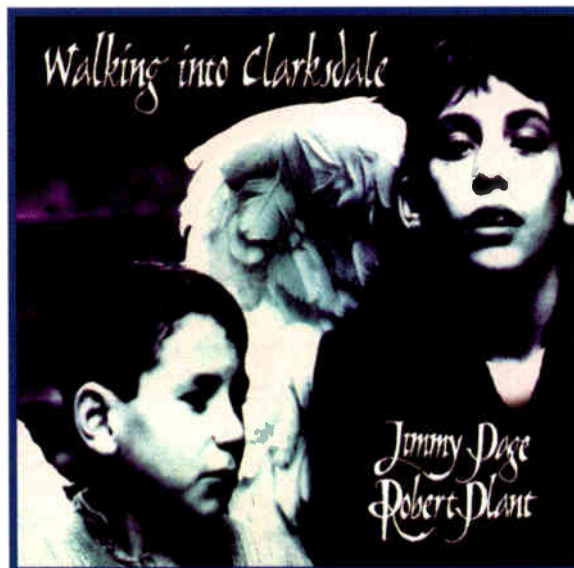
Mickie Most's studio, RAK, was initially suggested by Robert Plant, who has done many sessions there and was comfortable with the studio. The playing room can be divided into a live room (18x25) and a slightly-dampened room (16x25),

both rectangular.

The drum room had a prominent flutter echo between the front and rear walls, so a pair of baffles were angled to break up the reflection. With Michael Lee's large drum kit (six toms, large bass drum and cymbals) sequestered in the live room, there was just enough room in the guitar room for the several amps and cabinets needed for Jimmy Page and bassist Charlie Jones. Plant sang takes with the band into a Neumann CMV-563/M7 and was partitioned behind a triangle of screens in the amplifier area.

RAK's API console had been retrofitted with VCA automation in the '80s, and there was no way to bypass the VCAs (which can be prone to drift, noise and distortion), so much of the recording was done by patching directly from the mic amplifiers into the Studer A800 MkIII multitrack (on Ampex 499 tape at 15 ips/CCIR, 0VU¹ referenced to 520 nWb/m, no noise reduction). The API consoles have a well-deserved reputation for handling difficult dynamics and strong bass with clarity, and the masters sounded excellent.

—CONTINUED ON PAGE 190



FROOM & BLAKE GET HIGH ON "DOPAMINE"

by Paul Myers

For celebrated producer Mitchell Froom, the most difficult thing about making his new solo album, *Dopamine*, was trying to figure out just *why* he was making it. Despite his 1984 Slash/Warner release *The Key of Cool*, which was actually designed originally to be the soundtrack for an adult film called *Cafe Flesh*, and various soundtracks including the HBO movie *Path To Paradise* and the Golden Globe-nominated theme song for the James Bond film *Tomorrow Never Dies* (co-written with Sheryl Crow), Froom is not known so much for his compositional skills. He's most noted for his stellar production work for such diverse artists as Los Lobos, Crowded House, Richard Thompson, Paul McCartney, Jimmy Scott, Elvis Costello, Suzanne Vega and, most recently, Bonnie Raitt. On *Dopamine*, however, it is Froom the composer and arranger who takes center stage.

"This is an arranger's album," explains Froom, "in the tradition of Henry Mancini, Esquivel or Gil Evans—although I wouldn't compare myself to those people. They really knew a lot about music and were basically arrangers who sometimes got to make records."

On *Dopamine*, Froom "got to" record 12 of his original compositions. Some are instrumental, but most

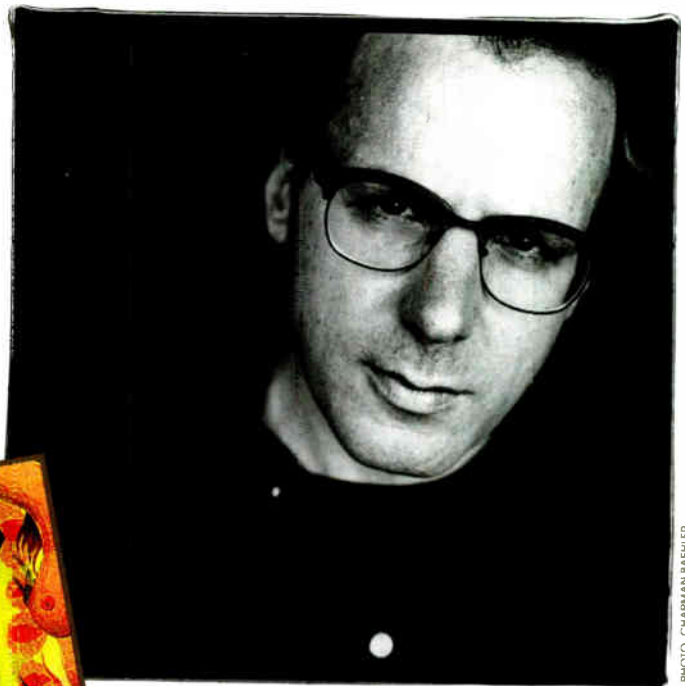
are actual songs that came from collaborations with a variety of top singer/songwriters, hand-picked from Froom's impressive discography, who make cameos on the record. While not a complete list of Froom clients—Costello, McCartney and Thompson are absent—the album benefits from the eclectic lyrical and vocal contributions of Los Lobos' David Hidalgo



and Louie

Perez, former American Music Club frontman Mark Eitzel, Sheryl Crow, Canadian rising star Ron Sexsmith, Cibo Matto's Miho Hatori, Lisa Germano, Soul Coughing's M. Doughty and even Mrs. Froom herself, Suzanne Vega, who lends her sexy cool to the album's title track. What helps the album rise above the usual celebrity name-drop festival is the unusually high quality of these new songs. Eitzel's "Watery Eyes," with its weary lyric and pseudo-Parisienne motif, and Sexsmith's "Overcast," with its Lennonesque slap-echoed piano and soulfully pretty melody, would likely be featured tracks on either artist's own releases.

Still, Froom is adamant that the album's *raison d'être* was to embrace the studio as its own tool. As a result, his



Mitchell Froom

PHOTO: CHAPMAN BAERLER

focus was split into looking for cool songs and equally cool sounds.

"One or the other doesn't make sense," explains Froom. "It has nothing to do with capturing, say, a beautiful vocal or creating an impression of a live gig. It's much more sort of mind interior kind of music. I wanted it to be the kind of record where people would listen to it and go, 'Who paid for this record to be made?' I think it's a headphone record. I don't know if it's a put-on-at-a-party record. The worst thing would be if people listen to it and go, 'Hmmm, that's interesting.'"

Froom says he hopes that the album will have a similar effect on the listener to the brain's natural chemical that is its namesake: "Dopamine, the chemical, is used to help people stop smoking and stuff. That's why one gets depressed when a cocaine high wears off. I'm told, because your dopamine levels

drop off."

Dopamine was recorded over four years, employing studio down time and a whole lot of serendipity. Froom delegated his usual producer's role to his long-time collaborator, Tchad Blake, whose distinctive engineering, mixing and co-production skills on Froom's best productions have now blossomed into a production career. Solo, Blake has produced records for Lisa Germano, the Finn brothers and Soul Coughing, in addition to a forthcoming series of binaural field recordings for Peter Gabriel's Real World label. "I wanted someone to say, 'This isn't very good,'" says Froom of Blake. "I relied on him to be totally honest with me"

"Mitchell just wanted to concentrate on the music," Blake agrees. "We have a really good dynamic. Whatever it is, it's comfortable and it works. I've noticed that when I come back to work with Mitchell, it's like a huge weight off my shoulders. He's

—CONTINUED ON PAGE 198

We didn't create great sound. We just created a great way to get it from one place to another.



Microphone and instrument systems available

Whether you're an engineer, producer, musician, or all of these combined in one, you've worked hard making music for a lot of years. Now more than ever, you need more time.

Maximize time.

Maximize tone.

Maximize mobility.

Developed for the music professional in search of maximum convenience, the Xwire X905 Digital Wireless System is the only wireless that enables you to do whatever you want, wherever you want, whenever you want, with maximum tone quality. The audio transmission is based on Xwire's proprietary digital technology which features full dynamic range, full frequency response, and is completely transparent.

Now, getting signals from one place to another is simple. And guess what? You'll have time left over to create your sonic dreams!

Whether you're tracking, mixing, over-dubbing or performing live, you'll get maximum time, maximum tone, and maximum mobility with the X905!

Xwire™
Digital Wireless Systems

Xwire Corporation
4630 Beloit Drive, Suite 10, Sacramento, CA 95838
Voice (916) 929-9473 Fax (916) 924-8065 Internet www.xwire.com

"Quadiversity" is a trademark of Xwire Corporation. X905 patent pending.

CIRCLE #133 ON PRODUCT INFO CARD

- ✕ State of the art, 20-bit AD/DA converters
- ✕ Greater than 120 dB of dynamic range
- ✕ 10 Hz to 20 KHz frequency response
- ✕ No compander ICs or squelch circuit
- ✕ Internal Quadiversity™ antenna
- ✕ Five user-selectable channels of operation
- ✕ Receiver LCD shows battery life in transmitter (in one-hour increments), operating channel, audio level and data percentages
- ✕ Made in the USA
- ✕ Five year limited warranty
- ✕ DTV free!

Call us at 1-916-92X-WIRE
or visit our website at
www.xwire.com
for more information

"I'm impressed!"

Jim Gaines, Grammy award winning producer (Stevie Ray Vaughan, John Lee Hooker and Carlos Santana)

"The best wireless guitar sound I've ever mixed!"

Rob "Cubby" Colby, FOH Engineer for Janet Jackson, Phil Collins, Bob Seger and Genesis

"Impressive. With world-class performance, and studio quality, the Xwire X905 sets a new precedent in wireless. In fact, when the wireless guitar system was conceived, this is what was wanted. Now it's finally here."

Bill Evans - GIG Magazine

"I never dreamed a wireless unit would become an integral part of my tone! In the studio as much as live—I'm hooked on being un-hooked!"

Hershel Yatovitz, guitarist for Chris Isaak and Silvertone

World Radio History

DOLLY PARTON'S "JOLENE"

by Blair Jackson

With a career spanning more than three decades and still going strong, Dolly Parton is one of Nashville's greatest success stories. Of the four great female vocalists to emerge from Music City in the '60s—Tammy Wynette, Lynn Anderson and Loretta Lynn were the others—Parton has enjoyed the most varied professional life, landing songs on the country, pop and adult contemporary charts, and fashioning a respectable career as an actress as well. At 52, she is a true American icon, as famous for her blonde wig, ample bosom and million-dollar smile as for her crystalline soprano and her string of hits, many of which she wrote herself.

One of 12 children, Parton grew up dirt-poor in a three-room shack in the rural foothills of the Great Smoky Mountains in Sevier County, Tenn. She



always loved to sing, and by the time she was 7 she had built a crude guitar out of an old mandolin and a pair of bass guitar strings. The following year an uncle gave her a Martin guitar, and she spent all her free moments learning

the instrument, singing and writing songs. By the time she was 10 she had decided she wanted to be a professional singer; that year she became a regular on Cas Walker's Knoxville-based radio program. Three years later she made her debut at the Grand Ole Opry and released her first single, "Puppy Love," on the Goldband label. But she was also determined to get her high school diploma and she did; the day after graduation she moved to Nashville to pursue her dream of being a country singer and songwriter.

Her early successes in Nashville came as a writer. With her uncle, Bill Owens, she wrote a number of tunes, including "Put It Off Until Tomorrow" and "The Company You Keep," which became Top 10 country hits for Bill Phillips in 1966. (Parton also sang harmony vocals on the former.) In late '66 she signed with Monument Records, and by January '67 she had landed her first single on the charts, "Dumb Blonde" (which she most assuredly is not). That single and the buzz about Parton around Nashville led Porter Wagoner, who'd had a number of country hits dating back to 1954 and his own popular television program since 1960,

Westlake Audio - and THE MICROPHONE

The Pro Audio House Where Professionals Shop...

The microphone is the link in the recording chain that makes the most difference to the sound (except, of course, for the talent!). And using the right mic for each instrument will instantly improve your recordings.

Westlake Audio has been in the business of selling pro audio gear since 1971. Before we take on a new product we test it on the front line in our world renowned Westlake Studios. This experience gives us the insight that our professional customers feel is invaluable when making a purchasing decision.

If you're ready to discuss your microphone needs, and are looking for some good advice and great product support - come to Westlake Audio. We also carry mics from AKG, Audio-Technica, Beyer, Blue, Bruel & Kjaer, CAD-Equitek, Coles, Crown, E-V, Groove Tubes, Microtech-Gefell, Røde, Schoeppps, Sennheiser, Shure, Sony, Soundelux and Telex - just to name a few.

Westlake Audio has been the Neumann Dealer of the Year (Western U.S.) for the past two years.

Sales ■ Service ■ Training ■ Installation

7265 Santa Monica Blvd., Los Angeles, CA 90046 ■ 213-851-9800 ■ Fax: 213-851-0182 ■ <http://www.westlakeaudio.com>



to sign Parton up as the replacement for the beloved Norma Jean on his show.

By the end of 1967, too, Parton had signed with RCA, where Wagoner had scored all his hits, and she'd recorded the first in a long line of hits with Wagoner: in '67-'68, Porter & Dolly had Top 10 hits with "The Last Thing on My Mind," "Holding on to Nothing" and "We'll Get Ahead Someday." Her first big solo RCA hit, "Just because I'm a Woman," came in '68. In 1970 she hit Number 3 with a version of the Jimmie Rodgers classic "Mule Skinner Blues" (which had also been a pop and country smash for The Fendermen in 1960).

and in January 1971 she hit Number One for the first time with the song "Joshua." Through the early '70s her singing and songwriting continued to mature, and she had hits with such autobiographical tunes as "Coat of Many Colors" (about her poor upbringing) and "My Tennessee Mountain Home," all the while continuing her recording and television association with Wagoner, who was her mentor and de facto producer.

This month's Classic Track, "Jolene" was written by Parton in early 1973. "I believe Dolly said she wrote the song up at a golf course in Knoxville," Wag-

oner says. "This girl named Jolene came to this tournament that I was playing in. She sort of hung out and watched me and this other foursome playing, and Dolly got the idea for the song there because she liked the name 'Jolene' and thought it was kind of unique. This girl was real striking, too—she had flaming hair. I think Dolly met her at a dinner after the tournament was over, and then she wrote the song: 'Jolene, please don't take my man.' I don't think it was actually about that girl, but she used the name," he adds with a chuckle.

Sometime in mid-'73, Parton cut the song with a band of studio cats at the venerable RCA Studio B in Nashville (or, as it was called on the records back then, "RCA's 'Nashville Sound' Studios"). "That was quite a day we had when we recorded that song," says Tom Pick, who was an RCA staff engineer at the time. Pick had been a top engineer in Chicago for many years, but moved to Nashville to take a position at RCA. "That day we had a session at 10 a.m. and another at 2 p.m., and at the second session we recorded 'Jolene,' 'I Will Always Love You' and 'The Bargain Store,' all of which went to Number One."

RCA's Bob Ferguson was the producer of record on the sessions, but as usual, Porter Wagoner was the driving force behind the scenes. He assembled the top-notch studio group, which included bassist Bobby Dyson (who led the band), guitarists Dave Kirby, Bobby Thompson and Jimmy Covart, pianist Hargus "Pig" Robbins, drummer Larry Londin, fiddlers Johnny Gimble and Mack Magaha and steel player Stu Bassore. "Usually we'd do demos maybe a month before the actual session with just a couple of the musicians," Pick recalls. "That way some of them would have the feel for what was going on when it came time to cut the song."

"I think one of the main things about Studio B is that it was small enough that you could get a lot of eye contact with the musicians," Wagoner offers. "They felt like they could all communicate well with each other. That gave more of a live, personal feel to it, and I think it made the musicians play together better. Most people used headphones, but you almost didn't need to because you could hear so well. A lot of people said the magic of the studio was the acoustics and this and that, but I think it was the fact that everyone could see and hear each other so well."

"Jolene" was cut completely live, including Parton's lead vocal, with all the musicians in the room together. Pick

EuropaDisk

All Manufacturing In-House

- **CD Replication In Bulk**
(minimum is only 100 CDs!)
- **Retail-Ready CDs with Graphics**
- **7"/45 & 12" Vinyl Records**
- **Cassette Duplication**
- **Graphics Design & Printing**

Why deal with brokers when you can work directly with our factory and save? You can rely on our 20 years of experience to get your project done right and on time!

Best Service...Best Price...Period.

Free catalog or quote: (800) 455-8555

EUROPADISK, LTD.

75 Varick Street, New York, NY 10013 (212) 226-4401 FAX (212) 966-0456

<http://www.europadisk.com> Major credit cards accepted.

CIRCLE #135 ON PRODUCT INFO CARD

struggled to recall some mic choices: "The bass would have been direct. Piano probably would have been a Sony C-55. For drums I think we had a Sony C-22 on the snare and on the overheads I might have had [Neumann] 84s or something like that. We used 84s on the acoustic guitars. Dolly's vocal was an [EV] RE-15." In keeping with the practice of the day, there were likely several full takes of the song, and the best was chosen for the single and, later, the album (also called *Jolene*). Parton's haunting harmony vocals were added at another session.

Randy Kling, who today heads the Nashville-based Disc Mastering, was another recent transplant from Chicago recruited by RCA Nashville as a mastering engineer right around the time "Jolene" was cut. He recalls that the song was "a breakaway from the norm. It was 'pop-alized.' By that I mean I had a free hand at doing it. Usually the country music people were very conservative about how they wanted things to sound. But Dolly was into breaking away. She didn't want the simple country feel. She wanted more of a pop feel."

What did that imply from a mastering standpoint? "It freed me to do more compression, more EQ, just do the mastering to get the maximum power out of it," Kling says. "If you could hear that single—the 45—in comparison to other stuff that was done at the time, well, it just jumped out at you. It was in your face. We had some EMT equipment that I had RCA get me, but almost everything in the studios there was stuff that RCA built. I had this great limiter-compressor-expander in one unit. Their equipment was always really well built. They had their own speakers and tape recorders and electronics that came out of their laboratories and machine shops, and they sounded clean as a whistle. I wish I had some of that equipment today."

"The sound on 'Jolene' was pretty unique for that time," Wagoner says, "and part of it is what Larry Londin played. Everybody thinks of him as the great Nashville drummer—well, this was one of the first things he did in Nashville. I believe he came here with Jerry Reed originally. What happened on the session is I told Larry that I'd rather get a different sound than the usual snare drum and toms and all that. So we started fooling around with the drums, and he started playing the snare with his hands instead of using brushes or sticks, and that's how the sound came about.

"We had a great team of studio mu-

sicians," he continues. "I think back then people took more time to try to create fresh, new sounds. Now it seems like a lot of people are on automatic pilot. But Dolly and I always did a lot of planning ahead, trying to make our records a little different so they'd stand out. We'd be talking on the bus about how she wanted the song to sound when it was recorded, and we'd take her ideas and add to them or subtract from them—whatever it took to make a great record."

The Parton-Wagoner partnership began to fray shortly after "Jolene," and by 1976 the two had split up complete-

ly, with Parton asserting her independence and stating her desire to branch out into acting and more pop-oriented material. Wagoner sued her for breach of contract and eventually settled out of court with Parton for about a million dollars. The acrimony between them has faded through the years, and today each speaks respectfully about the other; they've even sung together on occasion.

In the years since her breakup with Wagoner, Parton has notched a succession of country and pop hits, including "Here You Come Again" (her first crossover smash), "Heartbreaker," "I Really Got the Feeling," "You're the Only

On tour with:
Rolling Stones
Elton John
Prince
AC/DC
U2
Pearl Jam

The good news
is that you have

two zillion

cool sounds
to play with.

The bad news
is that you have
two zillion
cool sounds
to play with

Billy Joel Band
Julio Iglesias
Enrique Iglesias

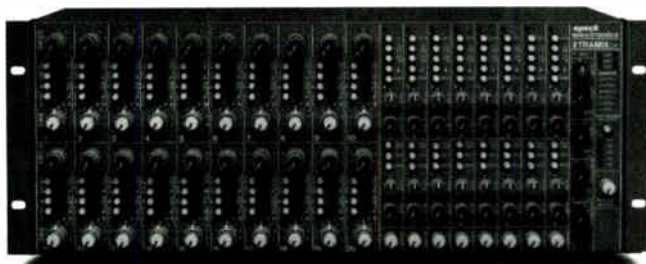
Installations include:
Planet Hollywood
Fashion Café
Harley Davidson Café
Motown Café
Akai R&D Center

In the studios of:
David Kahne - Producer
Freddie Ravel - Composer
Babyface - Producer/Artist

Cory Lerious & John D'Andrea - TV Composers
Steve Schaeffer - Drummer
Rick Marvin - Composer
Michael Boddicker - Synthesist
John Van Tongren - TV/Film
Composer

Mark Portman - Composer
Michael Fisher - Percussionist
Ralph Grierson - Synthesist
Randy Kerber - Synthesist
Pierre Marchand - Producer
Cameron Allan - Composer
Tom Ranier - Synthesist
Lawrence Shragge - Composer
Michael Lang - Synthesist
Joseph Conlan - Composer
Walter Werzowa - TV/Film Composer
Eric Rehl - Synthesist
Ian Underwood - Synthesist
Steve Forman - Percussionist

and not enough input channels...until now



The coolest little 76-input mixer in the world

Kurt Bestor - TV/Film composer
Dan Kuramoto - Composer
Hans Zimmer - TV/Film Composer
Bruce Broughton - TV/Film Composer
David Newman - Film Composer
Amin Bhatia - TV/Film Composer
Mark Mancina - Composer
Randy Newman - Film Composer



Shirley Walker - TV/Film Composer
Stacy Widelitz - TV/Film Composer
Judd Miller - EVI Player
Joel Goldsmith - Composer
Harald Kloser - TV/Film Composer
Jim Lang - TV/Film Composer
David Shire - Film Composer
Jai Winding - Synthesist

**speck
electronics**

8 BUS ASSIGN
On all input channels
and effects returns

341 E. Alvarado Street, Fallbrook, CA 92028
760-723-4281 FAX 760-723-3294
www.speck.com

XTRAMIXcxi

76 Total inputs:
20 stereo input channels
8 stereo effects returns
8 stereo line returns
2 stereo aux returns
18 Output buses:
8 subgroup buses
8 effects buses
stereo program with
monitoring buses

Retail \$4215
speckdirect \$2990

CIRCLE #136 ON PRODUCT INFO CARD

"HOLLYWOOD EDGE
... the best sound effects library, without a doubt!"

OLIVER STONE

DIRECTOR

BORN ON THE FOURTH OF JULY,
THE DOORS, PLATOON

"Excellent!"

MARTIN SCORSESE

DIRECTOR

GOODFELLA'S, RAGING BULL,
TAXI DRIVER

"Nothing else even comes close!"

SHADOE STEVENS

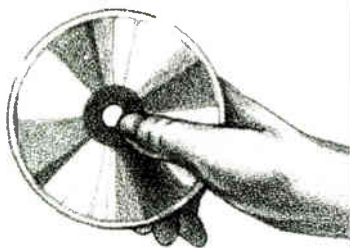
AMERICAN TOP FORTY

Listen for yourself—

If you buy sound effects for your company, call us for a

Free Sample Disc

(over 80 production-ready effects, FREE!!!)



CALL TOLL FREE

800-292-3755

<http://www.hollywoodedge.com>

**NOW AVAILABLE
T.H.E. PRODUCTION
MUSIC LIBRARY**



7060 HOLLYWOOD BLVD. • HOLLYWOOD, CA 90028

CIRCLE #137 ON PRODUCT INFO CARD

One," "Starting All Over Again," "9 to 5" (title song of her first movie), "Tennessee Homesick Blues" and "Think About Love," among many others. Her single with Kenny Rogers, "Islands in the Stream," went Platinum, and she also made hit singles and a popular album with Emmylou Harris and Linda Ronstadt. (Harris had covered "Coat of Many Colors" in the mid-'70s; Ronstadt sang "I Will Always Love You" in the same era.) And Parton's acting career has been impressive as well— besides *9 to 5*, she has appeared in *The Best Little Whorehouse in Texas*, *Rhinestone* and *Steel Magnolias*, all in starring roles. She also hosted her own TV variety show in 1987. Parton has her own amusement park in Nashville—Dollywood—and she continues to be a popular draw to this day. All in all, not bad for a poor girl from Locust Ridge, Tenn. ■

—FROM PAGE 184, PAGE & PLANT

The band made the decision before recording that they would be playing live, as onstage, and that no click tracks would be used, except for two songs that had been written to incorporate tape loops. This allowed the musicians the freedom to experiment with the mood of each song on-the-spot.

The drums were recorded with custom Josephson microphones (see sidebar), supplemented with an AKG D-112 and Crown GLM100 on the bass drum and Beyer M201 and Shure SM98 on the snare drum. The stereo overhead mic was a Neumann SM2 used in Blumlein pair configuration. Ambient

drum sound was recorded with a widely spaced pair of Neumann CMV583s with M93 capsules. These ambient mics were placed on the floor of the room to take advantage of the boundary effect, which reduces the phase interference from reflected paths for mics close to a planar boundary.

Acoustic guitar was recorded with a Neumann SM2 stereo mic (in Blumlein), and mono overdubs were recorded with a Schoeps M221b. Electric guitar was recorded with various pairings of STC 4038, Manley CR3A, Beyer M160, Beyer M500, RCA BK5A and Sony C37. Distances from the speaker were determined experimentally and were from four inches to 12 feet. Generally, two close mics and an ambient mic were used for the basic guitar takes, and overdubs were recorded in stereo. The STC 4038 is a bidirectional ribbon mic, which allows the bass response to be tailored by making use of the proximity effect inherent in this type of microphone. By placing the mic quite close to a small speaker, for example, it extends the bass response of the mic considerably and avoids a tinny sound. This proved useful later at Abbey Road, where Page made more use of his vast collection of small amplifiers.

The bass was recorded with a Beyer M380 on the 15-inch speakers and a Neumann FET 47 on the 12-inch speakers, both quite close. The Beyer M380 is an interesting dynamic microphone in that its output level is high enough to allow it to be used as a line-level source, and in this case, the mic was connected directly to the input of a dbx 160 compressor for very mild compression (3



PHOTO: CYNTHIA CONNOLLY

Steve Albini at Abbey Road



**For great sound
turn this knob.**



Village Voices 1997 to 1998

Aerosmith
Carole King
Tori Amos
Tom Petty
Lou Rawls
Shawn Colvin
Ray Charles
Rosemary Clooney
Hanson
Ringo Starr
Scott Weiland
Jane's Addiction
Robbie Robertson
John Hiatt
Maxwell
Grace Slick
Amy Grant
Jennifer Warnes
Red Hot Chili Peppers
Rolling Stones
John Fogerty
Sheena Easton
Stevie Nicks
Thomas Newman
Kirk Franklin Family
Smashing Pumpkins
Barbara Streisand
Daniel Lanois
Phil Collins
David Benoit
Horace Silver
Taj Mahal
Green Day
Ray Manzarek
Nancy Wilson
The Fugees
Sneaker Pimps
Victoria Williams
Redd Kross
Melissa Manchester
Steve Lukather
Dave Stewart
John Klemmer
Kenny Loggins
Soul Asylum
Simon Phillips
Patty Scialfa
Fleetwood Mac
Brian Setzer
Hans Zimmer
Leonard Cohen
Paula Abdul
Gwen Stefani
Toto
Dada
Lionel Ritchie
Richard Marx
Cowboy Junkies
Julia Fordham
Danny Elfman

Soundtracks

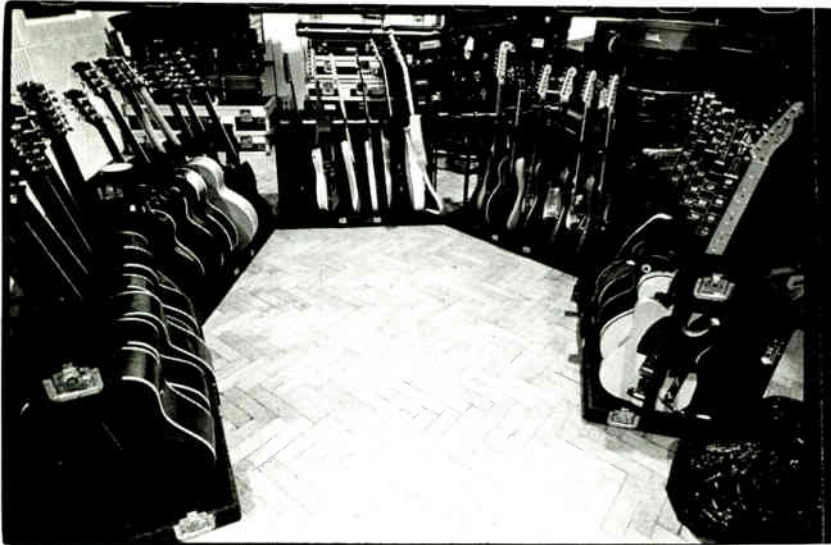
Good Will Hunting
Quest For Camelot
The Man In The Iron Mask
Con Air
Mad City
Speed 2
Ally McBeal
Lion King on Broadway
Home Alone 3
Meet the Deedles
My Best Friends Wedding
Anastasia
Oscar and Lucinda
Mulan
Tarzan
Doctor Doolittle
The X-Files

The Village

DISCIPLE #132 20 PRODUCT 1978 CASH

1616 Butler Avenue West L.A., CA 90025 phone 310. 478. 8227
fax 310. 479. 1142 email villagerec@sol.com www.villagerecorder.com
World Radio History

PHOTO: CYNTHIA CONNOLLY



Jimmy Page's guitar arsenal

dB). The FET 47 was left uncompressed.

The two songs on the album from the RAK sessions, "Shining in the Light" and "Burning Up," are distinguishable from the others by the bright room sound on the drums and the tonal difference between the Ludwig drum kit used at RAK and the Gretsch kit used at Abbey Road.

The Abbey Road sessions were much longer in duration, but the

recording techniques were very similar. Studio 2 at the famous complex is an enormous room—45x100 feet with a 30-foot ceiling—partitioned by half-wall baffles that swing out like doors from the side walls. Both the Ludwig kit used at RAK and a smaller (four-piece) Gretsch kit were set up centrally in the rear half of this partitioned area, and the amplifiers were set up in the front half. This still left room for the growing col-

lection of guitars (as many as 40) and amplifiers (20) used on the session.

Differences between the two control rooms were primarily that Abbey Road's console is a 60-input Neve VRP, and the 24-track was a Studer A820. The A820 can store several alignment presets, which saved time when switching between masters recorded at RAK and those recorded at Abbey Road, as the two machines didn't line up exactly the same.

The use of a large live room for the basic track recording allowed a degree of "full band" ambience to be incorporated into the mix and gave the instrumental interplay a natural sound and stereo image. To facilitate the "onstage" feel of the sessions, the band did most of the recording using wedge monitors in lieu of headphones, which allowed for better communication and mobility. To give Robert a more interesting vocal sound in his headphones, a separate mixer and effects unit were installed in his vocal area (the entrance alcove), so he could control his own mix and apply effects as desired.

Microphone choices were similar, with these exceptions: Ambient mics in the drum area were Altec 150 (21B) "coke bottle" mics, the stereo drum

Sam Ash
PROFESSIONAL AUDIO GROUP

Our staff of experts have been serving New York audio professionals for decades - now that same famous service and selection is available to you! Sam Ash Professional features the world's largest inventory of MIDI instruments - signal processors, digital recording systems, software, studio monitors, microphones, amplifiers and mixing consoles - all at the guaranteed lowest prices! One call and you will find out what New York has known for over 70 years - the name to remember for all of your audio needs is Sam Ash!

Most Informed Staff In The Industry!
Authorized Dealer For All Major Brands!
Extraordinary Technical Support!
All Major Credit Cards Accepted!
Courteous Personalized Service!
Super-Fast On-Time Shipping!

YOUR ONE-STOP PRO PARTS SOURCE!
OUR PRO PARTS DEPARTMENT OFFERS THE LARGEST SELECTION OF PRO AUDIO PARTS, CABLES, CONNECTORS, PATCHBAYS, CUSTOM WIRE AND MORE!

ORDER BY PHONE!
MON. - SAT. 10:00 AM - 6:00 PM EST
(212) 586-1100
FRIENDLY SERVICE DIRECT TO YOUR DOOR!

1600 BROADWAY • 8TH FLOOR • NEW YORK, NY 10019 • (212) 586-1100 • FAX: (212) 586-3375

Sonic Foundry presents

ACID

Make changes to tempo or pitch on the fly

Matches loop tempo and pitch to a project in real time

Totally cool track mixing capability

Multiple track looping and editing

Includes hundreds of stylish loops or bring in your own

Volume/pan/effect envelopes per track

Master or slave to SMPTE timecode, whatever works for you

Multiple audio outputs

Save your funky fusion as .WAV or .AIFF

Wired for Windows 95 and Windows NT

www.sonicfoundry.com/acid

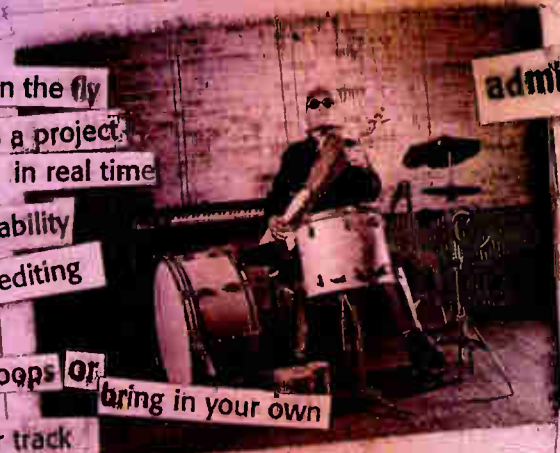
800 577 6642

Sonic Foundry is a registered trademark of Sonic Foundry, Inc.

Other products mentioned are trademarks or registered trademarks of their respective manufacturers.

admission:

\$399



SONIC BLUE

Introducing the THAT 2002 Modular VCA Upgrade for SSL Consoles



Clarity
Transparency
Accuracy

For over 10 years the engineers at THAT Corporation have been improving the sound of the world-famous 202 VCA. Each new 202 model has advanced the state of the art in sonic quality and performance...Well, the state of the art just took a big leap forward!

INTRODUCING THE BEST SOUNDING VCA ON THE PLANET - THE THAT 2002

With the lowest noise, lowest distortion and widest dynamic range of any 202-series VCA ever made, the THAT 2002 is not just about better technology or better specs - it's about better sound.

AVAILABLE AS AN UPGRADE FOR ALL 202 MODULAR VCA'S

Regain that industry leading audio performance with the THAT 2002. Available as pin-for-pin upgrades for every 202 ever made. You and your clients will hear the improvement!

"THAT Corporation has outdone themselves with their new VCA module! With lower distortion and increased transparency, it is A&M's new standard for both the Recording and Mastering facilities."

Bob Borbonus, Asst. Studio Manager
A&M Recording and Mastering Studios

Give us a call or visit our web site for all the details.

THAT Corporation

MAKING GOOD SOUND BETTER™

THAT Corporation, founded by senior engineers from dbx, designs and manufactures high performance integrated circuits and products for the professional audio industry.

734 Forest Street, Marlborough, MA 01752 USA • Tel: 508-229-2500 • Fax: 508-229-2590 • www.thatcorp.com

The THAT 2002 is available to owners and operators of consoles from SSL, Neve, Sony, MCI, and Harrison.

CIRCLE #141 ON PRODUCT INFO CARD

World Radio History

overhead mic was occasionally replaced by a pair of Schoeps M221b mics; the bass drum mics were Crown GLM100 and Beyer M88; and the guitar mic arsenal was supplemented with a pair of Earthworks TC40s. Both heads of all drums were recorded, with the tom mics being summed to a single track apiece. The acoustic phase inversion inherent in putting mics on both sides of a drum was corrected to tape, so all drum channels would combine additively in the mix.

Acoustic guitar was recorded in several different ways, depending on the intended use. A Neumann SM2 was used as a stereo mic (in Blumlein), and mono overdubs were recorded with a variety of mics, including Schoeps M221b, Beyer M160 and Manley CR3a. On several songs, Page suggested the use of one of his RCA BA6A limiters for a particular chiming sound, reminiscent of the guitar sounds from the RCA studios in Nashville. When he first discovered how much he liked the RCA limiters (in the mid-1970s), Page went on a buying spree and is credited with single-handedly driving up the market price while building his collection.

Vocal overdubs were recorded experimentally with a number of different mics, including Neumann U67, U48 and CMV563, but the mic that Plant preferred on playback was a Josephson 700, a custom-made dual capsule microphone intended for vocal use. On several occasions the live vocals done with the band were used as master vocals, but all of the vocal overdubs were ultimately recorded with the Josephson 700. The vocals were peak-limited with either a Manley Electro-Optical limiter or a GML 8500 during recording to avoid overload, but compression was applied in mixing (either through the Manley, the GML or a UREI 1176) to an occasional depth of about 10 dB maximum.

Many of the vocals were recorded to the master tapes directly, but some were recorded on a slave reel, and the best take of several was compiled. Difficult assemblies were cross-faded using the console or a Pro Tools system, although the Pro Tools system was used sparingly, to avoid degradation of the sound.

On an average day, the band would convene at noon and listen to material generated overnight (test edits, rough mixes, tests of effects or submix balances) and approve or correct them. They would then discuss what song they wanted to attempt and begin running it down.

Quick work was required setting up, because all rehearsal takes were recorded, often with slightly different setups, and there were a number of attempts at a final take. Studio assistant Paul Hicks was invaluable throughout the sessions, as the number of concerns needing "immediate" attention grew moment by moment. Some of the masters were edited together from the best bits, although there was generally an obvious "best" take. In one instance ("When I Was a Child"), the vocal of a rehearsal take was deemed unbeatable, so it had to be moved, phrase by phrase, onto the band master. In another, "Please

Read the Letter," Plant completely rewrote the lyric after the recording had been completed and found that he suddenly required an extra verse, which had to be multitrack copied and edited-in place.

Jimmy usually had a clear plot for the overdubs he had planned for each song, so the progression to finished master from basic take was quite smooth. His approach entailed matching different guitars and amplifiers, with any effects being in-line (often using a custom pedal board built by Peter Cornish), so the emphasis was always on capturing a sound rather than inventing

SIMPLY THE BEST!



...and it just keeps getting better. **Simon Systems** has set the new standard of excellence in professional audio signal processing. The four channel **RDB-400 Integrated Direct Box** is simply the best direct box you can buy. This AC powered unit is based on a totally active (transformerless) audio path design with no insertion loss. And with features like variable line level output, variable attenuation trim, unbelievable headroom, speaker level input pad, active unbalanced/balanced outputs, front and rear inputs and output connectors, ground isolation switch, and toroidal power transformer, it's easy to see why so many professionals insist on it in the studio as well as on the road.



The portable single channel **DB-1A Active Direct Box** is based on the same design philosophy as its big brother. Its three-way independent power scheme* facilitates a unique design that simply blows every other DI away! In addition to features like line level output and no insertion loss, the DB-1A has rechargeable battery capability and automatic system power check.

*Simon Systems PS-1 Power Supply is recommended.

And for the ultimate in headphone distribution systems there is the **CB-4 Headphone Cue Box**. The CB-4 features four headphone outputs independently controlled by conductive plastic stereo power controls. The XLR input/output connectors allow numerous boxes and headphones to be connected to the same amplifier with headroom, clarity, and flexibility that cannot be achieved with active headphone cue amplifiers. A three-position switch selects left mono, right mono, or stereo mix, allowing for additional cue mixes. It's no wonder why the CB-4 has become a standard in the industry.



So the next time you think signal processing equipment, think like the pros:
Simon Systems - Simply The Best!®

Thanks for setting the trend:

Alabama • Fleetwood Mac • Whitney Houston • Tito Jackson • Jimmy Johnson •
Kenny Loggins • John Mellencamp • John-Luc Ponty • Leland Sklar
REO Speedwagon • Universal Studios



SIMON SYSTEMS® ENGINEERING, INC.

707 Clear Haven Drive • Agoura Hills, CA 91301 • (818) 707-9980

CIRCLE #142 ON PRODUCT INFO CARD

IMPROVE & PROTECT Metal, Conductive Plastic, & Carbon-based Connections!

ProGold™

Enhancer & Protector for metal connections.



- Improves Conductivity
- Reduces Noise & Distortion
- Improves Definition & Clarity
- Extends Dynamic Range
- Seals & Protects Surfaces



"Corrosion problems on very sensitive connectors have been an annoying problem for us. We have tried many products without success until we tried CAIG's ProGold & DeoxIT. ProGold & DeoxIT are the only products that have worked perfectly. We highly recommend them." Xerox Corp.

"The ProGold works great. I used it on some old tube equipment and it eliminated a loud hum that I thought was something more serious. ProGold also got rid of the recurring contact noise in a rotary control that usually returned after using other sprays. Even works on keeping oxidation from metal panels and knobs." News/Studio Sessions Editor, RADIO WORLD

NEW CaiLube MCL™

Enhancer & Protector for conductive plastics & carbon-based connections.



- Lubricates Faders, Switches, Pots,
& other Sliding Surfaces
- Maintains Optimum Signal Quality
- Reduces Wear & Abrasion
- Maintains Tactile Feel
- Improves Conductivity



"This service group here at RANE has found, to date, the CAIG CaiLube MCL formula to be the most effective lubricant for preserving electrical properties of potentiometers. CAIG developed this product, in part, by researching samples that are provided from high-use commercial applications. This thorough consideration of real world application problems insures that the MCL product will be the standard for some time to come." RANE Corporation

CAIG Products ... used by those who demand the best!

Ampex	General Electric	McIntosh Labs	Tektronix
Diebold, Inc.	Hewlett-Packard	Molonia	Texas Inst.
Dolby Lab.	Honeywell	RANE Corp.	Wayne-Dresser
Fluke Mfg.	IDI, Inc.	Switchcraft	Xerox Corp.

16744 West Bernardo Drive
San Diego, CA 92127-1904
TEL: 619 / 451-1799
FAX: 619 / 451-2799
E-Mail: caig123@aol.com
URL: http://www.caig.com

CAIG
LABORATORIES, INC.
1-800-CAIG-123

A WORD ABOUT THOSE JOSEPHSON MICROPHONES...

The microphones used on Michael Lee's drum kit were the result of two years of collaborative design between microphone maker David Josephson and me, but the effort was prompted by an unrelated and seemingly trivial event: The discontinuation by AKG of the 451 Series of microphones and accessories.

For more than ten years, I have used the AKG 451 as a principal microphone for recording drums. The crisp transients and pronounced proximity effect seemed to represent the acoustic sound of drums properly, especially when used in top-and-bottom pairs. When used for loud playing, the insertion of a capacitive pad between the capsule and head amplifier prevented overload within the mic itself, and attenuated the output level to prevent console overload. The small physical size, variety of capsules and availability of an accessory swivel mount (for the capsules) made placement in awkward positions relatively easy.

The 451 is not without its problems. When used on drum kits, they get whacked pretty regularly, which leads to reliability problems, and the matching between capsules is never better than "close." The mics are also noisy and prone to weird peaks in the high end, but for this particular purpose, I had never found anything better. On occasion, I had used AKG 414s on drums, but they were always duller, and I try to avoid using a mic I know will need corrective EQ, because that gives me another chance to make a mistake and screw up the sound. As they got destroyed, I could always buy replacements, since they were relatively inexpensive—on the secondhand market, I was accustomed to buying them for less than \$200, and brand-new they were just over \$300.

But a few years ago, AKG relegated the 451 Series to history, so I've been forced to look for alternatives. I had used David Josephson's mics several times and was impressed with their clarity, lack of noise and exceptional sound quality, so I contacted him about making some new drum microphones for me.

His design criteria were these: The mic should be side-address (to obviate the swivel-mount on the capsule); and it should be robust enough to withstand a full-force drumstick hit; and it should have essentially flat response at 12 inches, with a rising bass response dependent on proximity, high dynamic headroom, excellent transient response, consistent cardioid or slightly hyper-cardioid pattern and output level that wouldn't overdrive a conventional mic preamp.

The first attempt was a microphone using a high-quality Panasonic electret capsule which Josephson had been using (with some modifications) in his measurement microphones for some time. The same capsule is used by other manufacturers, including David Blackmer in his Earthworks mics, with good results. This version of the mic had poor bass response and soft pattern definition, and a tendency toward high-frequency peaks, due to internal reflections inside the capsule housing.

The next design was a single-diaphragm cardioid capsule mounted in a side-address housing made of machined brass, which could be used on his standard model 606 head amplifier. This was immediately preferred, and after several prototype iterations, we settled on a final response curve and physical design. Josephson then made a set of six capsules, which I put into use. The mic instantly proved its worth and became a part of my standard arsenal.

The 606 amplifier is a FET-based (Darlington output stage) design with very low output impedance. This design proved perfect for most applications but exhibited an annoying tendency to distort when used with some transformer-input electronics. A modification was made using build-out resistors, which proved effective, but this seemed an inelegant approach, since the microphone's low output impedance was a primary feature of the design. I suggested using a transformer as an output driver for a variation of the head amplifier specifically for this application.

After a lengthy search, Josephson was able to find a transformer maker (Reichenbach) who could make a transformer that wouldn't compromise the quality of his design, and this was incorporated into the head amplifier, with a new designation, the 609. This is the version used on the Page and Plant album.

While working on the drum microphone, Josephson asked if I would be interested in testing his multiple-capsule microphone, the 700. He had conceived of the mic as a versatile vocalist's microphone, which would allow the pattern

—CONTINUED ON PAGE 198

one in the control room. Jimmy's guitar technician, Clive Brinksworth ("Binky") made detailed notes of all setups for reference and later use.

The flow of the sessions was interrupted when Robert's mother died suddenly, and he took a leave for two weeks. In the interim, Jimmy concentrated on filling the songs out with overdubs, including Mellotrons (with custom tapes) and an impressive assortment of treated and organic guitars.

One guitar of note was a Transperformance (CAT systems, Denver) modified Les Paul, which incorporates a hex sensor, processor and motors to re-tune (or change the tuning of) all six strings while playing. This feature was incorporated into several songs for key changes and accents.

Offline editing was needed for several songs whose structures had changed after basic recordings. Edits were done on the original master tapes, with small patches and corrections done on a Pro Tools system. Changes were re-copied to the master tape as drop-ins. In all, very little offline work was done, so traditional problems with system stability, sound quality and file corruption were not an issue.

Additional instrumentation was quite sparse—on "Most High," a synthesizer overdub was added by touring keyboardist Ed Shearmer, and a variety of Arabic instrument sounds were added by Transglobal Underground's Tim Whelan. Whelan's sounds came from a remarkable little keyboard called the "Oriental Power Station," which is sold to the Arabic market as an all-in-one accompaniment instrument, similar to a Casio keyboard, but with Arabic instrument sounds and distinctive quarter-tone tunings. Since all the instructions and panel markings were in Arabic, Whelan had developed his acuity on the instrument by trial-and-error, and the end result is quite convincing.

Once the band recording was completed, a string chart was commissioned for the song "Upon a Golden Horse," and a 24-piece string section was assembled (eight first violins, eight second violins, six violi, two celli). The strings were recorded on a separate master reel, synchronized to the band master. Experimentally, it was discovered that the string section sounded worse when chasing to the band master, so this section of the song was recorded and mixed with the strings as the master reel, and the band slaved to it.

We worked on mixes throughout the course of the sessions, as masters were

finished. The earliest mixes were done as rough mixes for a film producer who was interested in having some songs appear in one of his films, and when we listened to them again later in the sessions, they were deemed finished.

All the mixes were manual, and effects were used sparingly. Plant, for example, suggested specific effects—usually ADT (short doubling delay), slapback echo, plate reverb or reverb chamber—for his voice, on a song-by-song basis. The song "Most High" begins with a tape loop of Michael Lee's drum pattern, which gradually phases and distorts until the band enters on a

downbeat. The phasing is not an electronic effect. As an experiment, the tape loop was recopied to a distorting cassette recorder, and manually "synchronized" to the multitrack tape. The phasing results from the natural wow of the cassette as it plays along with the original tape loop. Since the cassette wow is utterly unrelated to the multitrack tape, this precise effect would have been impossible to generate with a delay or other synchronous device.

Mixes were recorded on a Studer 820 stereo machine on Ampex 456 at 30 ips (ref 0VU=320 nWb/m, no noise reduction). ■

RAVE ON!



**Yorkville
YSM-1
Near-Field Monitors**

Critics agree... the YSM-1 monitor is a real contender. But the excerpts below only tell part of the story. Let your own ears be the judge... and then buy yourself a new toy with the money you save!

- ▶ "...I was immediately impressed with the deep bass response."
- ▶ "...Rock solid cabinet, internal brace and ample internal dampening material ...no audible unwanted bass resonances."
- ▶ "...a much bigger sound (than the industry-standard Yamaha NS-10 nearfields), with dramatically deeper bass response and a more 'open' top end."
- ▶ "...quite detailed, allowing you to pick specific elements out of dense mix."
- ▶ "...I would encourage all nearfield buyers, regardless of price point, to listen to these monitors."
- ▶ "It was a pleasure mixing on the YSM-1s, and the resultant mixes translated exceptionally well to other playback systems...ear fatigue was nonexistent."
- ▶ "...The YSM-1 reproduces timbres with near pinpoint accuracy."
- ▶ "The YSM-1 is a full-bodied, sonically neutral monitor that, to my ears wins the prize for delivering the most realistic picture of the aural spectrum."
- ▶ "...Mids and high mids were clean and articulate."
- ▶ "Stereo imaging is very good, resolution is consistent in every frequency range"

Pro Audio Review
Lorin Alldrin, Sept/96

Electronic Musician
Brian Knave, July/96

IN THE USA
Yorkville Sound Inc.
4625 Witmer Industrial Estate
Niagara Falls, N.Y. 14305



See the full reviews at www.yorkville.com

IN CANADA
Yorkville Sound Ltd.
550 Granite Court
Pickering, ONT. L1W 3Y8

CIRCLE #144 ON PRODUCT INFO CARD

—FROM PAGE 185. FROOM & BLAKE

a great composer, he's done some of my favorite music. He's really good with musicians and arrangements."

Both Froom and Blake say that the strength of their collaboration lies in their slightly different approaches to the studio.

"Mitchell is pretty methodical," says Blake. "He does a lot of thinking about the music. He gets into pre-production and thinks ahead about how he wants to hear a mix. But I like to be completely spontaneous. I don't do pre-production. I just come in and do it on the moment. For me pop music is entertainment. I like it when it has energy, and for me the energy comes from that spontaneity."

Froom says he trusts Blake for his "good ears" and intuitive arrangement sense, two things he finds invaluable at mixdown time. "A lot of times what Tchad does in a mixdown is subtractive," notes Froom. "Sometimes the mix goes exactly the way we thought it would go, but sometimes he just goes in and listens and gets going in a whole new direction."

Over the course of four busy years, the direction *Dopamine* was headed

—FROM PAGE 196. JOSEPHSON MICS

shape and sound quality to be adjusted from the control room. The design of this mic is quite different from other mics intended for vocal use in that it has two completely independent microphones in a large housing: A small pressure (omnidirectional) capsule and a large pressure gradient (bidirectional) capsule. These two signals could be added using the mixing desk to provide any pattern desired, and the sound quality could be tailored using the two capsules, without resorting to external electronics.

The bidirectional capsule has two 1-inch diaphragms and exhibits the characteristic proximity bass boost and treble contour of many gradient mics, while the omni capsule is very neutral in character. It has usually been possible to favor one capsule or the other to get the most flattering response for any situation.

The design worked brilliantly, and to date, nearly every vocalist who has heard himself through the Josephson mic has preferred it over other more "standard" options. The mic has also proved invaluable for other applications, such as acoustic stringed instruments and as a drum overhead.

Robert Plant liked the Josephson 700 so much he ordered one for himself.

—Steve Albini

was often unclear and sometimes in doubt. Then, when Froom finally got the green light, he was faced with a much smaller budget than he'd hoped for. As a result, he had to do much of the pre-production at home and on the cheap. While he came in to the studio with the music fully written, he didn't really demo the material as such. To save money, Froom found it necessary to do any pre-production, such as

homemade loops, at home on his Roland DM 800 hard disk 8-track.

"I didn't have a lot of time to experiment in the actual studio," Froom says. "I would literally have to grab free days of studio time. I almost got half done with the record before I used any money. That was the only way I could do it."

While working on other artists' projects in France and England, Froom would snatch up any leftover studio time, often paid for in advance by the client, and would ask said artist if they minded donating it to the cause. Also, he notes, "If the Sound Factory in L.A. didn't have anyone booked in for the weekend, they'd let me go in for free here and there. So whenever [any of the guest artists on the record] was around and I had a piece to record, I'd go in."

The beds for one of the albums more *noirish* tracks, "Noodletown" (featuring guest guitarist Steve Donnelly) was cut (and cut up) at Studio Gimmick in France. "[Attractions drummer] Pete Thomas was playing this really cool rhythm; it had a really strange, fuzzy sound about it. I had this piece in mind, so I told him to just play it for five minutes and do some fills and everything. Then I took that and I cut it up in the Roland to make a performance."

Similarly, the tracks for "The Bunny" and "Monkey Mind" were picked up at Peter Gabriel's Real World studios in Bath, England. Froom credits the generosity of others in helping him create a "big budget" sound in the absence of an actual big budget.

By January 1997, the project got a real boost when Froom received the contributions of Sheryl Crow, Ron Sexsmith and Lisa Germano. Emboldened

GRACE
design

boulder, colorado • usa
303.443.7454 fax 303.444.4634
<http://www.gracedesign.com>

model 201 two channel

high fidelity

Grace Design microphone preamplifiers reveal all the subtlety and detail found in music.

model 801 eight channel

CIRCLE #145 ON PRODUCT INFO CARD



the largest
audio school on
the planet opening
soon in the US

in cooperation in sound engineering with
WALT DISNEY Entertainment[®]

www.sae.edu

Elite II Console With Audiomate 32 Channel Desk - 64 Moving Faders

Motorize Both Paths

The Elite II from Neotek offers exciting new features. Imagine a 32 channel console that gives you 64 moving faders in mixdown. The Elite can now have both the channel and monitor paths automated.

Neotek has been a standard in recording for 25 years. It's wide bandwidth and brilliant transparency give you absolute confidence that product from your room will be outstanding. Audiomate has all of the

bells and whistles; dead-on accuracy and an easy, intuitive, Macintosh interface. Add the Neotek MultiMAX multi-channel monitor controller and you're ready for DVD, post and other applications that demand LCRS, 5.1 or 7.1 mixing.

Buy Factory Direct

You can now purchase a made-to-order console, built to your specifications, direct from Neotek, a Martinsound company. No middleman means direct communication, less confusion, and lower cost.

From a company used to supplying the most demanding clients in the business. 20th Century-Fox, the Tonight Show, Signet Soundelux, Beachwood in Nashville and Synchronized Sound in Atlanta are recent customers.

Are you ready to join the Elite ranks?

SEE US AT NAMM BOOTH #444



1151 W Valley Blvd, Alhambra CA 91803
Phone (800) 582-3555 or +1 (626) 281-3555
Fax +1 (626) 284-3092 www.martinsound.com

CIRCLE #147 ON PRODUCT INFO CARD



by a kind of second wind, Froom and Blake block-booked some time at the Magic Shop in New York and proceeded to cut, and overdub onto, the remaining tracks. That done, the two took the whole mess to Los Angeles for a week of mixing at Sunset Sound Factory.

Though wary of having a *sound* per se, Froom concedes that he and Blake do have their own pet sounds. For instance, although they almost never use reverb units, they do favor slap echo, and Froom reveals a penchant for the judicious use of compression to create room sound or alter dynamics. Blake also enjoys recording through good old-fashioned distortion boxes.



Blake's Neumann KU100 Binaural Head with tubes

"We always cut with our effects on, and we print those effects," says Blake. "Eighty percent of the sounds are recorded the way we'd want them to sound in a mix. With drums, I'll record a couple of tracks that are just kick, snare and maybe the overheads, and I'll also have a track going through the SansAmp. There's been lots of times, probably about 50 percent of the time, that I'll combine drums in mono, with distortion and everything on it."

Sonic experimentation was the common thread throughout the recording of *Dopamine*. Each track is the product of one or more recording experiments. It also helps that Blake has a big "head." Blake, an aficionado of binaural recording, often employs his Neumann KU100 Binaural Head microphone for drum overheads and just

Relive the Magic.

There's a reason why the classic microphones have endured for over 50 years. It's what happens when you put one on the mic stand and plug it in. And that's all you have to do. The classic microphones have a built-in character that makes things easy, so easy that it feels like magic.

There are two ways you can relive that magic. If you have a small fortune and can find a classic mic that works--that's one way.

The other way is with the Lawson L47--a new large diaphragm condenser microphone that we hand-craft in the USA with all the look, feel, and sound of a true classic. Magic included.

Experience the magic for yourself with our ten-day, no risk trial.

- Lawson L47 Gold Series mics feature:
- U47/M49 1" capsule reproduction
 - 3-micron gold sputtered diaphragms
 - 6072 vacuum tube (or solid state)
 - Internally shock mounted capsule
 - Continuously variable multi-pattern
 - 30' Mogami cable
 - Jensen transformer
 - Shock-proof carrying case



Lawson, Inc. • Direct to You
2741 Larmon Drive, Nashville, TN 37204 USA
615-269-5542 • FAX 615-269-5745
Visit us at www.LawsonMicrophones.com to see how others are reliving the magic!

CIRCLE #148 ON PRODUCT INFO CARD

Tom Size
Tomland
Pacheco, CA 94553
(925) 825.8677
(925) 825.8692 fax

5/18/98

To Antares Audio Technologies:
Brian,

Thanks for the use of the ATR-1 rack. This units works so well it should come in different flavors and have a hole in the middle, it is truly a life saver.

When tracking vocals I have been using a Soundlux U-95 tube mic into a Amek 9098 Mic-Pre/EQ with Focusrite Red 3 Compressor. It's a real clean, clear vocal chain, one of the cleanest I have ever used. Using the ATR-1 on this track I felt as though I did not lose any quality, the clarity remained. The ATR-1 took an otherwise uncomfortably out of tune vocal and turned it into a great vocal performance. It saved the record. Thank you.

Sincerely,
Tom Size

RECEIVED MAY 18 1998

We were just finishing up the flashy introductory ad for our new ATR-1 real-time pitch corrector, when this unsolicited* letter came humming out of our fax machine. (Tom, in case you don't know, has been engineer on projects for artists as varied as Aerosmith, Joe Pass, Mr. Big, Steve Miller and many more.) Since a letter like this is the sort of thing our marketing people usually only dream about, they insisted we share it.

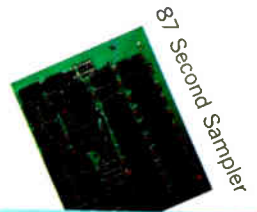
Be sure to check back next month for our "real" ad. The photo came out great and we think you'll really like it.

*Honestly! In fact, that's Tom's real phone number up there. Feel free to give him a call and ask him about the ATR-1.


ANTARES
REALLY COOL STUFF
FOR MAKING MUSIC

ANTARES AUDIO TECHNOLOGIES 11768 Atwood Drive, Suite 13, Auburn, CA 95603 | www.antares-systems.com
Distributed by Cameo International, Inc. | US and Canada: 888 332 2636 | from Overseas: 408 399 0008

It's All In There.



Recipe For Greatness:

Start with the TEC Award-winning Eventide DSP4000 Studio Ultra-Harmonizer® brand effects processor, the unit which revolutionized effects processing with its power and musicality. Its flexible algorithm "building block" architecture is now further enhanced with free PC software which lets you create totally new effects right from your PC screen. *Wait, you're just getting started.*

Add the hundreds of program presets from the world's only professional guitar processor, Eventide's GTR4000. Don't forget to include the custom "virtual pedalboards", the Artist's Preset collection, the ground-breaking Colouration and Blend Distortion programs and the GTR4000's Effects Templates, for unlimited versatility. *Now you're cookin'.*

Next, add all the unique programs for post-production, radio and television applications created by sound designer Jay Rose for the Eventide DSP4000B. Unique sound environments, fantasy voices, pre-programmed sound effects, and superb quality Timesqueeze® stereo time compression and expansion are all part of the package. *But don't stop yet.*

Also include Scott Gilfix's new Alchemy 101 collection, an amazing, never-before-heard library of 225 program presets and audio tools. *Wow! You're up to 1000+ program presets in all. But you're still not through.*

Top it all off with a versatile, internal 87 second sampler. Sounds captured by the sampler can be combined within many DSP4500 presets. Several samples can be



stacked within the unit and independently edited, pitch shifted and/or time compressed or expanded. Tap tempo looping, advanced stereo looping, and multiple looping capabilities are included.

Now you've got it: Eventide's great new, limited edition DSP4500 Ultra-Harmonizer. You just read what makes it so great. But what makes it a limited edition? Eventide has priced the DSP4500 to be an exceptional value. So exceptional that the number of DSP4500 units to be produced must be limited. *(You'd pay thousands of dollars more if you bought a DSP4000, all the add-in program preset cards and the internal sampler separately.)*

The Eventide DSP4500 Ultra-Harmonizer brand effects processor; it's *three* of the most versatile, most musical, most creative, most programmable signal processors ever built. It's over 1000 sonically impeccable program presets, plus the ability to create your own. It's the power of a built-in sampler. It's the greatest value ever in a professional processor for recording studios, live performance, radio and TV stations and post-production facilities. But most of all, it's the box that shatters all previous limits to give you that extra edge. Call Eventide at 201-641-1200 and we'll tell you where you can see, hear and buy the DSP4500.

Eventide
the next step

One Alsan Way, Little Ferry, NJ 07643 Tel: 201-641-1200 Fax: 201-641-1640
Email: audio@eventide.com Web: www.eventide.com

World Radio History
CIRCLE #150 ON PRODUCT INFO CARD

about everything else.

Blake is also fond of tube technology. Not just tube mics, but actual tubes: "I have all these long and short tubes, or 'acoustical plumbing,' which I put microphones in usually to record the drums," he explains. "They act like mechanical filters that take off all the high end, screw up the low end, boost the midrange and push certain overtones. I'd once done this thing on a Latin Playboys record, where I had Louie [Perez], singing into a long carpet tube. On 'I'd Better Not' [from *Dopamine*], I ended up taking these two tubes which were taped up to the ears of the [binaural] head so they were in stereo. The other ends were taped up together, so when Louie sang into the tubes it would affect the stereo image a great deal if he moved half an inch to the left or right."

Sheryl Crow's contribution, the Yoko Ono-ish "Monkey Mind," may surprise some listeners with its brash and insistent tone. The song, which Crow says is about the internal pounding in someone's head, finds her screaming out a two-part melody consisting of a one-note shriek and an overdubbed fifth below. While the track appears to veer between musical extremes—cacophony vs. a quiet bossa nova—Froom notes that this is actually an audio illusion.

"The idea," he says, "was to experiment in extreme contrasts without it feeling rhythmically jerky in any way, and to see how loud I could get a piece without using any loud fuzzy guitars. There's one feedback guitar and bass and loud drums, hit with mallets, yet it's a pretty big noise, I think. I wanted it very airless—like the air had been sucked out of the atmosphere. The [quieter] bit, that sounds a bit like bossa nova, is actually the exact same groove going on in the loud part. It's just played on a conga with a little mallet instead of loud drums."

On the instrumental "La Fruta Prohibida," Froom told guest violinist Mark Feldman to take off his shoes and just walk around the studio and play his solo without the benefit of headphones. "I said, 'Just play in the key of A-minor, like you're playing for tips in a restaurant; I'll point at you when to start.' I couldn't believe how well it worked rhythmically. That was a kind of solo that you never would have gotten if he just played along with the track. Because he's playing in his own rhythm against that rhythm."

A sample of a classical piece by

Putting the **M** in Mastering.

Rocket Lab LLC
San Francisco
415.495.2297

email:audio@rocketlab.com
www.rocketlab.com

CIRCLE #151 ON PRODUCT INFO CARD

SPEIR MUSIC CO.

800•219•3281

510 S. Garland Ave. Garland, TX 75040
GUARANTEED BEST PRICES!

New/Used • M-F 9-7, Sat. 9-6

All Major Credit Cards

Customer Service 214-494-1601

CIRCLE #152 ON PRODUCT INFO CARD

For Your Next Session... Bring Along a New Companion

The NEW DC224ADC Analog to Digital Converter



Simultaneous outputs: AES/EBU, S/PDIF coax and optical

Three clock sources: Internal, external word clock and external AES

Analog or digital inputs with shaped dither for 16, 20 or 24 bit quantization

TROISI A/D AND D/A CONVERTERS

AVAILABLE AT THESE FINE DEALERS:

Sonotechnique (800) 449-5919 • Posthorn Recordings (212) 242-3737

Parsons Audio (781) 431-8708 • Westlake Audio (213) 851-9800

Advanced Systems Group, LLC (510) 654-8300

Broadcaster's General Store (352) 622-7700

Phone (978) 692-7768 • Fax (978) 392-9869 • <http://www.troisi.com>

CIRCLE #153 ON PRODUCT INFO CARD

David Froom, Mitchell's composer brother, appears in the introduction to "La Fruita Prohibida," albeit in a much-distorted form. Froom says it's the only real sample on the whole album. "I thought it would be cool to have one sample on the whole record and have it be modern classical music. I tried using the music in the way it was on his CD, which was really well recorded, but it just wasn't working [in the track] until I ran it through a fuzz box. [David] was horrified at first, but he came around to it."

Blake had a neat trick for the triple-tracked drum intro to the album's most off-beat tune, "The Bunny." "I had been playing with a SADiE, a British-made dedicated stereo editor, at Real-world. I ended up making some copies of just the beginning drums and stacking them on top of each other. We really liked it, so we put it into the song." Soul Coughing's M. Doughty wrote and sang "The Bunny" lyrics in a mere 15 minutes. Thinking just as fast, Blake told him to sing into an AKG D-112E, which is primarily used as a kick drum mic, and was thrilled with the result.

"I'd never used one for vocals before," Blake says, "but now it's my vocal mic of choice. I've since used it on recordings with Tracy Bonham and Bonnie [Raitt]. I wanted that vocal to be just a really late-night sound like [Sly Stone's] 'Family Affair,'" says Froom. The kick drum mic gave it a really tremendous low end, plus Doughty had a very understated delivery that I thought was great. His lyrics mean different things to different people. For me they convey a little bit of a feeling of a Playboy Bunny gone bad. He literally invented that song out of nowhere, and like so many of the guests on this record he got it in one take."

Though *Dopamine* will likely appeal primarily to musicians and recording engineers, Froom isn't consciously trying to pander to a cult audience. "What I hope for this record is that it does well enough that I get to make another one," he says. "The album cover is really bright; it's not moody. I don't feel comfortable in the underground. This is like a weird pop record. Music needs to work on all levels to be interesting. You want records to have body language and spirit and to jump at you and do different things and not just be an interesting intellectual exercise. For me there's joy in creating music. I don't want to push people away with it." ■

THE STUDIO MANAGEMENT SOFTWARE SOLUTION CREATED BY BOB CLEARMOUNTAIN

SEE US AT NAMM BOOTH #1523

NEW!
Version 1.5
New Layouts!

Session Tools

SessionTools, from Apogee Electronics, is the new networkable studio management software solution.

Created by award-winning mixer/producer Bob Clearmountain, with Ryan Freeland, and now in everyday use in Bob's own studio, Apogee's *SessionTools* is ideal for single or multi-room facilities.

Eleven sophisticated layouts handle clients, work orders, invoices, track sheets and recall data. And the new Version 1.5 includes several

additional layouts and recall sheets!

Powerful database software operates on a single computer or across a network, on PCs running Windows 3.x, 95/98 or NT and Macintosh*.

SessionTools includes comprehensive label layouts for most current recording media including CD, DAT and cassette inlays, tape library management and much more, at a price you can afford.

*Macintosh version available now.

Visit your Apogee dealer today for a demo, see our Web site at www.apogeedigital.com, or call 310-915-1000 for more info.

CIRCLE #154 ON PRODUCT INFO CARD

MEDIA & MASTERING NEWS

ITA TO BECOME IRMA

In a move underscoring the changing realities of the information age, the ITA—formed 28 years ago as the International Tape Association—announced it will be changing its name to the International Recording Media Association at year's end. According to the trade association, the new name more accurately reflects the range of recording media technologies—magnetic, optical and solid-state—supported by its 450 member companies. The group, which serves as a forum for the exchange of information on global media trends, also announced its co-sponsorship of DVD Production '98, a seminar for professional DVD producers. Conference chairman Bob Pfannkuch of Panasonic Disc Services said, "There is a tremendous need for quality information that addresses the practical issues of producing content for DVD. That's why we have focused the conference on the demanding tasks of authoring, compressing, posting and replicating DVD entertainment programming." More conference information is available at 609/279-1700.

NEW FRONTS IN RIAA PIRACY WARS

The RIAA has made significant progress in its efforts to combat piracy and bootlegging of prerecorded music products owned by its member companies (primarily the big six major labels). The group says total seizures of unauthorized CDs declined in 1997 from years past, and cassette piracy has dropped 80% over the past five years. But new technologies are providing new avenues for the distribution of unauthorized copies of albums and singles. The biggest growth areas seem to be recordable CDs and the Internet.

CD-R piracy is expected to be "the next big boom" in bootleg recording, says the RIAA's Steve

—CONTINUED ON PAGE 206

MASTERING NOTES

It's been 50 years since the founding of Atlantic Records, and the company is celebrating by releasing a two-CD compilation featuring some of the greatest hits by Atlantic artists through the years. The HDCD disc was mastered by Ted Jensen at New York's Sterling Sound...Mastering engineer Kris Solem of Future Disc (Hollywood, CA) will be sharing his expertise in a short course entitled "The Mastering Process: Preparing Your Recordings for Release" offered by UCLA Extension in Los Angeles...



PHOTO: DAVID GOGGIN

At Bernie Grundman Mastering: Bernie Grundman (L) and Bruce Swedien, working on a new release for Nicole Renee.

Bruce Swedien was at Hollywood's Bernie Grundman Mastering to work with Grundman on the debut album by Nicole Renee on Atlantic...Also in Hollywood, Capitol Mastering's Mark Chalecki worked with former Stone Temple Pilot Scott Weiland on his new Atlantic release, and Ron McMaster completed a four-CD Blue Mitchell set for Mosaic...Recent projects at Sonorous Mastering in Tempe, AZ, include a new Sister Sledge CD, *African Eyes*, as well as sets by Khani Cole, The Revenants and



At Capitol Mastering, engineer Mark Chalecki (R) worked with Scott Weiland (L) and engineer Tracy Chisholm on Weiland's new Atlantic solo release.

Windigo...Toronto's Lacquer Channel Mastering had a hand in a number of albums nominated for Canada's Juno Awards, including projects by Ted Quinlan, Carole Welsman, Bob Snider and Lester Quitzau...The Radio Kings, Phish, Chucklehead, Slughog, Mudbuzard and Lunar Plexus were among mastering projects completed at M Works in Cambridge, MA, as was the soundtrack album for the film *Men With Guns*...Tom Parham Audio has opened a new mastering facility in Las Vegas, NV, featuring a Sonic Solutions workstation and gear by Apogee, Manley and Focusrite...Edward VanLangdeghem was at the helm for projects including Tanareid, Honeyfinger and James Williams and ICU at Funkhouser Mastering in Lancaster, PA...In San Francisco, Rocket Lab's Michael Romanowski mastered the latest from psychedelic rockers Big Brother and the Holding Company, Paul Stubblebine put the final polish on a new album from Mojo Madness, and Ken Lee worked on an EP for Low Hum Satellite...Super Digital Mastering in Portland, OR, handled mastering on projects including Izaya and Julie Ruin. ■

BY PHILIP DE LANCIE

—FROM PAGE 205, NEWS

D'Onofrio, the executive VP who heads anti-piracy activities. "With the advent of inexpensive CD-R hardware and blank discs, music pirates are moving in another direction—they can copy CDs in their apartments without risking detection by going to a traditional CD plant." So far, however, the few thousand CD-Rs recovered in anti-piracy raids are a drop in the bucket compared to the more than 1.2 million counterfeit and bootleg CDs seized in 1997.

Responding to the threat of unauthorized online distribution, meanwhile, the RIAA lowered the boom on hundreds of allegedly infringing music archive Web sites and announced it had expanded its Internet monitoring program with added staff and automated "Web crawler" searches.

HIGH END AUDIO: GOOD INDICATOR FOR DVD?

The 1997 sales trends at the high end of the consumer audio hardware market show healthy growth. U.S. sales were up 7% for the year over 1996,

with an estimated audiophile industry total of \$1.1 to \$1.4 billion. Exports were up 10%. The numbers are based on a representative survey by the Consumer Electronics Manufacturers Association of factory sales data from audiophile manufacturers. On the one hand, the appetite for high-fidelity sound may bode well for the forthcoming DVD-Audio format, which is expected to appeal largely to audiophiles. On the other, if the strong sales indicate that even the audiophiles are pretty well pleased with current formats, it could mean that there may not be as much demand for a successor to the CD as DVD-Audio's backers might wish. Regarding DVD-Video players, meanwhile, CEMA estimated 1997 sales of 350,000 units (the launch began last April). Total 1998 sales are projected to be 750,000.

SADIE BOOSTS THIRD-PARTY EFFORTS

SADiE has long been positioned as a PC-based rival to Macintosh-based Sonic Solutions at the high end of the audio workstation market. But the company seems to have learned a bit from Digidesign, as well, and is now

actively pursuing the kind of "third-party developers" strategy that has yielded a wealth of "plug-in" DSP software and hardware accessories for Digidesign's platforms.

In addition to plug-ins from Apogee (a UV22 processor) and CEDAR (De-Noise), SADiE has announced joint development with Apogee of a 24-bit A/D converter for the SADiE environment, with UV22 and Soft Limit available on each channel. The AMBus card will allow direct transfer with ADAT, TDIF (Tascam) and other digital audio interfaces and will utilize Apogee's patented low-jitter clock.

SADiE also announced the release of four new plug-ins: Dither, Stereo Reverb, Stereo Width and Time Mod, which was written by Jeff Bloom of Synchro Arts and allows program to be sped up or slowed down without changing pitch. In addition, the company has added a number of new features to its latest free upgrade (version 3.04, available at www.sadie.com), including multisession and Orange Book CD support, new sample-rate conversion and time-stretch functions and an enhanced PQ editing module. ■

David Bowie

Magic Dick & J Geils

Polygram

Frank Zappa

Burning Spear

Heartbeat

MGM/UA

Richard Thompson

Phish

Rounder

Roy Orbison

NRBQ

Rykodisc

Alison Krauss

Morphine

Bob Marley

Bruce Cockburn

Tone-Cool

Arlo Guthrie

Medeski Martin & Wood

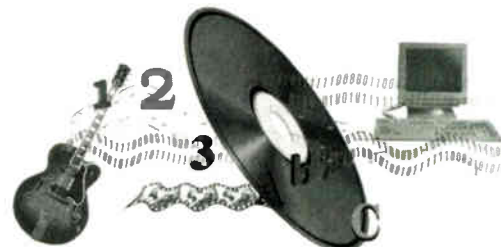
Sweetfish

The Beach Boys

Bob Mould

know these guys?
they know us!

THEY TRUSTED US WITH THEIR MASTERING.
508-481-9322 www.cdndr.com



...ndr...
NORTHEASTERN DIGITAL RECORDING, INC.

northeastern digital
unparalleled service, experience, and technology

CIRCLE #155 ON PRODUCT INFO CARD

A revelation...

a reliable, bulletproof PC Workstation, outstanding value for money.

MEL GAMBERT MIX MAGAZINE, FEBRUARY 98.

SSHDR1 plus

- Windows® 95 or NT*
- 12 to 196 track playback
- "Rock Solid" sync. to tape and MIDI sequencers
- Full digital connection to Yamaha O2R/O3D, Korg, Mackie and Tascam Digital Consoles
- Free 24bit recording software upgrade (in the works for '98)
- Balanced +4dBu XLR's 20 in/24 out (optional)
- Real time custom mixing and EQ's
- Simple to use powerful editing tools
- Punch in/out on the fly (tape machine style)
- Optional effects plug-ins including Reverb from TCWorks and Wave Mechanics Inc.
- Optional removable hard drives (IDE/EIDE up to 26 hours per disk)
- EDL file support (optional)
- ADAT/DA88 editing
- Fully networkable

24 TRACK SYSTEM
(20 IN/24 OUT, ADAT, TDIF)
FROM \$12,800 (SRP)



CIRCLE #156 ON PRODUCT INFO CARD



COAST TO

L.A. GRAPEVINE

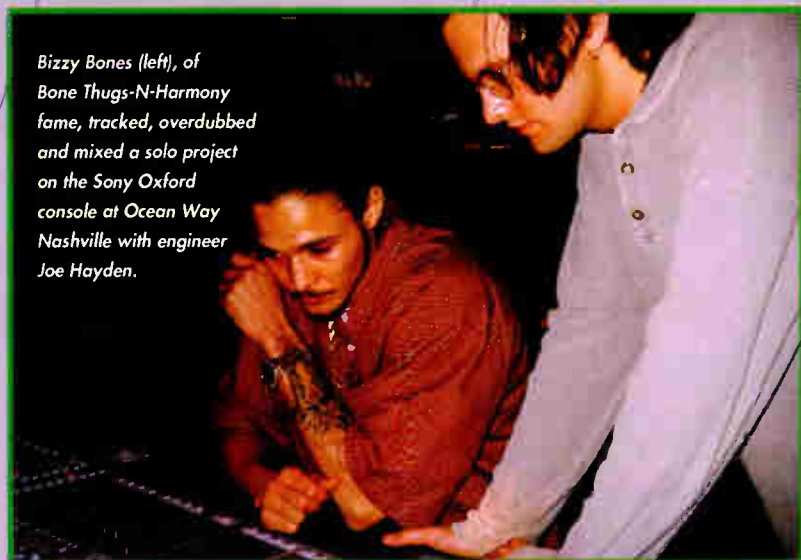
by Maureen Droney

Signet Soundelux Studios has achieved that elusive goal so many other studios aspire to—successful diversification. The facility has become first-call for some of L.A.'s top film music engineers, as well as kept its spot as the home to prestige live recordings for albums by respected jazz artists like Herbie Hancock and Terence Blanchard.

Originally the Motown Hitsville complex on Romaine, near La Brea, in Hollywood, Signet was one of the first studios in town to successfully blend the two businesses, expanding into film scoring and dubbing several years ago. Now that producers, engineers and musicians from many music genres have followed that trend into film work, Signet's experience provides an edge, and the all-Neve VRP

72/Flying Faders- and Total Recall-equipped facility finds itself steadily booked. In a recent week, award-winning mixers Dennis Sands and Shawn Murphy were in working on, respectively, Robert Redford's *The Horse Whisperer* and the Harrison Ford/Anne Heche adventure flick *Six Days and Seven Nights*. Other recent Signet projects have included Phil Collins working on songs for Disney's *Tarzan*, music mixing for *City of Angels*, *Mulan* and *The Wedding Singer* (which led to recording and mixing at Signet for both of Adam Sandler's solo records) and dialog recording with Val Kilmer for Dreamworks' first animated foray, *Prince of Egypt*.

The keys to success? Flexibility and good maintenance, according to VP and general manager David Dubow. "We're used to providing lock with all kinds of formats," he explains. "A lot of



Bizzy Bones (left), of Bone Thugs-N-Harmony fame, tracked, overdubbed and mixed a solo project on the Sony Oxford console at Ocean Way Nashville with engineer Joe Hayden.

our post projects come in on DA-88, then mix to 3348. Some may be on DA-88 with effects on 24-track analog, and they may print master to mag. Dennis Sands sometimes has four analog 24-tracks running; Shawn Murphy last week had two 24-tracks and a Mitusubishi 32-track, and both sessions mixed through dB Technologies 24-bit digital converters to Genex GX8000 optical recorders. There are different formats all the time, and our specialty is providing all those different formats and the expertise to lock them together. We do this everyday, all the time, so we're always ready to go.

"We have two in-house 3348s and Albrecht mag machines," he continues. "All of our rooms are set up for surround, and every room has its own 1/2-inch machine and

—CONTINUED ON PAGE 210

NY METRO REPORT

by Gary Eskow

Mix readers interested in the way industry trends play out in the greater New York region have grown accustomed to Dan Daley's insightful reporting. He leaves big shoes to fill. Dan and I first met in the early '80s when I got my first jingle call from Young&Rubicam. I was supposed to demo a Poland Springs spot, and the agency producer said the client wanted the track to have a country feel. Dan was known as a triple-threat back then—he played guitars, wrote and sang as well—so I gave him a call. The spot never materialized, but that's the jingle biz!

In this column, Dan wrote about all kinds of studios and trends in the New York area. He often remarked on

the proliferation of affordable recording tools, a trend I feel is healthy; it means that quality tracks can be produced anywhere, and decentralization promotes democracy. The great metropolitan centers, however, continue to attract pools of talent, and their work will still be at the heart of this column. My focus will be on people and artistic expression, as practiced on both sides of the console, at all points on the monetary scale.

This month we'll take a look at two studios that are integrating Mackie Design's Human User Interface (HUD) control surface into their Pro Tools systems. Hands-on faders (see George Petersen's review of Digidesign's soon-to-be-released ProControl in the April issue) give engineers the feel they've craved since the early days of Pro

—CONTINUED ON PAGE 212

In Signet Studio A: David Dubow (l) and Kim Waugh.

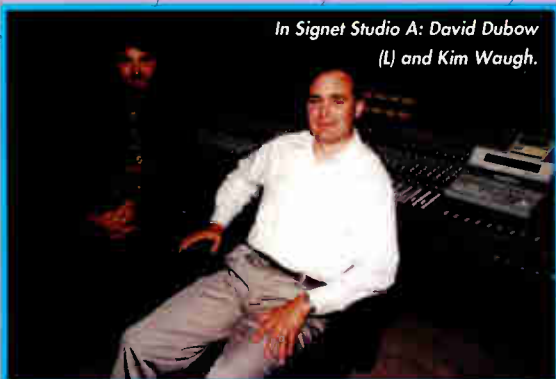


PHOTO: MAUREEN DRONEY

COAST

NASHVILLE SKYLINE

by Dan Daley

Surround audio has been on Nashville's collective studio mind since the beginning of the year. The buzz started last year, when DTS came to town and licensed Vince Gill's *High Lonesome* album for remixing and remastering in 5.1, hiring the original producer (Tony Brown), engineer (Chuck Ainlay) and studio (The Tracking Room), reportedly at card rates in the case of engineers and studio. Dolby struck back in May of this year with a two-day

seminar on its competing Dolby Digital system, also held at The Tracking Room.

Since then, many studios throughout town have been making provisions for surround audio mixing, either on an as-needed basis or with dedicated, soffited center and rear speakers. A number of new rooms are being built specifically with 5.1 in mind, including the second recently opened studio at **Seventeen Grand Recording** and the (almost-completed at presstime) **Bulldog Studios** in Franklin, which sports a Tom Hidley surround monitoring design built by Mike Cronin. And, as reported last month in this

space, **Georgetown Masters** owner Denny Purcell and Ainlay have announced that they are strongly considering building a new 5.1-dedicated mixing and mastering room on Music Row.

The approaches to implementing surround audio reflect the no-rules multichannel mixing environment. Carl Tatz, owner of **Recording Arts Studios** in Nashville, which now has 5.1 monitoring capability, uses the following approach to setting up a 5.1 listening environment: Across the front array, he explains, measure the distance from tweeter to tweeter of each of the left-right speakers.

—CONTINUED ON PAGE 214

SESSIONS & STUDIO NEWS

SOUTHEAST

At Ocean Way Nashville, Reunion Records artist **Kathy Troccoli** tracked two songs for her next release. The all-star sessions included **Steve Cropper** on

ville... **Sound Emporium** (Nashville) had **David Pack** in, tracking a self-produced effort for **Warner Resound** with engineers **Steve Bishir** and **Hank Nirider**... **Rodney Atkins** tracked for **Curb Records** at Nashville's **Emerald Sound** with producer **Chuck Howard**, engineer **Steve Marcantonio** and assistant **Tim Wa-**



In Hollywood's **Music Box Studio**, **A&M Recording** artists **Dishwalla** tracked vocals for their sophomore release, due in August. Pictured (L to R) are singer **J.R. Richards**, producer/engineer **Mark Waterman** and guitarist **Rodney Browning**.



The **Barenaked Ladies** mixed their new album (out this month on **Reprise**) at **East Iris Studios** in Nashville with producer/engineer **David Leonard**. Pictured (clockwise from foreground) are bandmembers **Steve Page**, **Ed Robertson**, **Jim Creegan** and **Tyler Stewart**, with **Leonard**. **East Iris** opened in December '97 and has hosted sessions for artists such as **Patty Griffin**, the **Indigo Girls** and **Collin Raye**.

guitar, **Steve Winwood** on organ and **Michael Omartian** on piano. **Nathan DiGesare** produced, **Paul Salvesson** engineered and **Aaron Swihart** assisted... **Larry Stewart** mixed for **Windham Hill** at **The Sound Kitchen** (Franklin, TN) with producer **Michael Omartian**, engineer **Terry Christian** and second **Tim Coyle**... **Jewel** mixed for her next **Atlantic** release with producer **Ben Keith**, engineer **Csaba Petocz** and assistant **David Hall** at **Masterfonics**, Nash-

ters... **Columbia** recording artist **Trey Lorenz** finished up vocals and guitars for an upcoming release in **Studio M** at **Tree Sound** (Atlanta). **Shawn "The Man" Grove** twisted up the tones with assistance from **Chris Fleming**. **Lorenz** moved into **Studio A** to mix the single "Mister Mr.," with engineer **Neal Pogue** and assistant **Jason Stokes**... In **Studio A** at **American Holly Studios** (Charleston, SC), country artist **Jay Gordon** cut vocals and mixed for an up-

—CONTINUED ON PAGE 215

—FROM PAGE 208, L.A. GRAPEVINE

Lynx KCU keyboard controller with Lynx and Film Lynx modules. Another important thing here at Signet is maintenance coverage—we have it 24-7. If there's a session going on, there's a maintenance person here. Also, our assistants are excellent—they take it way beyond the basics. They understand offsets and sophisticated lockups, and they regularly deal with mountains of equipment. Most of the engineers now bring in several racks of their own equipment, plus their own individual left-center-right speakers—there's a lot to be set up quickly.”

Dubow and Signet/Soundelux president Kim Waugh gave me a tour of the complex, every bit of which has been creatively exploited. Studio A, 40x40 feet with 22-foot ceilings, is the main scoring room, used also for ADR, overdubbing and mixing LCRS. Studio B is a THX-certified film and television dubbing and mixing stage with another LCRS Neve VRP 72, an SSL custom stem mixer and video and film projection. Studio C, used for film and TV dubbing, music overdubbing and mixing, has the third Neve and video projection. Studio G is an Avid AudioVision editorial suite used for ADR and voice-over recording, with an ISDN/Dolby Fax setup. The basement of the Signet facility is its own buzzing beehive of activity—what were the original Motown echo chambers now house nine WaveFrame/Pro Tools editorial suites. On the day I stopped in, editors were working on *Wrongfully Accused*, *Election* and *Thicker Than Blood*.

Speaking of diversity, SwingHouse rehearsal and recording in Hollywood covers a lot of bases with a comfortable style, from rehearsal, showcases, video shoots and recording to equipment rentals and cartage. Co-owner (with partner Marc Diamond) Philip Jaurigui and studio manager George Bergen tell us that recent projects at the four-year-old complex have included Love and Rockets rehearsing, then recording tracks to 16-track and hard disk for their new album, with producer Doug DeAngeles and engineer CJ Buscaglia; The Wild Colonials recording live demos to 16-track for their upcoming Geffen release; and the Goo Goo Dolls rehearsing and recording demos for their new album.

Studio A, with its 17-foot ceiling, stage, large Electrotec P.A., 32x12 Soundcraft 800 mixing board, upright piano, air conditioning and riser seating connects to a 16-track control room for pre-production or live-to-DAT taping and is also popular for showcases and video shoots. Studio B, with a Yamaha

8-channel mixer, and C, with its Mackie 16-channel board, are also good-sized rooms with their own P.A.s. SwingHouse offers for rental a wide array of vintage and contemporary gear, including Ampeg SVT and Marshall amps and Rogers and Pearl drum kits.

The SwingHouse philosophy, according to Jaurigui, a musician himself, is “to cater equally to the cash-strapped and to the Platinum artist,” and to provide a comfortable, friendly and creative environment in which to make music. Satisfied clients in both categories include, besides the above-mentioned projects, Green Day, The Wallflowers, Rickie Lee Jones, Fuzzbubble, Sugar Ray, Lili Haydn and Possum Dixon, as well as numerous unsigned local bands.

“We provide the best packages in town,” Jaurigui says, “and at very reasonable rates. If a band comes in to town and needs to rehearse, we can provide it all—the rehearsal space, the rental instruments and amps—and we'll haul their gear to the venue for them, too.”

And finally, what may be our ultimate example in diversity—the studio and screening room at that luxury home-away-from-home for rock 'n' rollers, the *Sunset Marquis Hotel and Villas*. A joint venture between the hotel and musician/composer Jed Leiber, the facility, simply dubbed “The Studio,” is available to hotel guests and outside clients and also keeps busy with Leiber's own film and record projects. Now, with the upgrade from a Euphonix CSII to a CS3000, and with the addition of studio manager/engineer Tom Fritze (Rolling Stones, Joan Osbourne), The Studio has become a busy commercial facility, with high-profile clients like Anne Dudley, formerly of Art of Noise and composer for the soundtrack to *The Full Monty*; *Conspiracy Theory* composer Carter Burwell; Aerosmith and Don Was.

On the day I dropped in, Irish composer David Holmes and his team were ensconced in the cozy room mixing music for the soundtrack to *Out of Sight*, a Danny DeVito/Jersey Films production, directed by Steven Soderbergh and starring George Clooney, with *Mix*'s own film sound columnist Larry Blake handling the film edit and mix. (I was fortunate enough to catch a steamy—literally—bathtub scene featuring the handsome Clooney. Joe Bobbette says check the flick out!)

It was Holmes' first experience working on a Euphonix; he's quickly become a convert. “It's great working here,” he comments. “I love the console, we've got everything we need,

OUR INVENTORY IS
HUGE
OUR PRICES ARE
LOW
YOUR SATISFACTION IS
GUARANTEED

L&M MUSIC
www.lmmusic.com
1-800-876-8638
6228 Airport Drive, Chattanooga, TN 37421

CIRCLE #157 ON PRODUCT INFO CARD

WhisperRoom INC.
Sound Isolation Enclosures

Recording • Practicing • Broadcasting etc.
Various Sizes

Tel: 423-585-5827 • Fax: 423-585-5831
Website: www.whisperroom.com
116 S. Sugar Hollow Rd., Morristown, TN 37813 USA

CIRCLE #158 ON PRODUCT INFO CARD

You can't buy a better 2 channel FFT analyzer - at any price.

SR780..\$9950 (U.S. list)

Unlike many analyzers, frequency response measurements to 100 kHz are no problem for the SR780.

The SR780 performs 1000 averages in a few seconds - other analyzers can take minutes.



The SR780 two channel FFT Network Analyzer offers more standard features, is easier to use, has better specs and costs half as much as the competition. It delivers 102 kHz dual channel operation, swept-sine measurements with 145 dB dynamic range, real-time ANSI standard octave analysis, waterfall plots, time capture, user math, context sensitive help, and that's just the beginning. Simply put, the SR780 is the highest performance two channel FFT analyzer you can buy. We're so confident that the SR780 will improve your measurements we challenge you to do a comparison yourself. Just call us and we'll send you a unit for a two week evaluation and you'll see why engineers with applications including modal testing, vibration analysis, control system design, filter design, audio analysis, and noise measurements have switched to the SR780.

	SR780	HP35670A
Frequency range (2 ch)	DC to 102.4 kHz	DC to 51.2 kHz
Realtime bandwidth (2 ch)	102.4 kHz	12.8 kHz
Dynamic range	90 dB	90 dB
Input noise	-160 dBVrms/√Hz	-140 dBVrms/√Hz
Source distortion	<-80 dBc (<30 kHz)	<-60 dBc (<30 kHz)
Swept-sine measurement	standard	\$1020 (option)
ANSI std. octave analysis	standard	\$2040 (option)
Arbitrary waveform source	standard	\$5*0 (option)
Standard memory	8 MBytes	1.2 MBytes
Price w/ options	\$9,950	\$20,820



Using the SR780 swept-sine source, the measured zero in this anti-aliasing filter graph is resolved to a depth of -144 dB from the pass band.



The SR780 allows independent configuration of both channels. Choose different spans, start frequencies and functions. It's like having two separate analyzers in one instrument.



Stanford Research Systems

Telephone: (408)744-9040 FAX: (408)744-9049

Email: info@srsys.com WWW: <http://www.srsys.com/srsys/>

©1996 Stanford Research Systems. HP prices and specifications per 1996 catalog and data sheets.

CIRCLE #159 ON PRODUCT INFO CARD

KEYBOARDS

**BEFORE YOU JUMP...
CALL US LAST!**



- SYNTHESIZERS
- DIGITAL PIANOS
- RECORDING GEAR
- PRO AUDIO
- SAMPLERS
- AMPLIFIERS
- MIXERS / EFFECTS
- SOFTWARE

**CALL OUR SALES STAFF
OF MIDI EXPERTS**

All Major Brands!

RICH

music

1-800-795-8493

260 South 1-35 E • Denton, TX 76205 • FAX (940) 898-8659

Hours: Monday - Friday 10 - 6:30, Saturday 11 - 5
<http://www.richmusic.com>

VISA • MASTERCARD • DISCOVER • AMERICAN EXPRESS

CIRCLE #160 ON PRODUCT INFO CARD

and we're finding it a very good and creative experience."

In addition to the Euphonix desk, the George Augspurger-designed room also features three Sony PCM-800s with sync cards, Avalon Class A mic preamps, compressors, equalizers and direct boxes, an SSL stereo compressor, Lexicon, Eventide, TC, Yamaha, Sony, dbx and Drawmer outboard gear, and a Sony high-def overhead projector with 100-inch screen. Other equipment available via rental includes a Pro Tools system, a Soldano guitar preamp and amp, and an extensive selection of keyboards, vintage and new amps and outboard gear, specialty mics, and additional analog and digital recording media. Then, of course, there are all the amenities of the Sunset Marquis—24-hour room service, whirlpool, gym and sauna, valet parking, The Whiskey bar...

Plans for the near future at The Studio include a second room that will also double as an Avid editing suite. So where does studio owner Jed Leiber work now that his main room is so booked? Well, he hasn't gone far—he's taken *another* room in the Sunset Marquis, where, in a combined office/studio, he's installed the CSII and has been hard at work lately on, among other projects, Jeff Beck's new album. ■

you use a second analog machine. Instead, we drop stems—up to eight or ten—over to Pro Tools and use the analog deck and Pro Tools in tandem. Eventually, everything gets transferred to Pro Tools, where we make a stereo mix using either the Focusrite TDM compressor or the Waves C1 compressor."

There are several critical advantages in this process. Producers who seize on the flexibility of hard disk mixing are able to keep subgroups available within Pro Tools all the way through the final mix. Tweak, tweak, tweak. "Another plus," Denenberg adds, "is that we bring over the vocals, drums and guitars, for example, as separate passes into Pro Tools. It's much easier to get a big, wide 3D sound when the A-to-D conversion is done separately for each group, rather than having a two-mix going out of the board in one pass."

Acme's seamless integration of a single analog 2-inch machine and Pro Tools could not take place without HUI, which functions as a sidecar mixer to the Neve console. "Without a functional control surface like the HUI," Denenberg says, "it would be impractical to try to mix both the analog and computer tracks together. Outside engineers, as well as our staff, need to be able to grab faders when they mix. The mouse can be very useful for redraws, but you don't want to handle multiple tracks with it."

"I've used the Neve Flying Faders package for a long time, so my standard is high. The HUI's faders physically take a bit longer to complete their moves, but their effect on audio is just as quick. And the price is frightening—each Flying Fader costs almost as much as the HUI! My one wish is that Mackie make expanders, so that I can have 24 faders online at one time."

He's seen the future, and it appears to be without consoles—Rich Alderson's Alderson Acoustics has been responsible for the construction of more than 30 recording facilities in the greater New York area over the past 15 years. Along the way, Alderson has engineered projects for the likes of Donald Fagen, Gloria Estefan and Phil Ramone. He's now putting the final touches on Virtuality, the downtown studio in which he'll be a partner.

Alderson decided awhile back that he would own a tapeless studio or none at all. At the heart of Virtuality (affiliated with the independent film company Greene Street Films Inc.) sits a "floating" 32-track Pro Tools 24 system, which has already been uprooted once and taken to Jamaica, where Alderson recorded

Got L.A. news? Fax Los Angeles editor Maureen Dronay at 818/346-3062 or e-mail msmdk@aol.com.

—FROM PAGE 208, NY METRO REPORT

Tools, and all kinds of studios have added HUI.

One example is Acme Recording in Mamaroneck, N.Y. Peter Denenberg has operated Acme since 1979, during which time lots of interesting work has been done there. Some of the more recent sessions have included overdub and mixing on the Fabulous Thunderbirds' current album, tracking and mixing of the remake of "That's the Way I Like It," for the *Space Jam* soundtrack, and remixes and mastering of tracks by B.B. King, The Crusaders, James Brown and more for the film *When We Were Kings*.

Has his HUI changed the way Denenberg works? Well, he's not giving up his Neve 8068 board in the near future—its color exerts a powerful pull—but he's found a hybrid way of working that gives him access to the feature set of his Pro Tools 24 system, as well: "We record tracks conventionally to one 24-track recorder using the 8068, but we avoid the lockup hassles you get when

COMPACT DISC • CASSETTE
& RECORD MANUFACTURING

No Bob...
your EYES are fine!
BUT... THE PRINTING
on your latest CD
is REAL BAD!
Next time ...
...call QCA!

P
X

WF
HIE
OPWB
YTOMK
MKSEZTO
3436789

CALL TOLL FREE
1.800.859.8401

For Your Free Catalog



Serving the Music Industry for Over 45 Years.

2832 Spring Grove Ave., Cincinnati, OH 45225
Tel: 513.681.8400 • Fax: 513.681.3777
E-mail: qca@pol.com • web: www.pol.com/QCA

CIRCLE #161 ON PRODUCT INFO CARD

The most sensitive
system for recording
the piano is now
the piano itself.



The finest piano recording system doesn't use tape, microphones or hard disks. It's even more sensitive: it captures key and pedal movements even if they don't make a sound. IT is the piano itself—the **Yamaha Disklavier Pro™** reproducing piano.

The Disklavier Pro **records and plays back exact pedal and keystroke attack speeds, depth and release speeds** (without any noise). It keeps pace

with the fastest fingers and reproduces the complete dynamic range of all performances. Thanks to

a combination of continuous action servo control

sensors and solenoids, a new Yamaha LSI microprocessor and the powerful XP data format, it elevates the Yamaha Disklavier well into the professional arena.

Other new features add even more advantages. **MIDI and computer interfaces.**

an on-board XG tone generator with nearly

700 premium quality voices and the world-

renown Yamaha action make the Disklavier Pro

a superb MIDI controller. Plus, the Grand Silent System allows you to **create multitrack recordings** by playing orchestral sounds without hearing the piano.

To find out more about the finest, most advanced reproducing piano ever created, the new Yamaha Disklavier Pro, call (800) 711-0745 ext. 408 or ask your favorite Yamaha Disklavier dealer.

YAMAHA®
disklavier®
PRO SERIES

©1998 Yamaha Corporation of America, Keyboard Division
P.O. Box 6600, Buena Park, CA 90622.
(800) 711-0745 ext.408 or visit us at www.yamaha.com.

singer/songwriter Suzanne Couch.

Mixing exclusively within Pro Tools is critical to Alderson's method of working. In his design scheme, consoles are simply large patchbays. His board is a 16-channel Mackie VLZ. "Eliminating the traditional way of viewing the console is the whole idea here!" he says. "I didn't want to purchase another expensive piece of machinery that would go out of date."

Mic preamps are critical. Alderson favors Focusrite Reds and LaFont Audio mic pre's but is actually content recording secondary material—toms, for example—with the mic pre's that are built into the VLZ. "You can build a perfectly good

mic pre for about \$150," he says, "and those that ship with any of the Mackie boards are fine for certain applications."

"The release of the HUI was a definite part of the equation," he continues. "You need a familiar control surface to work with, and the HUI vastly increases the speed you operate with on Pro Tools. I'm very interested in Digidesign's ProControl, but budget was a consideration for us; I'm very impressed with the control and creative flexibility that the HUI provides." ■

E-mail your New York news to New York editor Gary Eskow at scribeny@aol.com.

—FROM PAGE 209, NASHVILLE SKYLINE

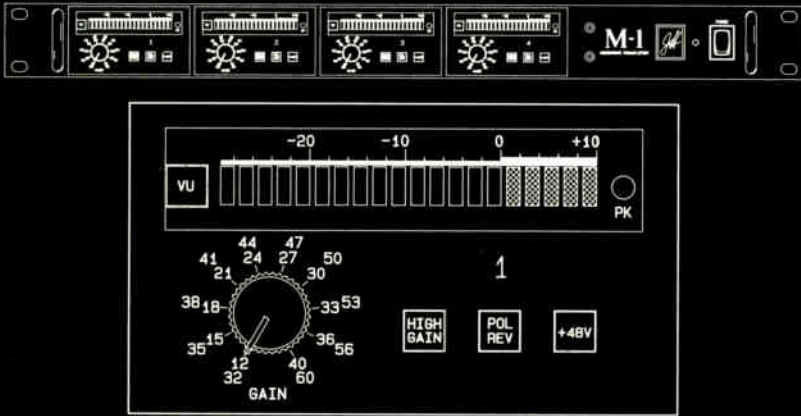
Then bring that measurement forward toward the engineer's position to form the apex of an equilateral triangle. The "sweet spot" will be one foot forward of that apex. With the center speaker set exactly the same distance from the apex, this should produce a perfect "phantom" center channel. To position the rear speakers, take the same left tweeter to right tweeter measurement and, starting from the apex of the first equilateral triangle, position the left and right rear channels the same distance away and the same measurement apart from each other, placing the apex of the rear triangle two feet forward of the mixing position, forming two equilateral triangles whose diamond-shaped overlapping apexes form a sweet spot about two feet from apex to apex. "It's the best way to image multichannel speaker arrays that I've found and still have an accurate but flexible sweet spot," says Tatz.

Not everyone is so enamored of 5.1's immediate future, though. At Sound Stage Studios, manager Michael Koreiba says the management has been studying the concept and monitoring its progress, and he has gone to the point of developing a theoretical 5.1 monitoring configuration and chosen rental equipment should a request for the format come in. "I can make one phone call and get everything here and set up in a couple of hours," he says. "But mostly what I'm seeing out there is the new rooms that are being built from the ground up are putting it in, and that makes more sense to me. If we were planning a new room, I'd certainly do it in a second."

At Emerald Recording, manager Milan Bogdan puts it more bluntly, stating, "There's no reason for it. We were researching systems and configurations for it, but then we started talking to the labels and realized that none of them are gonna pay for these 5.1 mixes. That clinched it for us. So while some studios in town are calling up DTS to get some of that work, we just keep calling the labels and getting lots of the regular work." Bogdan's label research was backed up by comments that Joe Galante, RCA Label Group president (which includes Arista Records), made at the Music Industry & New Technologies conference (MINT) held in Nashville the week of May 10. While it was reported that Capitol mega-artist Garth Brooks has committed to a DVD product in the near future, Galante reportedly countered, "Music isn't the first thing I'm thinking about at this point [regarding DVD and multichannel

M-1

MICROPHONE PREAMPLIFIER



(ACTUAL SIZE)

Gloria Estefan, Dolly Parton, Neil Young, Lou Reed, Laurie Anderson, Bob Dylan, Madonna, Eric Clapton, George Harrison, Paul McCartney, Paul Simon, Joe Henderson, James Carter, Ernie Watts, Bill Hollman, Saturday Night Live, The Muppets and many others have done great work with the M-1. The M-1 is clearly superior, *satisfaction guaranteed*. Here's why:


The Jensen JT-16-B Input Transformer. The world's best mic-input transformer. If you thought transformers were a compromise, you haven't heard the JT-16-B!

The 990 Discrete Op-Amp. The 990 discrete op-amp is superior to the monolithic op-amps found in other equipment.

No Coupling Capacitors in the Signal Path. DC servo circuitry and input bias current compensation circuitry eliminate all coupling capacitors and the degradation they cause.

Standard features: LED-illuminated push-buttons; phantom power switch; polarity reverse switch; conductive plastic gain pot and high-gain switch; shielded toroidal power transformer with 6-position voltage selector switch; gold plated XLRs; ground-lift switches.

Options: VU-1 meter (shown); PK-1 meter; Jensen JT-11-BM output transformer;



THE JOHN HARDY COMPANY

P.O. Box AA631
Evanston, IL 60204

Phone: 847-864-8060 Fax: 847-864-8076

CIRCLE #163 ON PRODUCT INFO CARD

audio]. I see [more DVD music] down the road. But based on the sales numbers I've seen so far, it's not sufficient enough to warrant us going in on a full scale." Other label personnel in Nashville seem equally cautious, particularly since the final specs for DVD-Audio haven't been completely worked out yet.

"Put me down in the same camp as Joe Galante," says Sound Kitchen co-owner Dino Elefante. Sound Kitchen will add four rooms to its two-room facility in late summer, one of which has a custom-built 96-fader Otari console with a 5.1 bus section and joystick panning—but not a dedicated surround monitoring setup. "I have a DVD player at home, and I'm having the same trouble as Joe is finding basic movie titles," Elefante says. "DVD-Audio is going to have to wait for Sony to make up its mind what it's going to do with its Super Audio standard. Sony is the fifth largest economy in the world—the rest of the world is going to follow them."

Starstruck Studios perhaps represents the middle ground for studios. Starstruck owner and country star Reba McEntire is doing a DTS-sponsored 5.1 remix of her newest release at her studio, but Robert

De La Garza, vice president and general manager of Starstruck's studios and broadcast operations, says he'll be bringing in surround equipment on an as-needed and as-requested basis. "I've been to a half-dozen seminars and seen as many different approaches to surround. Three different engineers or producers can come in and each prefers their own kind and size of monitor. So I can't see how we could commit to 5.1 right now."

Mike Poston, president of sales firm Equipment Pool, which reps for such manufacturers as Sony, Bryston and Dolby, says that he has been getting inquiries about equipping facilities for surround but that there is also a lack of agreement on how such systems should be set up and worked on. "There's pretty much agreement on how the front three speakers should be aligned, but a lot of differing opinions on how the surrounds should be placed," Poston says. "I think this year is going to be a major learning curve year here in Nashville for all of us. Producers and engineers have spent the last 25 years learning how to build spaciousness into stereo country mixes, and now they're going to have to step back and learn all over again how to do this in surround. We're going

to need as many meetings and seminars on this as possible." ■

Send Nashville news to Dan Daley at danwriter@aol.com or fax 615/646-0102.

—FROM PAGE 209, SESSIONS & STUDIO NEWS
coming release. Also in was blues singer Heaven Davis, tracking and mixing new material. John Uhrig engineered all sessions... George Benson mixed for his new GRP release at Patchwerk Recording (Atlanta) with producers J-Dub and Wes and engineer Mike Wilson... Collective Soul began mixing their fourth album in Studio B at Miami's Criteria Recording. Band frontman Ed Roland produced, Bob St. John engineered and Scott Kieklak assisted... Cowboy Mouth mixed for Universal Records at Ardent Studios (Memphis) with engineer John Hampton and assistant Matt Martone...

SOUTHERN CALIFORNIA

Korn tracked their next release with producer/engineer Toby Wright in Studio B at NRG Recording (North Hollywood). NRG will soon be debuting Studio C, a Gothic-themed room complete with

MediaFORM Introduces a New CD-R Duplicator Designed for the "Audio Professional"

DAT'S EASY



CD2CD/POWER PRO CD-R Duplicator

MediaFORM's POWER PRO is already the industry leader in CD-R copiers with one button burning of 8 CD's simultaneously, expandable to 64 drives, and autoloader ready. The POWER PRO offers an option bay which allows for the following: Jaz Drive, Zip Drive, Plextor CD-Rom Drive or virtually any SCSI device. So how do we top that?

DAT's easy! MediaFORM's new Easi-DAT option allows audio users to interface their existing DAT player with the POWER PRO by way of SPDIF, Optical and AES/EBU ports. Audio professionals can also take advantage of the POWER PRO's unique track extraction feature. Finally, a CD-R copier that's flexible enough to meet all of your audio needs.



400 Eagleview Blvd., Suite 104 • Exton, PA 19341
Phone: 610-458-9200 • Fax: 610-458-9554 • Toll Free in the USA 800-220-1215
email: info@mediaform.com • web: <http://www.mediaform.com>

CD2CD/POWER PRO is a trademark of MediaFORM, Inc.
All other trademarks remain the property of their respective companies.



NEW!
CD2CD/POWER PRO
CD-5900

CIRCLE #164 ON PRODUCT INFO CARD

SOUND IMPROVEMENT

THE RIGHT TOOLS FOR THE RIGHT JOB!

M-40
Bass Drum & Piano



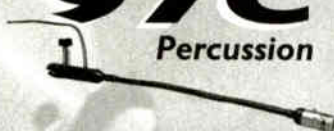
B8 II
Overhead



A95
Percussion



97C
Percussion



- S5V-Violins, Violas
- TA Series-Saxophones
- S25B-String Bass
- Z7177-Flutes
- P88-Brass Instruments
- HR1 & HR2-Harmonicas
- W Series-Clarinet
- SG3-Guitar
- S18-Cello
- P43-Harp

applied microphone technology, inc.
APPLIED
Pure Sound Reproduction

P.O. Box 33 Livingston, NJ 07039-0033
Tel: 973-992-7699 • Fax: 973-994-5139
<http://www.appliedmic.com>

CIRCLE #165 ON PRODUCT INFO CARD



SONEX™. The standard for professional acoustics.

You want the finest acoustic treatments available. You want SONEX.

Call today for free information about FIBER-FREE™ acoustic treatments in polyurethane and Class 1 fire-rated willtec® foams. It will be music to your ears.

illbruck
1-800-662-0032

Fax (612) 521-5639 • Phone (612) 520-3620 • www.illbruck-sonex.com

CIRCLE #166 ON PRODUCT INFO CARD

raven-black SSL 9000 J...No Doubt and Billy Idol (guesting on backing vocals) recorded and mixed "Hateful" for the upcoming Clash tribute album at Scream Studios (Studio City) with producer David Kahne, engineer John Travis and assistant Dave Hancock. Also in was Dave "Rave" Ogilvie, with assistant Doug Trantow, mixing Orgy's Warner/Reprise debut, produced by Josh Abraham... Benny Mardones tracked and mixed his next album for Sony Music at Hollywood Sound Recorders (Hollywood) with producers Jim Ervin and Joel Diamond and engineer Bryan Davis...In Studio A at Paramount Recording (Hollywood), engineer Rob Chiarelli mixed tracks for Atlantic artist Chaz Shepherd with assistant Steve Anderson...Alien Crime Syndicate tracked for their next Revolution Records release with producer Gil Norton and engineer Ben Hillier at Grandmaster Recorders in Hollywood. Wade Goeke assisted...Drop Zone Records artist Dahru mixed his debut at Track Record Studios (North Hollywood) with engineer Michael "Jazz" Nally...

NORTHEAST

Mystic Studios (Staten Island, NY) has been busy lately with its new label, Mystic Entertainment Group, a partnership with Atlantic. The label's first signing, rapper Fat Joe, was recently in the studio mixing his new album, *Don Cartagena*...DJ Spooky mixed for his next self-produced Outpost/Geffen release at M.A.W. Studios in New York City with engineer Dave Darlington and assistant Allen Towbin...Jane Kelly Williams and producer Steve Addabbo put the finishing touches on Williams' upcoming Mercury release at New York City's Shelter Island Sound. New gear at the studio includes a Studer A800 24-track and a Lexicon 480L...At Soundworks Studios (Boston) Silvard mixed his third release for the Musical Mollusk label with studio chief engineer Brain Capouch...Capitol Records artists Fun Loving Criminals tracked and overdubbed at Sear Sound (New York City) with engineer Tim Latham and assistant Tom Schick. Sear is in the process of opening its new Studio C...Drummer Omar Hakim joined incendiary guitarist Vernon Reid at TMF Studios (New York City) to lay down tracks for Mother's Finest. Also in was Duncan Sheik, tracking for Verve/PolyGram with producer Pete Nashiel and engineer Mike Tudor...Coallier Entertainment artists Angel overdubbed and mixed in the Neve room at EastSide Sound (New York City) with producer Daniel J. Stanton, engineer Denny McNerney and assistant Fran Cath-

cart...UK-based R&B quartet Another Level tracked the song "Girlfriend" for their upcoming Northwestside Records release at Data Bank Studios (New York City) with producer David Anthony and writer/producer Teron Beal...

NORTHWEST

Coast Recorders (San Francisco) had Laura Satterfield mixing her Mercury Records debut with engineer Mike Johnson and assistant Joe Phifer...Alligator Records artist Elvin Bishop overdubbed and mixed for a new album slated for August release at Laughing Tiger Studios (San Rafael, CA). Bishop produced with co-producer/engineer Bill Thompson, with additional engineering by Ari Rios...

NORTH CENTRAL

At B.L.R. Studios (LaPorte, IN), Sysophus recorded an album for Wenco Records. Drummer Kevin Hershman produced, and studio owner Brian Roseman engineered...At Madjef Productions in Minneapolis, Jeff "Madjef" Taylor mixed an album for the Excelsior Gospel Choir. Over at Jam & Lewis' Minneapolis studio Flyte Tyme, Taylor assisted Rich Travali on mixes for artist Kevin Ford...

SOUTHWEST

Recent sessions at Tempest Recording (Tempe, AZ) included The Revenants recording for Epiphany Records with studio owner/engineer Clarke Rigsby...LA Mafia recorded for their next Sony release at Houston Sound (Houston, TX). Also in was saxman Warren Sneed, mixing his new CD with engineer Mike Morrison...Allusion Studios (Tucson, AZ) recently completed work on the 1998 Tucson Area Music Awards (Tammies) compilation CD...

STUDIO NEWS

Chicago Recording Company (Chicago) recently opened The DVD Lab, the city's first operational DVD authoring suite, outfitted with Sonic Solutions' Creator system...King Sound & Pictures (Los Angeles) added Flying Faders to its API 3208 console...New gear at Immortal Productions (Canal Fulton, OH): Neve 1073 input modules, Genelec 1031A monitors and vintage AKG and Neumann mics...The Walters-Stork Design Group designed a new pro audio showroom for the B&H superstore complex on Ninth Ave. in New York City...The Enterprise (Burbank, CA) acquired three Genex G8000 high-bit MO multitracks for archiving DVD projects and post material, as well as for renting out internationally. ■

MIX MASTER

ALPS
ALPS ELECTRIC(USA),INC



S1 super SLIDE®**

In addition to being the world's largest manufacturer of switches, ALPS is known for high quality potentiometers and RF-video products for commercial and consumer products. Their S**1 Standard Super Slide is specially designed for audio mixer applications. Its low profile (7 mm high) combined with superb tactile feel and precision performance make the S**1 the industry standard for slide pots. Available in 15, 30, 45 and 60 mm travel and four resistance values.

CALSWITCH

For Catalogs, No Minimums, Volume Buying, Person-to-Person Distribution, Custom Warehousing, Value-Added Assembly, Technical Assistance

(800) CAL-SWCH

Fax: (800) FAX-CASW • www.calswitch.com • ISO-9002

CIRCLE #167 ON PRODUCT INFO CARD

America's Largest Volume Dealer is Now a Part of
America's Largest Musical Instrument Chain

Guitar Center's **RHYTHM CITY**

- **MORE BUYING POWER!**
- **MORE GEAR!**
- **MORE SAVINGS!**

- All Major Brands • New and Used
- All Major Credit Cards Accepted
- Easy Terms-Financing Available
- Professional Sales Staff • Speedy Shipping



NOBODY BEATS OUR PRICES!

(404) 320-SALE
1485 Northeast Expressway
Atlanta, GA 30329
www.musician.com

CIRCLE #168 ON PRODUCT INFO CARD



Record Plant Remote

1170 Greenwood Lake Tpke.
Ringwood, NJ 07456
(973) 728-8114; Fax (973) 728-8761

Record Plant Remote has been an industry leader in location recording for over 20 years. We've kept abreast of new developments in audio technology without sacrificing our sonic integrity. Some of our recent clients include MTV, Aerosmith, Elton John, Michael Bolton, Spin Doctors, R.E.M., Live, Meatloaf, Wynton Marsalis, John Mellencamp, Keith Richards, Chuck Berry, Guns N' Roses, Whitney Houston, Pavarotti, INXS, James Taylor, Emmylou Harris, Shawn Colvin, Billy Ray Cyrus, Mary Chapin Carpenter, Trisha Yearwood and Harry Connick Jr. Our reputation speaks for itself!



The Sound Lab

1006 E. Guadalupe
Tempe, AZ 85283
(602) 345-0906; Fax (602) 345-6966
e-mail: thesoundlab@compuserve.com

Located ten minutes from the Phoenix airport, Arizona's finest audio facility features a Neve VRP 48-channel console with Flying Faders Automation, Studer A827 2-inch 24-track, Otari 32-track digital DTR900 and 32 tracks of ADAT XT. Our Yamaha concert grand, vintage Neumann and AKG tube mics, Gretsch drum kit, along with the finest in outboard gear provide a selection without compromise. Enjoy working with experienced professionals in a relaxed atmosphere with Arizona's world-class amenities nearby! Package rates available on hotel, car and studio time. Highest quality at the best price.

COLOSSAL

MASTERING, LTD.

Colossal Mastering

1644 North Honore #101
Chicago, IL 60622
(773) 292-1692; Fax (773) 292-1698
(800) 730-2468
e-mail: cmastering@aol.com

World-class mastering coming to Chicago. Colossal Mastering's new state-of-the-art facility is home to the finest equipment and services in the region. From custom discrete analog to precise 24-bit digital, names like Sonic Solutions, Manley, Avalon and Weiss are used to realize the full potential of your project. Clients include Styx, The Smithereens, CSO principal oboist Alex Klein, Sonia Dada, Ella Jenkins, Enuff-Z'Nuff and Brother 6.

QUAD

Recording Studios

Quad Recording Studios

723 7th Ave.
New York, NY 10019
(212) 730-1035; Fax (212) 730-1083
<http://www.quadstudios.com>

Quad Recording is excited to announce the opening of its Penthouse studio, beautifully designed as a tracking and mixing room and featuring a 96-input SSL G+ with Ultimatum. Opening up a fifth studio is a wonderful way for Quad to celebrate its twentieth anniversary. Studios A and III each have an SSL 9000J console, making Quad the only facility in New York with two of them. Studios B and C each have SSL 4000E consoles with G Series computers and Total Recall.

UMC
Ultimate music corporation

Ultimate music corporation

40 Lopez Avenue
Cambridge, MA 02141
(617) 576-2855; Fax (617) 576-8094
e-mail: info@U-music.com
<http://www.U-music.com>

A two-room digital music production facility located near Boston, featuring Otari and Tactile Technology consoles. We offer up to 96 tracks of tape and disk-based multitrack recorders including Sony 3324, RADAR, ADAT, DA-88 and Pro Tools. All rooms are fitted with world-class outboard gear from Focusrite, Avalon, Manley, API and an extensive collection of new and vintage keyboards. All this set in a relaxed and elegant environment. Call for our brochure or additional information.

The ClubHouse



The ClubHouse

PO Box 373
Germantown, NY 12526
(518) 537-6305; Fax (518) 537-5829
<http://www.clubhouseinc.com>



Gallery Recording Studios

132 West 22nd Street, 6th Floor
New York, NY 10011
(212) 366-6640; Fax (212) 727-7187
e-mail: claysmash@aol.com

It's a recording studio and an art gallery! A beautifully designed, spacious facility with outstanding acoustics, based in the heart of Manhattan. The best in vintage/modern gear and an inspiring atmosphere enhanced by ever-changing exhibits of striking modern artwork. Built to spoil the most demanding engineer, producer or musician. Some names: SSL 6064 w/ Total Recall, Studer 827S, Lexicon, Quedst, Pro Tools, DA-88s, Focusrite, Neve, Summit, Pultec, TC, Neumann, Steinway.

American Holly Studios

American Holly On the Park

139 Calhoun Street
Charleston, SC 29401
(843) 577-0780; Fax (843) 577-0067
e-mail: a.holly@Dyncon.com
<http://www.americanholly.com>

Three brand-new studios with 56-ch Cadac & 24-ch MCI consoles, 48-tk/96-tk hard disk (Akai) and linear digital (ADAT), plus 2-inch 24/16-tk, all formats. Also, outboard by Avalon, T.C., Bellari, Aneus Melcor, ADM, Neve, ART, dbx; monitors by JBL, Altec, UREI, Yamaha (Crown, Audio Techniques amps); Korg Trinity, Kawai EP 308, Weber grand. Downtown, beaches, entertainment, hotels, restaurants. Control rooms A&B linked to mix studios and mix room via fiber optics. Liquid Audio uplink.



Lobo Recording

2103 Deer Park Ave.
Deer Park, NY 11729
(516) 242-0266 or (516) 243-2983
Fax (516) 243-3964
e-mail: music@loborecording.com
<http://www.loborecording.com>

Located 35 minutes east of NYC, Lobo Recording is the place to achieve your creative goals. Recent acquisitions include an SSL 9096J, Neve VR 72, Studer D827 and Yamaha C7 Grand Piano. Other equipment includes Amek Angela IIs, Studer A827s, A80s, ADAT XT's 64 tracks and an extensive list of microphones and outboard gear. Please call for more info.

Sheffield

AUDIO-VIDEO PRODUCTIONS

SSL / DIGITAL / ANALOG

Sheffield Remote Recordings

13816 Sunnybrook Rd.
Phoenix, MD 21131
(800) 672-3220 or (410) 328-7260
e-mail: sheffield@sheffieldav.com
<http://www.sheffield@sheffieldav.com>

Sheffield is America's largest SSL recording truck. This is not just a remote truck, it is a complete audio facility. Add to this the best crew in the remote business. Partial credits include The Grammy Awards, MTV Music Awards, Live from the House of Blues and Aerosmith.



Showplace Studios

347 South Solem St.
Daver, NJ 07801
(973) 328-4400; Fax (973) 328-4933
<http://www.showplocestudios.com>

48-track analog recording, featuring Studer A800. One of the largest collections of awesome vintage gear anywhere. Mixdown Studer A820 1/2-inch 2-track and automated Amek console featuring all Neve modules. Top-quality sound and staff at reasonable rates. Large live room, stone area and iso booths. Great vibe, gear and experience brings your music to its full potential. Showplace Studios—where the past meets the future. Neve, Pultec, RCA, Teletronix, UREI, Neumann, Helios, EMT, Lexicon, Tubetech, Langevin, etc.



Troposphere Studios

One Maylon Place
Livingston, NJ 07039
(973) 994-2990; Fax (973) 994-2965
e-mail: troposphere@gorden.net
<http://www.garden.net/users/troposphere>

Conveniently located in northeast N.J., just 20 miles outside of NYC, Troposphere Studios offers its clients a huge, 7,000-sq.-ft., acoustically tuned facility designed for tracking, mixing, and film or video lockup. We feature an SSL 4048 G+ Series console with Total Recall, an Otari MTR 90II 2-inch 24-track, and a large selection of microphones and outboard gear. Our spacious iso booths and 38x40-foot live room also offer comfort to the performer. In short, Troposphere Studios is one of a kind.



THE PROFESSIONAL'S SOURCE FOR PHOTO,

FOR ORDERS CALL:

800-947-5508
212-444-6698

OR FAX (24 HOURS):

800-947-9003
212-444-5001

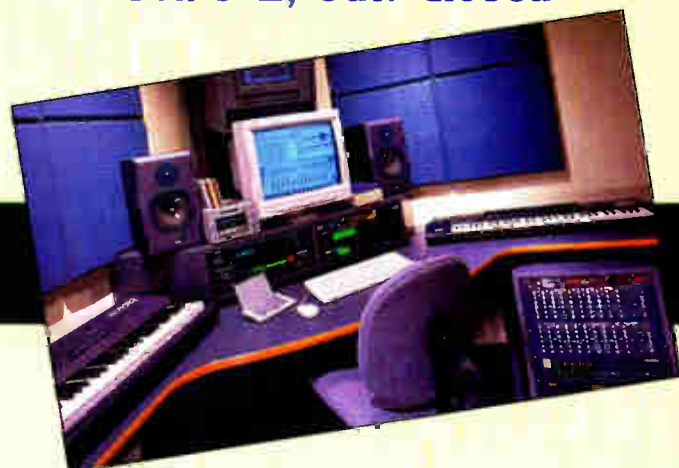
Store & Mail Order Hours:
Sunday 10-5
Monday thru Thursday 9-7
Friday 9-2 • Saturday Closed
On the Web: <http://www.bhphotovideo.com>

OUR NEW EXPANDED LOCATION



420 Ninth Avenue
Between 33rd and 34th Streets
New York, N.Y. 10001

Sun. 10-5, Mon. thru Thurs. 9-7
Fri. 9-2, Sat. Closed



FOR A FREE MONTHLY CATALOG, CALL 800-947-6983, 212-444-6633 OR WRITE

World Radio History



TO INQUIRE ABOUT YOUR ORDER:
 800 221-5743 • 212 239-7765
 OR FAX 24 HOURS:
 800 947-2215 • 212 239-7549

New Address:
 420 Ninth Ave. (Bet. 33rd & 34th St.)
 New York, N.Y. 10001

DIGITAL MIXERS



Digital 8 Bus Mixing Console



Well, it's finally here and just like the analog 8 bus a few years back, it's everything you've anticipated! Great sound quality, full recording and mixdown capabilities, motorized faders and an array of digital features geared to take you flying into the next century.

- FEATURES-**
- 48 channels of automated compression, gating, EQ and delay
 - Built in 3-way meter display keeps you on top of your mix.
 - Built-in meter bridge.
 - Ultramix II automation for complete control, hook up an S-VGA monitor and you'll feel like you spent a lot more money.
 - All functions can be automated, not just levels and mutes. Store EQ, reverb, compression, gating and even Aux send information.
 - Fast SCENE automation allows you to change parameter snapshots on every beat.
 - Reads Standard MIDI tempo maps, displaying clock info on the built-in position counter.
 - Truly the cutting edge of mixing technology.



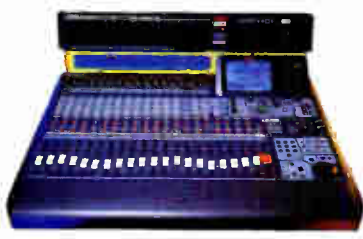
Panasonic

WR-DA7 Digital Mixing Console



Stop dreaming about your digital future, it's here! The Panasonic WR-DA7 digital mixer features 32-bit internal processing combined with 24-bit A/D and D/A converters as well as moving faders, instant recall, surround sound capabilities, and much more. Best of all, it's from Panasonic.

- FEATURES-**
- 32 Inputs/6 AUX send/returns
 - 24-bit converters
 - Large backlit LCD screen displays EQ, bus and aux assignments, and dynamic/delay settings.
 - 4-band parametric EQ
 - Choice of Gate/Compressor/Limiter or Expander on each channel
 - 5.1 channel surround sound in three modes on the bus outputs
 - Output MMC
 - Optional MIDI joystick



TASCAM

TMD1000 Digital Mixing Console



You want to see what all the digital mixing buzz is about? The NEW TMD1000 from Tascam will have you smiling & automating in no time. It features fully automated EQ, levels, muting, panning and more in an attractive digital board with an analog "feel". Your digital future never looked, or sounded, so clear.

- FEATURES-**
- 4 XLR mic inputs, 8 1/4" balanced TRS inputs.
 - 20-bit A/D D/A conversion, 64x oversampling on input, 128x on output.
 - Store all settings, fully MIDI compatible.
 - Optional IF-TD1000 adds another 8 channels of TDIF and a 2-channel sample rate converter.
 - Optional FX-1000 Fx board adds another 4 dynamic processors and another pair of stereo effects.



MIC PREAMPS

Focusrite

Green 3 "Voicebox MKII"



The Voicebox MKII provides a signal path of exceptional clarity and smoothness for mic recording combining an ultra-high quality mic amp, an all new Focusrite EQ section optimized for voice, and full Focusrite dynamics. The new MKII now includes a line input for recording and mixdown applications.

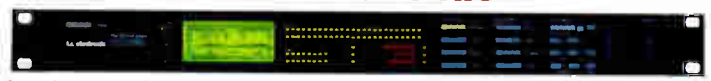
- FEATURES-**
- Same mic pre section as found on the Green Dual Mic Pre includes +48V phantom power, phase reverse, and a 75Hz high-pass filter. Mute control and a true-VU response LED bargraph are also provided.
 - EQ section includes a mid parametric band with frequency and gain control as well as a gentle bell shape to bring out the character of the voice.
 - Dynamics section offers important voice processing functions of compression and de-essing combined with a noise reducing expander.
 - Single balanced Class A VCA delivers low distortion and a S/N ratio as low as 96dBu



EFFECTS PROCESSING

t.c. electronic
 ULTIMATE SOUND MACHINES

Finalizer Plus



Improving on the multi-award winning Finalizer platform, The Finalizer Plus delivers an unprecedented level of clarity, warmth and punch to your mix. Inserted between the stereo output of your mixer or workstation and your master recording media, the Finalizer Plus dramatically rounds out your material, creating that "radio ready" sound.

- FEATURES-**
- Balanced Analog as well as Digital outputs including AES/EBU, S/PDIF & TOS.
 - 24-bit precision A/D & D/A Converters
 - 5-band 24-bit stereo EQ
 - Enhance - De-essing, stereo adjust or digital radiance
 - Real-time gain maximizer
 - Variable slope multi-band expander
 - Multi-band compressor
 - Word Clock Sync
 - MIDI section useful for controlling sequencer takes or any of the Finalizer's parameters from a remote MIDI controller.

Lexicon

PCM81 Multi-Effects Processor



The PCM-81 has everything that made the PCM80 the top choice among studio effects processors, and more. More effects, more algorithms, longer delay and full AES/EBU I/O.

- FEATURES-**
- 300 Presets include pitch, reverb, ambience, sophisticated modulators, 20 second stereo delays, and dynamic spatialization effects for 2-channel or surround sound applications
 - 2 digital processors including Lexicon's Lexchip for the reverb and a second DSP engine for the other effects.
 - 24-bit internal processing
 - Dynamic patching matrix for maximum effects control.
 - PCM card slot

EQUALIZERS

Focusrite

Green 2 "Focus EQ"



The Green 2 Focus EQ is suitable for a variety of applications combining a Focusrite equalizer section with a multi-source input section. Use it as a high-quality front end for recording applications or patch it into the send/return loop to upgrade a single channel of console eq, either way, it sounds great.

- FEATURES-**
- XLR & 1/4" inputs are similar to the Dual Mic Pre but have been adapted to cope with a wider range of levels.
 - VU metering via a 10-LED bargraph
 - EQ section derived from the Red and Blue range processors for superb audio quality.

COMPRESSORS

JOE MEEK

VC1 Studio Channel



The Joe Meek Studio Channel offers three pieces of studio gear in one. It features an excellent transformer coupled mic preamp, a great compressor and an enhancer unit all in a 2U rackmount design. Find out why more and more studio owners can live without one.

- FEATURES-**
- 48V phantom power, Fully balanced operation
 - Mic/Line input switch
 - Mono photo-optical compressor
 - High pass filter for large diaphragm mics
 - Extra XLR input on front makes for easy patching
 - Compression In/Out and VU/compression meter switches
 - Twin balanced XLR outputs with one 1/4" XLR output for stage use
 - Enhancer In/Out switch and enhance indicator
 - Internal power supply 115/230V AC

dbx

Blue Series 160S Stereo Compressor



- FEATURES-**
- 127dB dynamic range • Program dependent "Auto", or fully variable attack and release
 - Hard knee/OverEasy switchable.



THE PROFESSIONAL'S SOURCE FOR PHOTO,

FOR ORDERS CALL:
800-947-5508
212-444-6698

OR FAX (24 HOURS):
800-947-9003
212-444-5001

**MOST ORDERS SHIPPED
 WITHIN 24 HOURS**
OVERNIGHT SERVICE AVAILABLE

On the Web: <http://www.bhphotovideo.com>

HARD DISK RECORDERS



New

VS1680 Digital Production Studio

The new VS-1680 Digital Studio Workstation is a complete 16 track, 24-bit recording, editing, mixing and effects processing system in a compact tabletop workstation. With its advanced features, amazing sound quality and intuitive new user interface, the VS-1680 can satisfy your wanderlust.

FEATURES-

- 16 tracks of hard disk recording, 256 virtual tracks.
- 24-bit MT Pro Recording Mode for massive headroom and dynamic range.
- Large 320 x 240 dot graphic LCD provides simultaneous level meters, playlist, EQ curves, EFX settings, waveforms and more.
- 20-bit A/D D/A converters
- 2 optional 24-bit stereo effects processors (VS8F-2) provide up to 8 channels of independent effects processing.
- 12 audio outs: 8x RCA, 2x stereo digital & phones.



- New EZ routing function allows users to create and save various recording, mixing, track bouncing, and other comprehensive mixer templates for instant recall.
- 10 audio inputs: 2 balanced XLR-type inputs w/ phantom power, 6 balanced 1/4" inputs, and 1 stereo digital input (optical/coaxial)
- Direct audio CD recording and data backup using optional VS-CDR-16 CD recorder.

CD RECORDERS



CDR-800 Compact Disc Recorder

The new CDR-800 Compact Disc Recorder from HHB is built rock-steady for the best recording on this widely accepted format. You can record direct from either analog or digital sources and it comes loaded with features, making it ideal for professional studios looking to output quality CDs.

FEATURES-

- Built-in Sample rate converter
- Analog and digital inputs and outputs



- 1-bit A/D converters for lowest possible distortion
- Synchronized recording and editing
- Digital fader for natural fade-in and fade-out.

STUDIO DAT-RECORDERS



SV-3800 & SV-4100

The SV-3800 & SV-4100 feature highly accurate and reliable transport mechanisms with search speeds of up to 40x normal. Both use 20-bit D/A converters to satisfy even the highest professional expectations. The SV-4100 adds features such as instant start, program & cue assignment, enhanced system diagnostics, multiple digital interfaces and more. Panasonic DATs are found in studios throughout the world and are widely recognized as the most reliable DAT machines available on the market today.

FEATURES-

- 64x Oversampling A/D converter for outstanding phase characteristics
- Search by start ID or program number
- Single program play, handy for post.



- Adjustable analog input attenuation, 44/10dBu
- L/R independent record levels
- Front panel hour meter display
- 8-pin parallel remote terminal
- 250x normal speed search



D8 Digital Recording Studio

New

The new D8 Digital Recording Studio features an 8-track recorder, a 12-channel mixer, onboard effects, and basically everything else you'll need to record and mix your music, you supply the talent.

FEATURES-

- 8-track recorder, 12-channel mixer.
- 1.4GB hard disk for up to 4.5 hours of recording on a single track.
- High and low EQ on each channel
- 130 high-quality stereo digital effects for complete recording in the digital domain.
- MIDI clock sync, SCSI port and S/PDIF digital interfaces all standard.



DIGITAL MULTI-TRACK RECORDERS

TASCAM DA-98 Digital Audio Recorder

The DA-98 takes all the advantages offered by the DTRS format and significantly ups the ante for the professional and post-production professional alike. With enhanced A/D and D/A converters, a comprehensive LCD display and full compatibility with the DA-88 and DA-38, the DA-98 delivers the absolute best in digital multitrack functionality.

FEATURES-

- Confidence monitoring for playback and metering
- Individual input monitor select switch facilitates easier checking of Source/Tape levels
- Switchable reference levels for integration into a variety of recording environments with internal tone generator
- Digital track copy/electronic patch bay functionality
- Comprehensive LCD display for easy system navigation
- Dedicated function/numeric keys make operation easier
- Built-in sync with support for MMC and Sony P2
- D-sub connector (37-pin) for parallel interface with external controller
- Optional RM-39 rack-mount ear for use with Accuride 200 system



DA-88 A standard digital multitrack for post-production and winner of the Emmy award for technical excellence, the DA-88 delivers the best of Tascam's Hi-8 digital format. Its Shuttle/Jog wheel and track delay function allow for precise cueing and synchronization and the modular design allows for easy servicing and performance enhancements with third-party options.

DA-38 The DA-38 was designed for musicians. Using the same Hi-8 format as the highly acclaimed DA-88, the DA-38 is an 8 track multitrack design that sounds great. It features an extremely fast transport, compatibility with Hi-8 tapes recorded on other machines, rugged construction, ergonomic design and sync compatibility with DA-88s.



ADAT XT20 Digital Audio Recorder

New

The New ADAT-XT20 provides a new standard in audio quality for affordable professional recorders while remaining completely compatible with over 100,000 ADATs in use worldwide. The XT20 uses the latest ultra-high fidelity 20-bit oversampling digital converters for sonic excellence, it could change the world.

FEATURES-

- 0-point autofocus system
- Dynamic Braking software lets the transport quickly wind to locate points while gently treating the tape.
- Remote control
- Servo-balanced 56-pin ELCO connector.
- Built-in electronic patchbay
- Copy/paste digital edits between machines or even within a single unit. Track Copy feature makes a digital clone of any track (or group of tracks) and copies it to any other track (or group) on the same recorder.



TASCAM DA-30MKII

A great sounding DAT, the DA-30MKII is a standard mastering deck used in post-production houses around the world. Among many other pro features, its DATA/SHUTTLE wheel allows for high-speed cueing, quick program entry and fast locating.

FEATURES-

- Multiple sampling rates (44, 44.1, and 32kHz).
- Extended (4-hour) play at 52kHz.
- Digital I/O featuring both AES/EBU and S/PDIF.
- XLR balanced and RCA unbalanced connections.
- Full function wireless remote.
- Variable speed shuttle wheel.
- SCMS-free recording with selectable ID.
- Parallel port for control I/O from external equipment.



Fostex D-15

The new Fostex D-15 features built in 8Mbit of RAM for instant start and scrubbing as well as a host of new features aimed at audio post production and recording studio environments. Optional expansion board can be added to include SMPTE and RS-422 compatibility, allowing the D-15 to grow as you do.

FEATURES-

- Hold the peak reading on the digital bargraphs with a choice of 5 different settings
- Set cue levels and cue times
- Supports all frame rates including 30df
- Newly designed, 4-motor transport is faster and more efficient (120 minute tape shuttles in about 60 sec.)
- Parallel interface • Front panel trim pots in addition to the level inputs

D-15TC & D-15TCR

The D-15TC comes with the addition of optional chase and sync capability installed. It also includes timecode reading and output. The D-15TCR comes with the further addition of an optional RS-422 port installed, adding timecode and serial control (Sony protocol except vari-speed)



SONY PCM-R500

Incorporating Sony's legendary high-reliability 4D.D. Mechanism, the PCM-R500 sets a new standard for professional DAT recorders. The Jog/Shuttle wheel offers outstanding operational ease while extensive interface options and multiple menu modes meet a wide range of application needs.

FEATURES-

- Set-up menu for preference selection. Use this menu for setting ID6, level sync threshold, date & more. Also selects error indicator.
- Includes 8-pin parallel & wireless remote controls
- SBM recording for improved S/N (Sounds like 20bit)
- Independent L/R recording levels
- Equipped with auto head cleaning for improved sound quality.



TO INQUIRE ABOUT YOUR ORDER:
800 221-5743 • 212 239-7765
OR FAX 24 HOURS:
800 947-2215 • 212 239-7549

New Address:
420 Ninth Ave. (Bet. 33rd & 34th St.)
New York, N.Y. 10001

MIDI HARDWARE



**Mark of the Unicorn
MIDI
Time Piece™ AV
8x8 Mac/PC MIDI Interface**

The MTP AV takes the world renowned MTP II and adds synchronization that you really need like video genlock, ADAT sync, word clock sync, and even Digidesign superclock!

- FEATURES-**
- Same unit works on both Mac & PC platforms.
 - 8x8 MIDI merge matrix, 128 MIDI channels.
 - Fully programmable from the front panel.
 - 128 scene, battery-backed memory.
 - Fast 1x mode for high-speed MIDI data transfer.

**Digital
Time Piece™
Digital Interface**



Think of it as the digital synchronization hub for your recording studio. The Digital Timepiece provides stable, centralized sync for most analog, digital audio, and video equipment. Lock together ADATs, DA-88's, ProTools, word clock, S/PDIF, video, SMPTE, and MMC computers and devices flawlessly. It ships with "Clockworks" software which gives you access to its many advanced features and remote control of some equipment settings such as record arm.

OPCODE

**Studio 64XTC
Mac/PC MIDI Interface**



The Studio 64XTC takes the assorted, individual pieces of your studio-your computer, MIDI devices, digital and analog multitracks and even pro video decks, and puts them all in sync.

- FEATURES-**
- 4 In / 4 Out, 64 channel MIDI/SMPTE interface/patchbay with powerful multitrack & video sync features
 - ADAT sync with MIDI machine control
 - Simultaneous wordclock and Superclock output, 44.1kHz or 48kHz for perfect sync with ADAT, DA-88 and ProTools
 - Video and Blackburst in (NTSC and PAL)
 - Cross-platform Mac and Windows compatibility

SAMPLING

**AKAI
S-Series
Rack Mount Samplers**

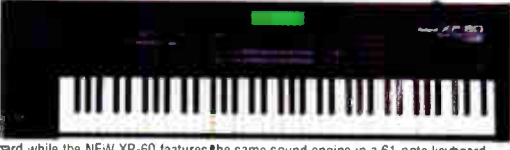


Starting with 64X oversampling, Akai's S-Series Samplers use 28-bit internal processing to preserve every nuance of your sound and the outputs are 18- and 20-bit to ensure reproduction of your sounds entire dynamic range. These three new samplers add powerful capabilities, ease-of-use, expandability and affordability to set the standard for professional samplers.

KEYBOARDS & SOUND MODULES



XP60 & XP80 Music Workstations



The XP-80 delivers everything you've ever wanted in a music workstation. An unprecedented collection of carefully integrated features provide instant response, maximum realtime control and incredible user expandability. The XP-80 features a pro-quality 76-note weighted action keyboard while the NEW XP-60 features

XP80 FEATURES-

- 64-voice polyphony and 16-part multitimbral capability
- 16 Mbytes of internal waveform memory, 80Mbytes when fully expanded (16-bit linear format)
- 16-track MRC-pro sequencer with direct from disk playback. Sequencer holds approx. 60,000 notes
- New sequencer functions like "non-stop" loop recording and refined Groove Quantize template

- The same sound engine in a 61-note keyboard.
- Enhanced realtime performance capability with advanced Arpeggiator including MIDI sync and guitar strum mode and Realtime Phrase Sequence (RPS) for on-the-fly triggering of patterns
- 40 insert effects in addition to reverb and chorus
- 2 pairs of independent stereo outputs; click output jack with volume knob
- Large backlit LCD display

SR-JV80 Series Expansion Boards

Roland's SR-JV80-Series wave expansion boards provide JV and XP instrument owners a great-sounding, cost-effective way to customize their instruments. Each board holds approx. 8Mb of entirely new waveforms, ready to be played or programmed as you desire

Boards Include-

- Pop, Orchestral, Piano, Vintage Synths, World, Super Sound Set, Keys of the 60's & 70's, Session, Bass & Drums, Techno & Hip-Hop Collection.



KURZWEIL

K2500 Series Music Workstations

The K2500 series from Kurzweil utilizes the acclaimed V.A.S.T. technology for top-quality professional sound. Available in Rack mount, 75-key, and 88 weighted key keyboard configurations, these keyboards combine ROM based samples, on-board effects, V.A.S.T. synthesis technology and full sampling capabilities on some units.

FEATURES-

- True 48-voice polyphony
- Fluorescent 64 x 240 backlit display
- Up to 128MB sample memory
- Full MIDI controller capabilities
- 32-track sequencer
- Sampling option available
- Dual SCSI ports
- DMi Digital Multitrack interface option for data format and sample rate conversion (Interfaces with ADATs or DA-88s)



KORG

Trinity Series Music Workstations DRS

Korg's Trinity Series represents a breakthrough in sound synthesis and an incredible user interface. It's touch-screen display is like nothing else in the industry, allowing you to select and program patches with the touch of a finger. The 24MB of internal ROM are sampled using ACCESS which fully digitizes sound production from source to filter to effects. Korg's DSP based Multi Oscillator Synthesis System (MOSS) is capable of reproducing 5 different synthesis methods like Analog synthesis, Physical Modeling, and variable Phase Modulation (VPM).

FEATURES-

- 16 track, 80,000 note MIDI sequencer
- Flexible, assignable controllers
- DRS (Digital Recording System) features a hard disk recorder and various digital interfaces for networking a digital recording system configured with ADAT, DAT recorder and hard disk
- 256 programs, 256 combinations
- Reads KORG sample DATA library and AKAI sample library using optional 8MB Flash ROM board



- 88 Weighted-key/Solo Synth
- 76-key/Solo Synth
- 61-key/Solo Synth
- 61-key

**(Digital IF, SCSI, Hard Disk Recorder, and sample Playback/Flash ROM functions are supplied by optional upgrade boards)*

MONITORS

**Hafler
TRM-8**

Winner of Pro Audio Review's PAR Excellence Award in 1997, Hafler's TRM8s provide sonic clarity previously found only in much more expensive speakers. They feature built-in power, an active crossover, and Hafler's patented Trans-noval power amp circuitry.

- 45Hz - 21kHz, ±2dB
- 75W HF, 150W LF
- Electronically & Acoustically matched



MACKIE

HR824

These new close-field monitors from Mackie have made a big stir. They sound great, they're affordable, they're internally bi-amped. "What's the catch?" Let us know if you find one.

FEATURES-

- 150W Bass amp, 100W Treble amp
- Full space, half space and quarter space placement compensation
- Frequency Response 39Hz to 22kHz, ±1.5dB



**TANNOY
Reveal**

The latest playback monitor from Tannoy, the Reveal has an extremely detailed, dynamic sound with a wide, flat frequency response.

FEATURES-

- 1" soft dome high frequency unit
- Long throw 6.5" bass driver
- Magnetic shielding for close use to video monitors
- Hard-wired, low-loss crossover
- Wide, flat frequency response
- Gold plated 5-way binding post connectors



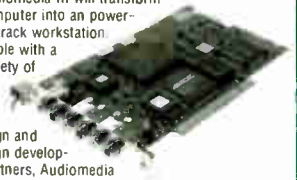
SOUND CARDS



A Division of Avic Technology, Inc

**Audiomedia III
Digital Audio Card**

Working on both Mac and Windows OS systems, Audiomedia III will transform your computer into an powerful multitrack workstation. Compatible with a wide variety of software options from Digidesign and Digidesign development partners, Audiomedia III features 8 tracks of playback, up to 4 tracks of recording, 24-bit DSP processing, multiple sample rate support and easy integration with leading MIDI sequencer/DAW software programs.



Ad Index & Advertiser

PAGE	PRODUCT INFO NUMBER	ADVERTISER
152	107	Aardvark
44	025	acoustic
168	117	Acoustic Sciences Corporation (ASC)
106	071	Acoustic Systems
63	038	Acoustical Solutions
162	111	Acoustics First
39	022	AcousticX
170	120	ADK
111	074	AKG
IFC	001	Alesis (M20)
149	103	Alesis (Wedge)
169	119	AlterMedia
11	006	AMS Neve (Capricorn)
54	033	AMS Neve (V-Rack)
201	149	Antares
100	064	Anthony DeMaria Labs
26	*	Anthro
57	035	Aphex Systems
32-33	016	Apogee Electronics (AD-8000)
204	154	Apogee Electronics (Session Tools)
216	165	Applied Microphone Technology
38	021	Applied Research & Technology (ART)
110	073	Ashly
122	084	Athan
71	044	Audio Centron
99	063	Audio-Technica
220-3	169	B & H Photo-Video
34	017	BASF
124	086	Belden Wire & Cable
88	059	Benchmark Media Systems
120	081	BGW
127	089	BSS
46	027	Burlington A/V Recording Media
137	094	Burlington A/V Recording Media #2
69	042	CAD
196	143	CAIG Laboratories
55	034	Cakewalk Music Software
142	096	Calrec Audio
217	167	CalSwitch
179	127	Caruso Music
107	072	Carver Professional
227	170	CMS Mastering
112	075	Conservatory of Recording Arts & Sciences
163	113	D & R USA
152	108	The DAT Store
53	024	dbx Professional Products (TYPE IV)
147	101	dbx Professional Products (Silver Series)
17	009	Digidesign (Plug-In)
73	045	Digidesign (ProControl)
18-19	010	DigiTech
150	104	Disc Makers
52	031	Dolby
45	030	Drawmer/Transamerica Audio Group
63	039	Dreamwire
146	100	EAR Professional Audio/Video
176	123	Earthworks
40-41	012	Electro-Voice (EV)
43	032	Emagic

PAGE	PRODUCT INFO NUMBER	ADVERTISER
37	020	Ensoniq
181	131	Equi=Tech
173	122	Euphonix
188	135	Europadisk
65	041	Event Electronics (Layla)
165	114	Event Electronics (DSP+FX)
202	150	Eventide
183	132	EVI Professional Audio Group
114	079	Flatworks
101	*	Fostex
144	093	Full Compass
148	102	Full Sail
35	018	Furman Sound
126	088	Gefen Systems
114	078	Gepco
102	066	Glyph Technologies
198	145	Grace Design
86	056	Grandma's Music & Sound
217	168	Guitar Center's Rhythm City
51	026	Hafler
113	077	Hannay Reels
151	106	Hermes Music
83	053	HHB Communications (CDR800)
177	124	HHB Communications (Genex)
150	105	The Hollywood Edge
190	137	The Hollywood Edge #2
216	166	illbruck
104	068	Institute of Audio Research
112	076	Intelix
8C	172	JBL Professional
84	054	Joemeek/PIII
214	163	The John Hardy Company
81	051	Kurzweil Music Systems
210	157	L&M Music
200	148	Lawson Microphones
133	090	Level Control Systems
25	013	Lexicon
14-15	008	Mackie (HR824)
IBC	171	Mackie (HUI)
76	047	Manley Laboratories
200	147	MartinSound
77	048	Me Ah Electrical
179	126	MediaForce
215	164	MediaFORM
21	011	Meyer Sound
145	099	Micro Technology Unlimited (MTU)
96	062	MIDIMAN
121	082	Miles Technology
178	125	Minnnetonka Software
166	115	Musician's Friend
106	070	National Sound and Video
13	007	Neumann/USA
206	155	Northeastern Digital
85	055	Otari
75	*	Panasonic (WR-DA7)
171	*	Panasonic (Pro-DAT)
103	067	Peavey
74	046	ProSound & Stage Lighting
212	161	QCA

PAGE	PRODUCT INFO NUMBER	ADVERTISER
6-7	004	QSC Audio Products
9	005	Quantegy
134	091	RADIAL
48-49	028	Record Plant Recording Studios
181	130	The Recording Workshop
115	080	Renkus-Heinz
212	160	Rich Music
203	151	Rocket Lab
82	052	Rolls
80	050	Sabine
192	*	Sam Ash Professional
199	146	School of Audio Engineering (SAE)
136	098	SEK'D
121	083	Sensaphonics
125	087	Shure
195	142	Simon Systems Engineering
1	*	Solid State Logic (SSL)
96-97	*	Solid State Logic (SSL) #2
141	*	Solid State Logic (SSL) #3
193	140	Sonic Foundry
62	037	Sound Ideas
79	049	Soundcraft
207	156	Soundscape Digital
189	136	Speck Electronics
203	152	Spir Music
22-23	023	Spirit
211	159	Stanford Research Systems
61	036	Studer Professional Audio Equipment
180	128	Studio Consultants
180	129	Studio Technologies
27	014	Sweetwater Sound
91	061	Sweetwater Sound #2
135	092	Switchcraft
172	121	TAD/Technical Audio Devices
3	003	Tannoy
28-29	015	Tascam
105	069	Taxi
70	043	Taytrix
47	028	TC Electronic (Gold Channel)
64	040	TC Electronic (True Tubes)
194	141	THAT Corp.
169	118	Thoroughbred Music
36	019	TlAudio/Sascom Marketing
204	153	Troisi Design
191	162	Village Recorders
87	058	Waves
86	057	Wenger
162	112	West L.A. Music
187	134	Westlake Audio
158	110	Whirlwind
210	158	Whisper Room
186	133	X Wire
2	002	Yamaha (01V digital mixer)
89	060	Yamaha (DSP Factory)
123	085	Yamaha (PM Series)
143	097	Yamaha (D2R Version 2)
155	109	Yamaha (GA Consoles)
213	138	Yamaha (Disklavier)
197	144	Yorkville

—FROM PAGE 20, TIPS FROM SPACE...

drive the outputs of this gear usually cost about 15 to 35 cents a pop. And pop is the operative word here. These little drivers are usually not drivers at all but just the same op amp that is used in the general circuitry. They are not high-current devices and will definitely fry if their outputs are shorted. So -10 gear often has a series resistor on its outputs to save you from driving a dead short and thereby applying death to the little chips. This is fine, but the problem is that this high source impedance (usually in the range of 2 to 10k, but sometimes as high as 33k or so) makes the cable from that output very susceptible to noise. Don't forget that this standard has absolutely everything else going against it as well—it is unbalanced, and the signal is 14 dB lower than pro.

The following will cut hiss, noise and even a little hum, and will even flatten frequency response. It will also minimize changing audio characteristics as you patch from piece to piece. So here's what you do, listed in order of increasing radicality:

1) Remove the 10 to 33k output resistors and replace them with 5k types. This is pretty safe and shouldn't strain the output current capabilities of the toy drivers.

2) Remove those 10 to 33k's and replace them with 1k's. This is not as safe and might strain the toy drivers if you try to drive a short. Your decision.

3) Remove those pesky output resistors and replace them with 600-ohms. This is not safe at all. This is what I do.

Please note that not all MI gear has these 10 to 33k output series resistors. If you do find 33k, laugh and replace. If you find 5k, 2k or even 1k, maybe you should leave it alone. Maybe not.

4) Now, if you have made one of the mods listed above, make the same mods to the inputs of your -10 gear. For example, if you went for the 1k output resistor mod, change that 10k input summing resistor to 1k, too. This is number 4 in the ascending radical list because you may also have to change the op amp's feedback resistor in order to preserve the original gain structure. And then in some circuits, you may have to change a cap, too—but probably not. Again, you might want to get a tech to help if you are not experienced in this type of hardware abuse. Note that if you went for numbers 2 or 3 in combination with 4, you will have non-

standard impedances and less-than-factory output current protection. You will also have much quieter and better-sounding gear.

5) If you have -10 gear that you really love, you can go the whole route; do all the resistor mods and then gain stage the drivers and receivers for +4. This works great if you have serious line noise problems but don't want to spend the bucks (or dedicate the space) for unbalanced to balanced converters. Just check the driver amp for its current and voltage swing specs. (Most of them can actually pull this off if you chose 1 to 2k as your source and receive impedances.) Frequency compensation issues may apply. Void in Ohio.

6) This is one of my all-time favorite tricks. Gear at -10 often ground-loops and hums no matter what you try or how much you spend chasing it. For this you simply open the gear, chain-saw away all of the ground traces to its output RCAs, and stick a 100-ohm resistor in series with the ground. This made number 6 in the list because it may require some severe hacking to isolate any RCAs that may be mounted directly to the chassis, as in older gear. Newer gear often uses PC-mount jacks; making this is a piece of low-fat cake.

Now if you have a lot of gear with this problem, you may want to do what I did. I finally built a 24-jack ¼-inch unbalanced patchbay with these ground isolation resistors built in. This way, I can just patch in any offending gear.

And now some general tweaks. These apply to any and all audio gear.

7) Any gear that uses the popular "three-legged" voltage regulators in its linear power supply will benefit considerably by the following hacks:

- Stick very fast .1 and .01 microfarad caps on the outputs of these regulators (output to ground). This stops high-frequency oscillations that generate trash on your voltage rails. This is often good for a couple of dB increase in overall S/N.

- And try this if you are brave. Heat-sink those babies, big time! The colder they run, the quieter your studio. Really! When I was developing the Marshall Time Modulator 300 years ago, I got 97dB dynamic range with those regulators sitting on the board using typical heat-sink wings. Somewhere in the first year of production, I discovered that bolting them directly to the chassis dropped their operating temperature to almost ambient and got me a solid 6dB dynamic range improvement! That's 103 dB!

This is because they do NOT like to

be hot. If they are hot (the way almost every device runs them) they spew lots of thermal noise onto your rails.

8) Open your gear up and listen to the output. Stick .01 monolithic caps on the rails to ground wherever you see a place to try it. Every time one lowers output noise, solder it in. (Turn off the gear before you solder, unless you are looking for an excuse to update it with a newer replacement.) Since it is very easy to short a rail by accident, this is number 8 in the danger list. In fact, don't do this.

And now for high-gain mic preamps:

9) There is stuff called mu-metal. It looks like rusty old steel, but you can bend and solder it. It costs too much. It breaks with razor sharp edges that will cut you to the bone in a flash. Buy some. Make a little box (folded and soldered) that covers the input stages of your best mic pre. Solder the box to the ground plane of the circuit board. Hum be way gone. Thanks for listening.

In closing, don't do any of this stuff. I don't want to hear about it if you kill your gear or your job—or yourself. ■

SSC did not write this column, and the person that did cannot be found.

SEPTEMBER 1998

• Sound for Picture Issue!

▲ Fifth Annual Fall Edition Sound for Picture Supplement

▲ Internet Audio

▲ Digital Recorders

▲ Live Recording

▲ Los Angeles Regional Focus

Ad Close:

July 7

Materials Due:

July 14

—FROM PAGE 76, SMALL FORMAT CONSOLES and post-fader configurations. A TRS direct output may be switched pre- or post- the 100mm channel fader. The output section has two pairs of faders for stereo mix and submix level control; 10-segment LED metering; master level control pots for aux, headphone and

monitor sends; level and routing controls for effects and tape returns. Additional features include balanced inputs, 48V phantom power, TRS inserts for all inputs and output buses, mono summed output and XLR connectors on the master mix bus output. Retail: \$1,195.95 (rack kit optional).

The Club 2000 stereo mixer from **Stu- diomaster** is available in 10-, 14- and 18-input versions. The 14-input rack-mount C2000-142 has ten mono mic/ line inputs and two stereo line inputs. Inputs are balanced XLR (mic) and TRS (line). Mic inputs feature 3-band, sweep mid EQ; line inputs offer 2-band fixed

CONTACT INFORMATION

Alesis Corporation

800/5-ALESIS
www.alesis.com
Circle 201 on Product Info Card

Allen & Heath

801/568-7660
www.dbxpro.com
Circle 202 on Product Info Card

API

703/455-8188
Circle 203 on Product Info Card

Ashly Audio

716/872-0010
www.ashly.com
Circle 204 on Product Info Card

Audio Centron

314/727-4512
Circle 205 on Product Info Card

Audio Developments

www.audio.co.uk
Distributor: Location Sound
818/980-9891
and Professional Sound Services
212/586-1033
Circle 206 on Product Info Card

Audio Technologies Inc. (ATI)

215/443-0330
www.atiguys.com
Circle 207 on Product Info Card

Audio Toys Inc. (ATI)

410/381-7879
www.audiotoys.com
Circle 208 on Product Info Card

Behringer

Distributor: Samson Technologies
516/364-2244
www.samsontech.com
Circle 209 on Product Info Card

DDA

616/695-4750
www.eviaudio.com
Circle 210 on Product Info Card

DOD

801/566-8800
www.dod.com
Circle 211 on Product Info Card

Electro Acoustique Appliquee (EAA)

Distributor: Posthorn Recordings
212/242-3737
Circle 212 on Product Info Card

Furman Sound

707/763-1010
www.furmansound.com
Circle 213 on Product Info Card

Intelix

608/831-0880
www.intelix.com
Circle 214 on Product Info Card

Mackie Designs

800/898-3211
www.mackie.com
Circle 215 on Product Info Card

Manley Laboratories

909/627-4256
www.manleylabs.com
Circle 216 on Product Info Card

Millennia Media

530/647-0750
www.mil-media.com
Circle 217 on Product Info Card

Oram Professional

Distributor: Sweetwater Sound,
219/432-8176
www.oram.co.uk
Circle 218 on Product Info Card

Peavey

601/483-5365
www.peavey.com
Circle 219 on Product Info Card

PreSonus Audio Electronics

504/344-7887
www.presonus.com
Circle 220 on Product Info Card

Rane Corporation

425/355-6000
www.rane.com
Circle 221 on Product Info Card

Rolls Corporation

801/263-9053
www.rolls.com
Circle 222 on Product Info Card

Shure Bros.

847/866-2200
www.shure.com
Circle 223 on Product Info Card

Sonosax

Distributor: Posthorn Recordings
212/242-3737
Circle 224 on Product Info Card

Soundcraft

615/399-2199
www.soundcraft.com
Circle 225 on Product Info Card

SoundTech

847/913-5511
www.washburn.com
Circle 226 on Product Info Card

Spirit by Soundcraft

916/630-3960
www.soundcraft.com
Circle 227 on Product Info Card

StuDiomaster

714/524-2227
www.studiomaster.com
Circle 228 on Product Info Card

Studio Technologies

847/676-9177
www.studio-tech.com
Circle 229 on Product Info Card

Tascam

213/726-0303
www.tascam.com
Circle 230 on Product Info Card

TL Audio

Distributor: Sascom Marketing
905/469-8080
www.sascom.com
Circle 231 on Product Info Card

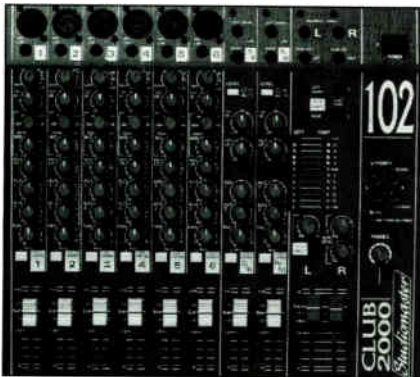
Whirlwind

716/663-8820
www.whirlwindusa.com
Circle 232 on Product Info Card

Yamaha

714/522-9011
www.yamaha.com
Circle 233 on Product Info Card

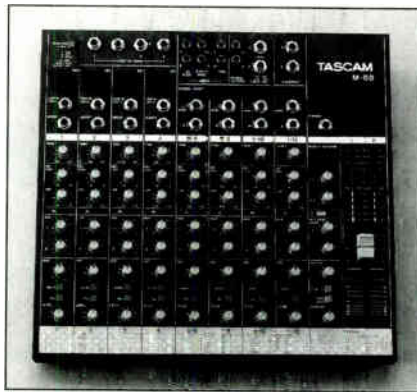
EQ. Two aux sends (one pre-, one post-fade) are followed by a pan control, PFL switch, peak/PFL LED indicator and 60mm fader. Stereo line inputs are switchable to accept +4 and -10 sources. Output section contains stereo master mix faders (60mm), aux send masters, stereo aux return, and headphone level controls. Outputs are on balanced TRS connectors. Other features include global phantom power, 12-segment LED meters, and stereo tape record/play connections (RCA). Retail: \$549.95.



Studiomaster Club 2000 (10-input version)

The Model 750 Audio Mixer from **Studio Technologies** is a rackmount stereo mixer with four XLR mic/line inputs and two stereo XLR line inputs and an additional stereo aux bus for "mix-minus" or monitor interrupt in broadcast applications, 48V phantom power, low-cut (85Hz) and polarity reverse. LEDs indicate signal presence/overload. Meters are large-scale VUs. An internal stereo VCA compressor/limiter can be inserted across the stereo mix bus, and there are three separate stereo outputs (two line-level and one mic/line switchable on XLRs), in addition to separate TRS connections for the aux bus output. Rear DIP switches allow a microphone direct signal or one of the four main output signals to be output through four additional TRS connectors. Additional features include recordable setup messages that can automatically identify output signals, and talkback and oscillator functions. Retail: \$2,495.

The **Tascam M-08** is a 12-input rackmount stereo compact mixer with four mono mic inputs and four stereo line inputs. Channels feature 2-band EQ, pre and post aux sends, mute and PFL switches and overload LED indicators. Four effects returns and a tape input may be added to the master output bus, which is controlled via a 60mm fader and metered on 12-segment LED ladders. Outputs are balanced TRS and unbalanced RCA. Additional features



Tascam M-08

include channel inserts, phantom power and a headphone output. Retail: \$349.

Whirlwind offers the US Audio Mix 6, a single-rackspace stereo mixer with four mic/line inputs (XLR and TRS) and two stereo line-level inputs (RCA and balanced TRS). Each mono input has level and pan controls; mic inputs also have switchable low-cut filters and signal overload LEDs. Aux 1 stereo input is routed to the stereo master bus, whereas the Aux 2 stereo input may be routed to the monitor bus only. Two 10-segment LED meters show master output level; and a switchable stereo peak limiter prevents excessive output levels; limiter action is indicated by LEDs. Outputs are balanced or unbalanced via XLR and isolated TRS connectors. Additional features include phantom power, ground lift and output switchable to mic level. Call for pricing.

Yamaha's MX12/4 is a rackmountable stereo mixer with eight mic/line inputs and two stereo line inputs, plus four mixing groups. Input connectors are top mounted and are balanced XLR (mic) and TRS (line). Input channel EQ is 3-band, and one pre- and one post-fader aux sends are standard, as are 60mm faders. The first four mic/line inputs have TRS inserts. The output section has 60mm faders for the four buses and stereo master, aux send masters, stereo aux return and headphone/control room monitor level controls. An internal DSP reverb unit offers three effects, with sends normaled to aux send 2. Buses 3,4 can be deselected from the stereo master output. A stereo 7-band graphic EQ tailors the master outputs, which are on balanced XLRs; individual outputs from the four subgroups and aux sends are TRS. Other features include phantom power, 12-segment meters, stereo RCA tape record/play connections, and stereo effects return. Retail: \$599.95 (rackmount kit is \$25).

our records speak for themselves

"Robert's never afraid to push the envelope. He has a great musical ear and persistence for perfection."

Tony Ferguson

Executive A&R, Interscope Records
(Rev. Horton Heat, Huffamoose, No Doubt)

NO DOUBT
BLACK SABBATH
BUSH
PHUNK JUNKEEZ
HUFFAMOOSÉ
OUTCRY
JOHN HIATT
JOHNNY WINTER
COREY STEVENS
RICHARD ELLIOT
SHAQ
CHARLIE
MUSSELWHITE



cms mastering
Old Town Pasadena 626.405.8002

CIRCLE #170 ON PRODUCT INFO CARD

Don't miss this...

GET LISTED!

c a l l

800-344-LIST NOW

to enlist

IN THE 1999

TENTH ANNIVERSARY

RECORDING INDUSTRY
SOURCEBOOK

AND THE

MIX Master
Directory

DEADLINE: JULY 1, 1998

**Coming in Mix
August 1998**

AUDIO EDUCATION

• FEATURES

Audio Education Directory
Music Libraries
Studio Tube Mics

• LIVE SOUND

Delay Dilemmas
Tour Profile: Spice Girls at
Wembley
Boyz II Men on Tour.

• EQUIPMENT FIELD TESTS

Aphex Aural Exciter Plug-In
Fairman Compressor
Hafler Near-Field Speakers

• THE MIX INTERVIEW

Ray Davies

• PLUS!

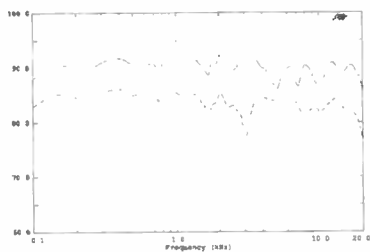
Bob Clearmountain's SSL
Mixing Tips...TEC Voter's
Guide...UK Regional
Focus...Summer NAMM
Report...Batch Conversion

ATTENTION ADVERTISERS:

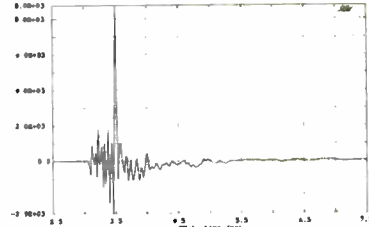
Deadline for ad placement is the seventh of the month, two months prior to publication. Call (510) 653-3307 for a 1998 *Mix* Editorial Calendar, space reservations and complete advertising information.

MIX

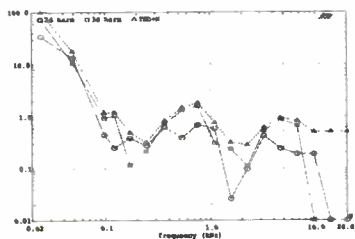
VISIT MIX ONLINE'S NEW PRESENCE AT
[www.mixonline.com!](http://www.mixonline.com)



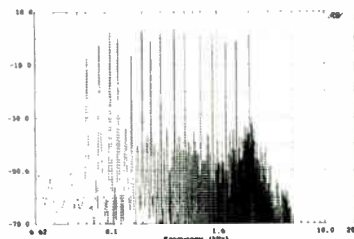
Frequency response is wide and fairly even. Off-axis (shown in lower trace) is smooth overall and similar to on-axis (upper trace).



Impulse response is excellent with fast settling time. Note pre-echo before impulse, an artifact of Meyer's all-pass network signal processing.



Distortion was a bit higher than typical for studio monitors, with second harmonic distortion (circle trace) about 1%. Third harmonic distortion (square trace) was about 0.5%. Triangle trace shows THD+N measurement.



Spectral contamination was about -40 dB down below the signal, about average for modest studio near-fields.

—FROM PAGE 175, LAB ANALYSIS: MEYER HM-1S

structure is ferrite with a bucking magnet and magnetic shielding can.

The amplifier does not have its own sub enclosure, so the circuit board components are exposed inside the enclosure. This is an active crossover amplified system. Both amplifier channels have MOSFET outputs. A balanced XLR input is followed by an array of all-pass networks to line up the acoustic center of the tweeter with the woofer. A subwoofer output is provided, along with a DC fan output and circuit breaker protection. There are no EQ or level controls.

A "smart" external power supply automatically adjusts to the AC line voltage. One power supply drives one pair of speakers.

ACOUSTIC CHARACTERISTICS

The impulse response of the system was excellent, with coherent pulse characteristic and extremely fast settling time. Some pre-echo can be seen in front of the impulse, an artifact of the all-pass network signal processing. This phenomenon has also been observed in the Meyer HD-1 studio monitors.

We tested distortion at 90 dB (1 meter) and from 100 Hz upward. Distortion was a bit higher than typical for studio monitors, with second harmonic distortion about 1% over most of the frequency range. Third harmonic distortion was about 0.5%.

Spectral contamination (clarity) was about 40 dB down from the signal, which is about average for the more modest studio near-field monitors.

The HM-1S has a very wide frequency response and fairly even spectral balance with a little bit of roughness in the 4 to 10 kHz range. The off-axis frequency response is unusually uniform and smooth, and the speaker exhibits excellent bass extension for its size. ■

Mike Klasco operates Menlo Scientific, an independent acoustical measurement and consulting firm based in Berkeley, Calif. For more information on testing methodology, refer to the Feb. '98 issue of Mix, or visit www.mixonline.com.

MARKETPLACE

**NOW THAT YOU'RE
MAKING YOUR OWN CDs...
HOW DO YOU LABEL
THE DAMN THINGS?**



**WHITE,
CLEAR,
COLORED &
METALLIC
LABELS**

**JEWEL CASE
INSERTS TOO!**

• DESIGN • PRINT • APPLY • PACKAGE

PRODUCE PROFESSIONAL-LOOKING CD LABELS
& JEWEL CASE INSERTS FOR \$79.95 PRO-PAK

NEATO LLC

USA: 250 Dodge Ave • East Haven, CT 06512
203-466-5170 • Fax 203-466-5178 • 800-984-9800
Europe: +44 (0)990 561571 • Fax +44 (0)181 932 0480

Mastercard • AMEX • VISA www.neato.com

CIRCLE AD NUMBER 237 ON PRODUCT INFO CARD

SuperDigital™

The Recording Store



**Low CD & Cassette
Package Prices**

digalog

Superior Duplication
Technology!

Fast, Friendly Service & Reliability
Quality In-House U.S. Manufacturing
Digital Mastering • Graphic Design
No Sales Tax • Large & Small Orders Welcome

Call Toll Free: 1-888-79 AUDIO (1-888-792-0679)
www.superdigital.com • Visa, Amex, Discover

CIRCLE AD NUMBER 239 ON PRODUCT INFO CARD

bpm
studioteknik

Project
Studio
Dream

Made
in
Berlin

The Quality You Desire
at a Price You Can Afford

Large Diaphragm, Tube & Condenser Models Starting \$549.95
Complete w/ Shockmount, Roadcase, Cable & Windscreen

305.5311.BPM

bpmusa@southfla.com



CIRCLE AD NUMBER 240 ON PRODUCT INFO CARD

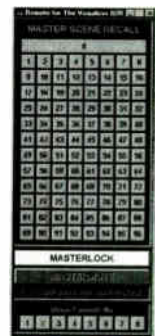
**LIVEMIX
SURROUND
AUTOMIX
POSTPRO
STUDIO
BROADCAST
INTERCHANGE**

*When you use more than one console at a
time (up to 8), can you switch, mute or lock
them all together with just one single button???*

The Visualizer

Professional editor/mix management software for the 02R/03D

SEK'D America, P.O. Box 5497, Santa Rosa, CA 95402, T-Free: 1-800-330-7753, Tel.: 707-578-2023, Fax: 707-578-2025, E-mail: info@sek.com, www.sekd.com



CIRCLE AD NUMBER 238 ON PRODUCT INFO CARD

CD and Cassette Manufacturing
 State-of-the-art Audio Mastering
 Complete Graphic Design Services
 Enhanced CD Creation



americanmedia
 MANUFACTURING

To discuss your project, call today toll free:

1 888 442 8994

CIRCLE AD NUMBER 241 ON PRODUCT INFO CARD

**MANUFACTURERS OF
 CDs and CASSETTES**

CD REPLICATION -
 CASSETTE DUPLICATION -
 DIGITAL MASTERING -
 GRAPHIC DESIGN -
 PRINTING - PACKAGES -
 ONE OFF CDS -

DEAL DIRECT AND SAVE!
 Professional Service
FREE CATALOG
*You'll Hear and Feel
 the Difference*

Ask about our
FREE WEB PAGE
 offer

800-289-9155
 OUTSIDE U.S. 516-244-0800
 HTTP://WWW.PB.NET/~CCMUSIC



CIRCLE AD NUMBER 245 ON PRODUCT INFO CARD

**VT-2 Dual Channel Vacuum Tube
 Microphone Preamplifier**



Everything you want to know is available at
www.dwfearn.com

D.W. FEARN 610-793-2526
 P.O. Box 57 • Pocopson, PA 19366

CIRCLE AD NUMBER 242 ON PRODUCT INFO CARD

DRIVERS:

- AIRBORNE
- ATC
- AUDAX
- DYNAUDIO
- ETON
- LPG
- MOREL
- PEERLESS
- SCAN-SPEAK
- SEAS
- VIFA
- VOLT



**The SM75-150
 3" soft dome
 mid-range by ATC.**

ATC drivers are renowned for their reliability and performance. The SM75-150 combines high sensitivity with extremely low distortion and a usable frequency response from 300Hz to 4000Hz.
 Contact Solen for more information.

**CUSTOM
 COMPUTER AIDED
 CROSSOVER AND
 CABINET DESIGN**

HOW TO BOOKS

**Call, write, email or fax for
 the Solen '97 Catalog.**

An \$8.00 purchase price will be charged to non-professionals and discounted off the first order over \$50.00. Businesses and professionals may request one copy free of charge.



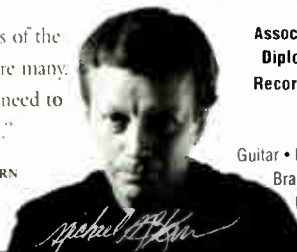
SOLEN INC.
 4470 Avenue Thibault
 St-Hubert, QC, Canada J3Y 7T9
 Tel: 514.656.2759
 Fax: 514.443.4949
 Email: solen@quebec.net
 Web: http://www.quebec.net/solen/

CIRCLE AD NUMBER 246 ON PRODUCT INFO CARD

REAL TEACHERS. REAL EDUCATION.

"The responsibilities of the recording engineer are many. To be the best, you need to learn them all."

MICHAEL MCKERN
 RECORDING
 DEPARTMENT
 HEAD



Associate Degrees and
 Diploma Programs in
 Recording • Production
 Filmmaking
 Also:
 Guitar • Bass • Voice • Drums
 Brass and Woodwinds
 Keyboards • Business
 Songwriting



MUSIC TECH

MUSICIANS TECHNICAL TRAINING CENTER

1 - 6 1 2 - 3 3 8 - 0 1 7 5
 1 - 8 0 0 - 5 9 4 - 9 5 0 0
 www.musictech.com
 304 N Washington Ave
 Minneapolis, MN 55401

CIRCLE AD NUMBER 243 ON PRODUCT INFO CARD

LOW PRICES AHEAD!


CD/CD-ROM Manufacturing (2 color)	2 Week Turnaround
1000 - 3999	\$0.72
4000 - 7499	\$0.68
7500 - 14999	\$0.66
15000 - over	\$0.64

RUSH ORDERS AVAILABLE!
 CD REPLICATION • GRAPHICS • PRINTING • PRODUCTION

Crystal Sand Multimedia Services
 (415)864-7771v (415)864-7778f www.crystal-sand.com

CIRCLE AD NUMBER 244 ON PRODUCT INFO CARD

**IT'S YOUR BABY
 AND WE DELIVER.**



Services:

- Mastering
- Design
- Film & Printing
- Web Development
- Enhanced CDs

Prices include: blank master, 2 color proof, hard copy, postage, delivery

\$500
 \$750.00
 1500
 \$7,100.00
 5000
 \$4,500.00

800-DIGIDOC
 www.digidocpro.com

DIGIDOC
 PRODUCTIONS

CIRCLE AD NUMBER 247 ON PRODUCT INFO CARD

20 BIT ADATS ARE HERE!

Alesis ADAT-XT20 \$2399

BLOW-OUT SPECIALS ON PREVIOUS MODELS:

- ADAT-XT NEW
- ADAT-XT USED 100-300 hrs.
- ADAT USED 500-1200 hrs.

650.742.9166

So. San Francisco, California



CIRCLE AD NUMBER 248 ON PRODUCT INFO CARD

SMG MEDIA SERVICES

- CD Replication
- Real-Time Cassette Duplication
- Double-Time Cassette Duplication
- Mastering/Digital Editing
- Printing & Graphic Design
- Friendly & Helpful Customer Service
- Customer Satisfaction Guaranteed
- Call for higher quantity quotes

500 - cd's
\$1,099

500 -
cassettes
\$699

Complete full-color packages
You supply the film
3-week turn around
(including color packages)

(800) 791-7464 • www.SmithMusicGroup.com

CIRCLE AD NUMBER 251 ON PRODUCT INFO CARD

Your Best Choice For Audio Duplication!

DELUXE CD PACKAGES STARTING AT \$995.00

- CD/CDRs
- Cassettes
- Mastering
- Design
- Printing



Major-Label Quality!

Why Settle For Less?

- FREE WEBSITE!
- FREE BARCODE!
- FREE CLEAR TRAYS!
- FREE 3RD DISC COLOR!
- With Deluxe CD PKG.*

1 (800) 553-8906

(206) 285-2642 • FAX (206) 285-2394
duplication@martinaudio.com



Our 20th Year

PLANTS IN: SEATTLE • SAN FRANCISCO • MIAMI • MINNEAPOLIS

CALL TODAY FOR A FREE CONSULTATION & ESTIMATE



FREE CATALOG

From customer supplied DAT/CDR and print-ready film Subject to + or - 10% overrun/underrun adjustment. *At retail. 50% deposit required. Ask for full details at purchase

CIRCLE AD NUMBER 249 ON PRODUCT INFO CARD

LOOK NO FURTHER!! You've Found The Best

CD LABS™

1000 CD's \$1595 - 500 CD's \$1195
includes 4 color folder, 2 color CD imprint, jewel box
shrink wrap and mastering from your DAT
BULK PACK CD'S 1000-\$899...500-\$699
Also CD clones from your CDR as low as \$7.99 each

12517 CHANDLER BLVD., SUITE 107 NO. HOLLYWOOD, CA. 91607
(818) 505-9581 (800) 4CD LABS

Check our web site for other great packages
www.cd labs.com

CIRCLE AD NUMBER 252 ON PRODUCT INFO CARD

Promote your company in Mix's high-profile advertising section:

Mix Marketplace!

Ads are affordably priced to match your budget and reader service response is free of charge! Call Robim Boyce-Trubitt at (800) 544-5530 for rates and deadlines.

CIRCLE AD NUMBER 253 ON PRODUCT INFO CARD

BONUS 5 CDR FREE	BONUS 5 CDR FREE	Panasonic 4x8 CD-R bundle... \$395	BONUS 5 CDR FREE	Yamaha 4x2x6 ReWriteable bundle... \$495
TEAC 4x12 CD-R bundle... \$455		MediaFORM CD2CD Duplicator... \$2,399		
BONUS 5 CDR FREE		MediaFORM 4600 6 CD-R... \$6,399		
Jaz + 4x2x6 CD-RW ext. bundle... \$895		Jaz 2GB + cartridge... \$539		
BONUS 5 CDR FREE		CD-RW Media... \$13		
AFFEX CD Color Printer bundle Prints 2 CD at a time... \$1,099		Zip cart... \$12		
LabelMaker with 100 FREE labels \$39		Jaz cart. \$79		
		as low as... SyJet cart... \$79		

CD-R BLANKS as low as **99¢** also available TDK & Verbatim

Shimad
1-888-4-SHIMAD
toll free 888-474-4623 PH. 650-493-1234
http://www.shimad.com FAX: 650-493-1333

CIRCLE AD NUMBER 250 ON PRODUCT INFO CARD

SOUND TECHNOLOGY
Instrumentation and Automation

SPECTRA SERIES

Transform Your PC Into A Powerful Spectral Analysis System

Call To Order 1-800-401-3472
Fax: 408-378-6847
info@soundtechnology.com
http://www.soundtechnology.com

Free Software Demo

The Best In Test offers a totally new dimension in Audio Testing...

CIRCLE AD NUMBER 254 ON PRODUCT INFO CARD

CAPITAL DISC MANUFACTURING



CD & Cassette prices to fit your budget

500 CD's for \$950 1000 CD's for \$1575
 500 Cassettes for \$505 1000 Cassettes for \$806

CD packages include:
 Glass master - 2 color on CD - Jewel Box - Shrink Wrap - 4 page color booklet

Also Available
 Digital Mastering - Self promotional packages - Plus much more

MAJOR LABEL QUALITY

**CALL TOLL FREE
 1-800-240-5820**

CIRCLE AD NUMBER 255 ON PRODUCT INFO CARD

CD and Cassette Manufacturing

WMG is a full service audio & video duplicator specializing in custom manufacturing and special packaging. Besides working with the largest players in the entertainment and education industries, our operation boasts over 10 years experience working with people like you. Our goal is to provide quality product & service that is rivaled by no one in the business. We also offer full-package deals at the lowest possible price.

- Cassette Duplication
- CD Replication
- Digital Mastering; Editing, Assembly
- CDR Reference Creation
- Vinyl Record Pressing
- Video Duplication
- Graphic Design
- Pre-Press & Printing
- Custom Packaging

8737 East 30th St. Indianapolis, IN 46219
317-549-8484 fax: 317-549-8480
 visit our website: www.wmg-inc.com

we provide...
top quality
 product at the lowest price!!

IN BUSINESS OVER 10 YEARS

CIRCLE AD NUMBER 258 ON PRODUCT INFO CARD

STOP!
 CHECK OUT OUR SUPER LOW PRICES

1000 BULK \$620

MS


- CDR REPLICATION
- PRE-PRESS SERVICES
- PRINT SERVICES
- AUDIO CASSETTES
- GRAPHIC DESIGN
- ASSEMBLY
- CUSTOM PACKAGING
- COMPLETE FULFILLMENT

MEDIA SERVICES
WWW.MEDIAOMAHA.COM

1.888.897.9097


CIRCLE AD NUMBER 256 ON PRODUCT INFO CARD

FLAMINGO Discrete Class A Microphone Preamp




- Selectable Iron, Vintage, & Transparent sounds

HEDD Harmonically Enhanced Digital Device



- Now with 24 Bit A/D and D/A Convertors
- Makes digital audio sound analog

The STC-8 Discrete Class A Stereo Compressor-Peak Limiter



- Flexible and transparent

on the cutting edge between technology and art.

CRANE SONG LTD. Superior, WI 54880 USA
 tel. 715-398-3627
 fax. 715-398-3279
www.cranesong.com

CIRCLE AD NUMBER 259 ON PRODUCT INFO CARD

500 1-COLOR CHROME CASSETTES \$595 REORDER: \$385
 INCLUDES: 1000 1-COLOR INSERTS (500 extra for reorder) & COMPOSITE NEG'S FROM YOUR CAMERA-READY ART • NORELCO BOX • UP TO 22 MINUTES PER SIDE

1000 4-COLOR CHROME CASSETTES \$899 REORDER: \$750
 INCLUDES: 2000 4-COLOR INSERTS (1000 extra for reorder) FROM YOUR PRINT-READY FILM (in Rainbo's specs) • NORELCO BOX • UP TO 22 MINUTES PER SIDE

500 4-COLOR CHROME CASSETTE SINGLES \$529 REORDER: \$275*
1000 4-COLOR CHROME CASSETTE SINGLES \$779 REORDER: \$500*
 INCLUDES: 2000 4-COLOR O-CARDS FROM YOUR PRINT-READY FILM (in Rainbo's specs) • UP TO 8 MINUTES PER SIDE *Using extra O-cards from stock

ALL PACKAGES INCLUDE: CASSETTE RUNNING MASTER • TEST CASSETTE • APEX PRINTING ON CASSETTE • SHRINK-WRAP IN-HOUSE CD, VINYL & CASSETTE REPLICATING & PACKAGING — ASK FOR OUR FREE BROCHURE!

Rainbo Records and Cassettes
 1730 Berkeley Street, Santa Monica, CA 90404 • (310) 829-3476 • Fax (310) 828-8765 • www.rainborec.com

CIRCLE AD NUMBER 257 ON PRODUCT INFO CARD

• 1,000 CDs for \$1,350 •

This complete package includes:
 3 colors on disc, 4 panel color folder & tray card (client supplied film) jewel box and poly wrap. Compare & Save

DISCOUNT PRICING
 MAJOR LABEL QUALITY
 GUARANTEED SATISFACTION
 SUPERIOR CUSTOMER SERVICE

205-851-8101
www.moonstown.com

MOON TOWN Disc

Moon Town Disc clients include Rolling Stones keyboardist Chuck Leavell, legendary Allman Brothers producer Johnny Sandlin, and Ted Nugent vocalist/guitarist Derek St. Holmes

CIRCLE AD NUMBER 260 ON PRODUCT INFO CARD

**CD and Cassette Prices
That Are Out Of This World!**

CD Packages include:
PMCD & Glass Master
2 Color On CD Printing
Full Color 2Page Booklet
And Much More...



COMPACT
disc
DIGITAL AUDIO

Call Toll Free 1-800-928-3310	500	\$1075	\$506
	1,000	\$1637	\$752

American Clients: No Tax * No Duty * No Problem!

CIRCLE AD NUMBER 261 ON PRODUCT INFO CARD

300 CDs \$1295

**COMPLETE PACKAGE
DESIGN, FILM AND FULL COLOR PRINTING**

www.protosound.com
protosound@aol.com

800-900-7995
802-453-3334
fax 802-453-3345



PROTOSOUND
Celebrating Our 10th Anniversary!

CIRCLE AD NUMBER 264 ON PRODUCT INFO CARD

**You Provide the Talent...
We'll Supply the Rest.**

Professional Blank Media

- Featuring **SONY**
Digital Audio Tape,
CD-Rs & Data Media

Custom & Stock

- Cable Assemblies
- "Plug & Play" Patch Bays
- Bulk Cable & Connectors

Duplication & Replication

- CD Audio & CD-ROM
- Audio Cassette & CD-R
- NTSC/PAL/SECAM Video
- Packaging, Printing & Fulfillment



PROFESSIONAL MEDIA

FREE Catalog!

CALL Toll Free
888-776-3712
or 518-828-2000

FAX: 518-828-2008

pro_sales@haveinc.com

dup_sales@haveinc.com

309 Power Avenue Hudson, NY 12534



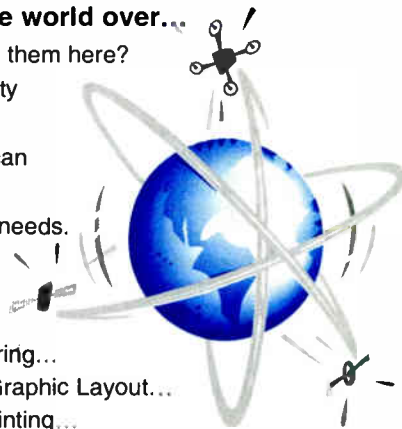
Since 1977: Doing Business by the "Golden Rule"
Rely on your Friends at HAVE.

CIRCLE AD NUMBER 262 ON PRODUCT INFO CARD

**Looking For Affordable
Cassettes and CDs?**

Why search the world over...
when you can get them here?

We offer top quality
cassette and CD
packages which can
be customized to
fit your individual needs.



- Audio Cassette...
 - CD Audio...
 - CD Rom... Mastering...
 - Digital Editing... Graphic Layout...
 - Film Output... Printing...
- you'll find it all here!!!

Call Today for your

FREE catalog...

SAS Industries, Inc.

1-800-955-7271



New York Sales Office: 1-800-727-7181
DELIVERY AND SATISFACTION GUARANTEED
Manufacturing Facility Centrally Located In St. Louis, MO

CIRCLE AD NUMBER 265 ON PRODUCT INFO CARD

PARTS EXPRESS FREE CATALOG

ELECTRONICS & MORE

- MICROPHONES
- MIC STANDS
- CABLES
- HEADPHONES
- RAW SPEAKERS
- POWERED MIXERS
- PA SYSTEMS
- CABINET & RACK ACCESSORIES
- STAGE LIGHTING
- MIXERS
- POWERED AMPS
- SHOCKMOUNT RACK CASES
- HORN DRIVERS

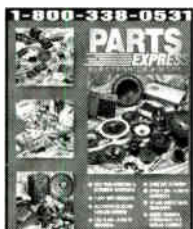
Visit our Web Site:
www.parts-express.com

CALL TOLL FREE **1-800-338-0531**

725 Pleasant Valley Dr., Springboro, OH 45066-1158
Phone: 513/743-3000 • FAX: 513/743-1677
E-mail: sales@parts-express.com

Source Code: MXM

**ASK ABOUT
OUR WHOLESALE
PRICING PROGRAM!**



CIRCLE AD NUMBER 263 ON PRODUCT INFO CARD

GET IT FAST

Don't trust your audiophile duplication needs to anyone else!
Progressive Music Celebrating 20 Years of Honest Success!!

Internet: prgmus@aol.com Avail: VISA & Master Card



2116 Southview Ave.
Tampa, FL 33606
(813) 251-8093
FAX: (813) 251-6050
Toll Free: (800) 421-TAPE

ALL COMPLETE!

Full color Inverts, Audiophile Chrome
Tape & CD's from your CD & Film

500 CD'S	\$980.00
500 CASS	\$610.00
1000 CD'S	\$1375.00
1000 CASS	\$905.00
500 CD'S + 500 CASS	\$1590.00
500 Bulk CD's	\$625.00
1000 Bulk CD's	\$799.00

"Fastest Turn-Around in the Known Universe!"

CIRCLE AD NUMBER 266 ON PRODUCT INFO CARD

Anchor Your Speakers WITH Sound Anchor Stands

Your system will perform to its potential when you get your monitors off of the meter bridge, properly positioned and supported.

• STABLE • RIGID • DAMPED •

Sound Anchors Inc.
(407) 724-1237

ADJUSTABLE MONITOR STAND




CIRCLE AD NUMBER 267 ON PRODUCT INFO CARD



Fleetwood MultiMedia

Stop Here For Your Best Deal

1000 CDs \$1099 **Full CD & Tape Packages From 300 up**

PACKAGE INCLUDES:
Jewel Box, Shrink Wrap
2 Color CD Imprint
Client Supp'd Covers & Tray Cards
FREE Mastering
7-10 Day Turnaround

Our Services Include:
CD Replication
Cassette Duplication
Graphic Design & Film Printing & Packaging
Custom Mastering
CD One-Offs
Specials Every Month
Call for a quote that fits your budget

1000 CDs bulk \$799 with 2 Color Imprint	500 Chrome Tapes \$715 Includes Everything!
---	--

800-353-1830 (617) 289-6800 www.fleetwood.com

CIRCLE AD NUMBER 270 ON PRODUCT INFO CARD

DIGITAL DOMAIN™ Hear the Magic

CD Mastering & Replication

in Orlando, FL (800) 344-4361
(407) 831-0233

Master with us...and make an impact!

Unsurpassed mastering quality by Bob Katz. Custom hardware and software, 128x Oversampling 20-Bit A to D, Unique Digital Processors, Sonic Solutions Editing, Tube and Solid State Analog Recorders.

CD Mastering is an art. Levels, dynamics, fades, equalization, spacing... everything is important to you and to us.

CD Replication...
1000 CDs at \$1.30 w/jewel, shrink, insertion.

CD Booklet Printing and Graphic Design...
1000 4-Panel Booklets \$0.37/ea. Full-Color Outside & Tray, B&W Inside.

Internet CD mastering website - <http://www.digido.com>



CIRCLE AD NUMBER 268 ON PRODUCT INFO CARD

CLEARSONIC PANELS



**Effective & Portable
Volume Control
& Separation !**

For a *free* brochure call
1 800-888-6360
<http://clearsonic.com>

CIRCLE AD NUMBER 271 ON PRODUCT INFO CARD

EARTH DISC

cd rom cassettes vinyl mastering vinyl master design graphic design


\$986.00 500 CDs
package includes:
full color 2 page 4 panel insert
3 color on cd printing/glass master,
jewel box, shrink wrap

\$1299.00 500 CDs
we do it all
package includes:
graphic design/film
full color 2 page 4 panel insert
3 color on cd printing/glass master,
jewel box, shrink wrap

1-800-876-5950

the aliens have left the building

CIRCLE AD NUMBER 269 ON PRODUCT INFO CARD



WORLDWIDE SALES NEW & USED HUGE INVENTORY

RETROSPEC, SENNHEISER, SHURE, AKG, AUDIX, BEYER, SHEP, DBX, ALAN SMART, GENELEC, SPENDOR, ROLAND, PURPLE AUDIO, CROWN, DRAWMER, WHITE, TASCAM, TRACY KORBYS MICS

IN STOCK:
AC701; ADR COMPLEX; AKG C12, C12vi, C12A, C24, C30, D30, D45; ALTEC 639B; AMS RMS, DMX; AMEK MOTZ./ HEND/REMB; API 550; AUDIX 35102; B&K 401 1; COLES; CALREC Pq 15, 1061, 1161; DBX 160; DOLBY SR; FOCUS-RITE ISA 110, 130, 215; HELIOS EQ/PRE; IRT 6x1, 82X TUBE MIXERS; LEXICON PCM42, PCM70; MCI JH24, 16-24; NEVE 8068, BCM10, 1066, 1073, 1084, 1089, 31102, 31105, 32264, 33609, 2254E, 1271, 1272, 3415; TELEFUNKEN V72, 76, 78; NEUMANN U47, U47FET, U48, M49, U64, UM57, 582, KM53, 54, 84, 85, 86, 87, 88, CMV563; PULTEC EQP IRS, MEQ5; PCM70; RCA 44; SCHEOPP 221, CMS1U, MT54; SSL; STUDER A800, 820, 827, 820 1/2"; TRIDENT 80B, B RANGE; UREI LA3, 1176LN, 1178, 565, LITTLE DIPPER.

WWW.VINTAGEKING.COM VKAUDIO@IX.NETCOM.COM
PHONE (313) 965-0645 FAX (313) 964-3338

CIRCLE AD NUMBER 272 ON PRODUCT INFO CARD

CLASSIFIEDS

MIX Classified Ads are the easiest and most economical means to reach a buyer for your product or service. The classified pages of Mix supply our readers with a valuable shopping marketplace. We suggest you buy wisely; mail-order consumers have rights, and sellers must comply with the Federal Trade Commission, as well as various state laws. Mix shall not be liable for the contents of advertisements. For complete information on prices and deadlines, call (800) 544-5530.

Acoustic Products

AcousticsFirst™
Toll Free: **888-765-2900**
Full product line for sound control and noise elimination.
Web: <http://www.acousticsfirst.com>

SILENT
56 Nantuxick St. Northampton, MA 01082
INFO (413) 584-7944 - FAX (413) 584-2377
ORDER (800) 583-7174
info@silentsource.com • www.silentsource.com
AcoustiCore Fabric Panels • Sound Barrier Isolation Hangers • A.S.C. Tube Traps Silence Wallcovering • WhisperWedge Melaflex • S.D.G. Systems • Technifoam R.P.G. Diffusers • Sonex • Sound Quilt

ETF energy time frequency
ETF is a software application that runs on your computer using Windows 95/NT, any 16 bit sound card, and an omni-directional microphone.
• **ETF Room Acoustic Analysis** measuring - Early and Late Reflections - Room Resonance - Frequency Response - Distortion - Reverberation Time Analysis
• **Device Designer** - Design of Helmholtz Resonators and QRD Diffusers
• **A primer and tutorial on Room Acoustics**
• **Using Time Delay Spectrometry techniques**
• **Used by Professional Studios Worldwide**
The **ETF** System lists for \$199.95US Call: 1-800-301-1423
Visit www.etfacoustic.com e-mail: sales@etfacoustic.com

ACOUSTIC FOAM

Diffusers ★ Bass Traps ★ Sound Barrier & More!

Admit it: your room isn't perfect. Nobody's is...even world-class rooms need a little touch up here and there. That's where we come in. For 2 decades Auralex Acoustics has been helping the best in the business on both coasts & all points in between sound their best. So, if you've got better sound on your mind—and who doesn't—trust Auralex. We offer great no-hassle advice & design assistance plus tons of proven solutions to help you control your sound in any situation. Building a new room? Download our booklet Acoustics 101 free on our website!



USERS: James Taylor, Clint Black, Andrew Gold, Christopher Cross, Doane Perry (Jethro Tull), Dennis DeYoung, James Young, Todd Sucherman (Styx), George Terry (Eric Clapton), Mike Wanchic (John Mellencamp), Ross Vannelli, Skid Row, Mark Lindsay (Paul Revere & The Raiders), Nona Hendryx, John Baxter (Re-Flex), Walt Disney Co., Harpo Studios, LucasArts, JBL, Shure, Opryland, Pelonis Acoustics, Sear Sound, AT&T, NASA, Sony, CBS Sports, NBC Sports, ABC TV & Radio, ESPN, MSNBC, Bose, Discovery Channel, Berklee College of Music, Music Bakery, Steven J. Klein, Former Sr. Eng. @ Criteria Studios (Bee Gees, E. Clapton, Kenny G, Average White Band, etc.) & Studio Designer (Don Was, Babyface, Larrabee, etc.), Ensoniq, Qualcomm, Wayman Tisdale, WhisperRoom, the Lincoln Center, Hitachi, Toshiba, 20th Century Fox, Universal Studios, NPR, Warner Bros., Polygram, Fruit of the Loom Country Comfort Tour, Mantley Audio Labs, Lucent Technologies, Time Warner Cable, 38TV, Electroplex, Azden, Macromedia, Adaptic, Martin-Logan, Crawford Post, ShowCo, Mormon Church TV, Pioneer, Cobra Golf, Carvin, MTX, Silver Dollar City (Branson), the voices of McDonald's, Miller Brewing & Sports on Fox and more.

These people can afford any acoustic products on the planet... they choose ours. Why? Because no other company can match our unbeatable combination of free design assistance, great products & overall value. Call Auralex today or ask for our products by name at major retail & mail-order dealers nationwide.

Auralex Acoustics Inc. ★ 8851 N. Hague Road ★ Indpls IN 46256-1284
Website: www.auralex.com ★ Email: auralex@auralex.com
Info (317) 842-2600 ★ (800) 95-WEDGE ★ Fax (317) 842-2760

ACOUSTICS by db
...all the others are just brokers.

1194 Walnut St. Suite 205
Newtown, MA 02181
617 969-0585 • fax 617 964-1590
email.ob1db@earthlink.net

Building a project studio?
Designs from existing plans start at \$1,000 per room.

- Total studio concepts designed by creative people.
- Control rooms, studios and turnkey packages.
- Wiring system design, custom cabling & full installations.
- Consultation & advice on equipment or system choices.
- Room tuning, noise problems.
- Existing plans, custom traps.
- Equipment packages with used & vintage consoles, 24 tracks, mics & processing available.

SSL 9072/JULT: \$435k • 4080G+ ULT: \$375k
6064EG: \$125k • Euphonix CS2000/56: \$95k
Neve VR72FF: \$350k • Trident 80C: \$30k
Neve 8078: \$225k • VIII48: \$95k • 8038: \$120k
Neve 8128 56FF: \$85k • API 3224: \$40k
Studer A827: \$36k • A820 w/SF/rem/loc: \$40k
A800 MKIII: \$35k • Sony PCM3348: \$85k
Otari MTR90 MKII: \$16k • MX80: \$11k
EMT 250: \$12k • Quantec QRS: \$5k
Teletronix LA2: \$3.9k • Neve 1064: \$1.9k
Urei 1176LN: \$2.5k • 1178: \$2.5k • LA3A: \$1k
Lex PCM 42MEO: \$1.7k • AMS FMX16: \$3.8k
Neumann M49C: \$5.2k • Neumann U67: \$3.8k
AKG C24: \$6.5k • C451E • C12 clone: \$3.6k
C414EBSilver: \$1.2k • Dolby XP/SR24: \$13k

New products from Queded-Daking TL Audio-Optifile-Sontec-Alan Smart Trident-PrizmAD/DA & Mastering eqs

Building Studios and Keeping 'em Alive for 27 years!

STUDIO DESIGN
ARCHITECTURAL ACOUSTICS

ROSATI ACOUSTICS

"FUNCTION OVER FORM"
LEADING EDGE DESIGN, CONSULTING AND ENGINEERING FOR 19 YEARS
(617) 423-5546 • (800) 423-5505
123 SOUTH ST • BOSTON, MA 02111
www.rosatiacoustics.com

Business Opportunities

SOUND EFFECTS WANTED

Company looking for original SFX in the following categories: extreme weather, animals, sports, European, cartoon & other. Leave message @ (415) 472-3023

AIR CONDITIONING TO SOUND & TV STUDIOS IS OUR SPECIALITY

We provide design services for many well-known clients internationally, whether it be for placement, free cooling, V.A.V. V.R.V., split, unitary or centralized. Mike Hardy

Ambthair Services, Ltd. @
011-44-1403-250-306 or
Fax: 011-44-1403-211-269.
Email: mhardy@pncl.co.uk
See our Web site on Studio A.C. www.pncl.co.uk/%7Emhardy/

Computer Products

Shimad

Full line of CD-Duplicators, CD-Recorders, CD-Printers and CD-R Media
1-888-474-4623

IMPROVE YOUR ROOM SOUND!



3'x3'x8" Wood & Foam Absorber/Diffuser Boxes

- FREE-STANDING • PORTABLE
- LIGHTWEIGHT • STACKABLE

SOUND ACOUSTICS
(630) 832-3064
www.soundacoustics.com

SEE OUR AD IN MARKETPLACE pg. 231

Employment Offered

Recording Engineer

Dual digital studio located in Virginia is accepting resumes for the position of chief engineer. Starting salary \$24k + incentive. Resumes: PO Box 6363 Charlottesville, VA 22906. www.pmdrecording.com

Employment Offered

Assistant Professor- Audio Technology

Assistant Professor of Physics (Audio Technology), one-year temporary position, subject to budgetary approval, beginning Fall semester 1998. The Department seeks a person with strong interests in the technology of sound for its Audio Technology Program. Responsibilities include teaching (mostly undergraduates), research, student advising, departmental and University service. Candidates are preferred with research interests in acoustics and audio technology. The M.S. in Audio Technology or equivalent is required. Competitive salary. The search committee will begin reviewing applications immediately and continue until the position is filled. Send letter of application, resume, and the names of three references to: Chair, Department of Physics, American University, Washington, DC 20016-8058. American University is an EEO/AA institution, committed to diverse faculty, staff and student body. Women and minority candidates are strongly encouraged to apply.

AUDIO ENGINEER

A leading post audio facility seeks an established Audio Engineer/Sound Designer with a following for Senior Position. Great opportunity with the organization for growth and development!! Please fax resume to (212) 629-5976.

Is music your passion?
Do you like to have fun at work?

If so, apply now for a position at Digidesign.

Digidesign is the leading manufacturer of digital audio workstations for the professional music, recording, film and video markets. Digidesign's software and hardware products are used for the recording, editing, mixing and mastering of sound. These products integrate with industry-standard personal computer and mass storage devices to create cost-effective, random access digital audio workstations.

Check out our web page to see our current openings in:

Administration	Customer Service	Engineering
Marketing	Operations	Sales

Our total compensation package includes comprehensive benefits, 401K, and a profit sharing plan. Please send us your resume, indicating position of interest to:

e-mail: jobs@digidesign.com
fax: (650) 842-7999
or mail: Digidesign, 3401-A Hillview Avenue,
Palo Alto, CA 94304-1348
Attn: Staffing

Please indicate somewhere on your resume or cover sheet that you are responding to a Mix ad.

Visit our web site at:
<http://www.digidesign.com>

digidesign

A Division of **Avid**

EOE

MIX Classified (800) 544-5530 FAX (510) 653-8171



DO YOU WANT A GREAT CAREER? POSITIONS AVAILABLE NOW!

Musical and Recording Equipment Sales,
Desktop Publishing, Sales & Administrative Assistant,
Tech Support & More! Contact Kristine!

(800) 222-4700 • (219) 432-8176 • FAX (219) 432-1758 • email: careers@sweetwater.com

We're Looking For The Best Audio Engineer in America...

...To head up our new studio in New York. Specialize in Radio. A client following would be nice. Pro Tools preferable but not necessary. Partial ownership a possibility. Help with design of new facility, etc. A once-in-a-lifetime opportunity—but you gotta be the best. Send samples of radio commercial production, resume, salary requirements to: Mix Classifieds, PO Box 8845-BB, Emeryville, CA 94608.

Mix Classifieds (800) 544-5530

Employment Wanted

Jingle Producer w/local & national credits. Looking for interesting projects all or part. I create custom music and fresh ad copy that sells! Call Pasquale @ Mister E Music anytime.
(800) 278-5163 Or Email:
pasquale@mistererecords.com

Immediate position available for **TECHNICIAN** at O'Henry Sound Studios, Burbank, California (Record/Film scoring environment). Minimum 5 years experience. Competitive salary/great benefits. Fax Richard Landers at (818) 842-5763.

Professional Audio Salesperson

Aggressive sales leader sought in the fields of professional recording, architectural acoustics, A/V systems design & custom products. Position requires spectacular proposal writing, presentation, & sales/marketing skills, 3 years pro audio, Mac experience. Position in Boston, MA. Call (617) 423-5546, Rob.

Mix Classifieds are your best advertising buy in the industry.
Phone (800) 544-5530.

Equipment Financing

EQUIPMENT FINANCING

- ♦ FAST, EASY APPROVALS
- ♦ We Specialize in Audio-Visual Equipment
- ♦ No Financials Necessary
- ♦ True Lease or Finance Lease Option
- ♦ New or Used Equipment

LOANS BY PHONE

Call Jeff Wetter

(800)699-FLEX

24hr. Fax (972)578-0944



FLEXLEASE, Inc.
COMMERCIAL EQUIPMENT FINANCING

Funding Provided By
WINR
Business Credit

L F C I Equipment Leasing

**DIRECT LENDERS
SPECIALIZING IN AUDIO - VIDEO EQUIPMENT**

- ⇒ No Down Payment
- ⇒ Application Only For Up To \$50,000
- ⇒ New & Used Equipment

CALL: (800) 626 - L F C I

**VISIT OUR WEB SITE: <http://www.lfci.net>
APPLICATIONS, QUALIFICATIONS, THE LEASE PROCESS**

ALSO APPLY FOR OUR \$10,000 CREDIT CARD / LEASE

Equipment for Sale

BALANCED AC POWER SYSTEM

Balanced AC power is as good as they say it is, but doesn't cost as much as they say it does. \$499 buys 1,500 watts packaged the way you'd use a B.P.S.

Call (573) 334-6740 or www.spectrumxfr.com for info.

O2R & O3D FOR RENT

Automate your mix
Hi-Tech Audio
(650) 742-9166

SEE OUR AD IN MARKETPLACE pg. 234

SPECIALIZED FURNISHINGS

FOR YOUR YAMAHA™ O2R, O3D



IN STOCK, READY TO SHIP

Call for a FREE catalog **800-427-5698**

OUTSIDE U.S. 573-346-8549 FAX 573-348-2769
ACI - 5687 Precision Ct - Osage Beach, MO 65065
www.argosyconsole.com info@argosyconsole.com

ADAT UPGRADES— MIC MODS

Component-level upgrades for mixing consoles, tape machines, mics & all outboard gear. Also, high-speed high-quality mic preamps.

AUDIO UPGRADES
6410 Matilija Ave.
Van Nuys, CA 91401
(818) 780-1222
Fax (818) 346-2308
<http://home.earthlink.net/~jwilliams3/>

WWW.ACCURATESOUND.COM
Check our Web Site for the Following: Digital Bin Cassette & CD-R Duplicating Systems, Digital Loggers for Telephone & Radio, New & Used Equipment & Parts. Or Call-Fax-Email for information: Tel: (650) 365-2843, Fax: (650) 365-3057, EMail: Ron@accuratesound.com

Accurate Sound Corporation,
3475-A Edison Way,
Menlo Park, CA 94025.

VT-2 Vacuum Tube Mic Preamp
www.dwfearn.com



D.W. FEARN

SEE OUR AD IN MARKETPLACE pg. 230

OMNIRAX STUDIO FURNITURE

MixStation / O2R



Custom Design
and
Modifications Available

800.332.3393

FAX 415.332.2607

Outside U.S. 415.332.3392

WWW.OMNIRAX.COM P.O. Box 1792, San Rafael, CA 94908

Available for
All Mackie
8-Bus mixers, &
Esrodesk

OTARI MTR 90III less than 1k hrs, perfect w/remote, etc. \$21k. TRIDENT 24 36x24 w/240 pt. ADC patchbay, exc. cond., \$11k. Both wired together for \$30k. Ian (415) 512-8920.

Equipment Appraisal Facility Liquidation

Hamilton Brosious
Associates
(800) 423-5499

How BIG is Yours?

HARD DRIVES

Digital Audio
Specialists!

CD RECORDERS

MEMORY CHIPS

BIG DISC

(954) 749-0555

SOUND CARDS

MIDI SOFTWARE

<http://www.bigdisc.com>

TAC MATCHLESS
26X24

PATCH BAY/HARNESS
\$5,800 O.B.O.
(406) 652-5943

Console & 24-trk machine for sale. 56 input Amek Mozart console, Supertrue automation w/dynamics option & IBM computer, \$55k. Otari MTR100 w/Dolby A & SR, Autoloc w/SMPTE card, stand, \$30k. Private home studio in CT. All in pristine condition. (203) 270-1450.

Sound thinking

Digital Audio:
It's What We Do!

digidesign ALESIS

...and more

541-386-2682

www.soundthinking.com

Classic
ELECTRONICS

HUGE SELECTION OF VINTAGE EQUIPMENT

NEW, USED & VINTAGE

**CONSOLES • RECORDERS
MICROPHONES • OUTBOARD**

- Complete Studio Installs
- Great Package Pricing
- We Purchase Your NEVE or SSL Console Anywhere Worldwide
- Specializing in Neumann Microphone Capsules
- We Buy and Trade Equipment. Fax Us Your List
- Full Service & Repair Department

**AKG • API • COLES • NEUMANN • NEVE • SONY
SSL • STUDER • TELEFUNKEN • TRIDENT**

FINANCING AVAILABLE

3% CASH DISCOUNT

PHONE 818.992.0999 • FAX 818.340.4331
WWW.CLASSICELECTRONICS.COM

VINTAGE NEVE™ 1272 PREAMPS with D.I.



\$989 Single w/p.s. \$1659 Two channel w/p.s.

VINTAGE NEVE™ 3405 PREAMPS with D.I. (PRE FROM NEVE 1081 EQ)
\$749 Single w/p.s. \$1249 Two channel w/p.s.

VINTAGE API™ PREAMPS with D.I. (MADE FROM API 312 CARDS)
\$1349 Two channel w/p.s. \$499 Plug-in module

POWERED RACKS FOR VINTAGE API™ PREAMPS AND EQ'S
\$499 6-Module portable \$539 6-Module rack mt \$799 11-Module rack mt

Brent Averill
ENTERPRISES

14300 Hortense Street • Sherman Oaks, CA 91423
818 784-2046 FAX 818 784-0750
www.brentaverill.com

bpmusa@southfla.net
German Handmade Large Diaphragm Condensers

bpm

Starting @ \$549.95

studiospeakers
\$308. \$311.8PM

SEE OUR AD IN MARKETPLACE pg. 229

THE MIC SHOP

TUBE MICROPHONES
BOUGHT/SOLD/SERVICED
Mic Power Supplies & Cables
Bill Bradley (615) 595-1717
Fax: (615) 595-1718
Visa/MasterCard
<http://www.micshop.com>

Klay Anderson Audio Inc.

PRO AUDIO SALES AND SERVICES

"Good Sound is the Absence of Bad Sound"

1.800.FOR.KLAY

7054 SO. 2300 EAST • SALT LAKE CITY, UT 84121
VOICE 801.94.AUDIO • FAX 801.942.3136
HOMEPAGE: <http://www.klay.com>

NEUTRIK TT CABLES

\$10.99 ... 24"
3-Yr Warranty! also 12/18/36
REAN 96 pt TT BAYS
\$229-\$269 / Better Than SW
HHB CDR800: best \$
HHB ADAT45: \$6.99
GREEN DOT (615) 366-5964

Equipment for Sale

**NEVE™ 1272
MIC PREAMPS
2 CH- RACKMOUNT
BEST PRICES!
813-643-8114**

BLEVINS AUDIO (B.A.E. Inc.)

Latest gear list on the web:
www.questx.com/bee
ph: (615) 242-0596
Fax: (615) 242-0599

17 years of sales and service

ANALOG TAPE DECKS FOR SALE: (All prices are negotiable.) Otari MTR-10C, Mono 1/4" (2) \$750; Otari MTR-101IB 2-trk 1/4" (3) \$1,000; Otari MTR-101IC 2-trk 1/4" (3) \$1,000; Otari MTR-10-4 4trk 1/2" \$3,000; Otari MTR-12II-1 4trk 1/2" \$3,000; Otari MX-70-8-FH 8-trk 1" (2) \$2,500; Otari MRT-90II 24-trk 2" *head life remaining: 80%! Also includes auto-locator, \$20,000. If interested, please call Brad at (212) 586-3503.

PATCHBAYS

\$700 ADC TT recond. \$149-\$229 new isn't always better, it's just more used and vintage gear since 1975
audio village (760) 320-0728

**MARQUETTE
AUDIO LABS**
* RECORDING EQUIPMENT *
CUSTOM RACKING OF VINTAGE GEAR
V-72, V-76, NEVE, AUDIX, CALREC ECT...
MICS, PREAMPS, COMPLETRES + MORE
Phone (510) 581-3817 Fax (510) 581-3917

3M M79 2" 24-track with Select-take II autolocator. Saki heads in good cond. (4) extra track cards, \$5,000. Tascam MS-16 1" 16-track with AQ-65 autolocator. exc. cond., \$2,400. Call TURTLE RECORDING, (604) 270-8878.

For Sale: Studer A-820 24-Tk
A steal at \$25k. Very clean, very well maintained. Great sounding machine! Road cases included. Serious inquiries only please. Call Mike @ (615) 347-0243. E: mike@undergroundsound.com



At Last, THE FUNKY CURE FOR ANORAKSIA NURDOSA

(the inability to absorb meaningless specifications...)

CONFUSED BY THE DIFFERENCE BETWEEN V72, V76, V2?, * U47, U48, U=BOAT?, * B62, B67, B52?
Find out before you explode...

Visit **FUNKY JUNK** to see and compare the largest stock of vintage, used and new pro audio in the UK. Mics, outboard, multitracks, consoles, keyboards, accessories, tea bags, monitors, digital, analog, pond-life and **THE LOT** all under one 7,000-square-foot roof. Plus, **EXPERT ADVICE** to bore you to death. **STUNNING PART-EXCHANGE DEALS**, old for new. **CUSTOM ELECTRONICS AND REPAIRS** by the **MEGA ANORAKS** in Boffin Island (they can't just tell how it works; they can tell you why it doesn't. And **SPEEDY NATIONAL AND INTERNATIONAL** shipping by Clive (who knows more about Frank Zappa than anyone should be allowed). **STONKING PRICES** on anything new. **STUNNING DEALS** on everything used. **ALL MAJOR CREDIT CARDS ACCEPTED** and we can probably spell them all backwards. **THREE PAGE LIST** full of hugely interesting numbers and names instantly recognizable to Anoraks worldwide (1073, AB27, VRP, 4048G, C12, 4033, 1998, DSO, MBE, etc.) is yours for the asking. Fax or phone now. Open to callers Monday to Friday, 10 'till late (if we're not out spotting car number plates).

FUNKY JUNK: IF THE TEA DON'T SLAY YA, THE PRICES WILL.

funky junk, Ltd. 505-507 Liverpool Rd., London N7 8NS
Telephone: 011 (44) 171-609-5479
Fax: 011 (44) 171-609-5483
http://www.funky-junk.co.uk
sales@funky-junk.co.uk

Directors: Mark Thompson, Helen Rider, Stephen Lane, Clive Richards

Professional Audio Design Inc.

SSL
API
GML
AKG
RØDE
Otari
Avalon
Neotek
Manley
Lexicon
Daking
Focusrite
Brüel & Kjær
Tube Tech
Soundscape
Soundcraft
T.C. Electronics
Dynaudio Acoustics

...Call for complete list of new products

(781) 982-2600 fax(781) 982-2610
357 Liberty St. Rockland, MA 02370

New, Used and Vintage Equipment
• Sales • Service • Design • Installation

EQUIPMENT SPECIALS

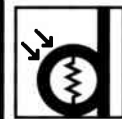
SSL 4096+/Ult • SSL 4056E/G • SSL 6048E/G • SSL 6060E/G • Neve VR60FF • Neve VR48FF • Neve V-III 60FF • Neve V-I 48FF • Neve 8088-48I/O FF • Sony MXP3036 • Amek Einstein 80 Input • Trident 80C 32x24 Auto • Trident 80B 32x24 • Trident 24 36x24 • API 32x24 • API 3124 micpre's • API 550B • API 512B • Neve modules and racks • Neumann U47, U67, M49, Km54, Km56, U87, Km84 • Studer A800MKIII • Studer A827 • Studer A80MKIV • Urei 1176, 1178, LA3A, LA4's • Telefunken V72, V76 systems • Tube-Tech LCA-2B, Manley Vari-Mu • Pultec EQP1A3, EQP1A • Dynaudio Acoustics M4's, BM15, BM6A • AKG C12, C24, C414 • Lexicon 480L, PCM42, PCM70, 224XL • T.C. Electronic M2000, Finalizer • Many other items in-stock and available.
Call for complete list.



SSL
authorized
preowned
console
sales
&
service

www.ProAudioDesign.com

35mm MAGNETIC DUBBERS:
Magna-Tech Reproducer Recorders w/Interlock: MD-235, MD-636, MR-436 for sale. Call Michael Temmer, (212) 206-1475. Fax: (212) 929-9082.



**Optical
De-esser
#31**

DANE

918/809-3604
De_esser31@aol.com

You're Not Going To Pay A Lot For Used Equipment!

Call us! We list over 350 consoles, 100s of speakers, amps, P.A.s. We can help sell your used equipment, too!

- AMEK M2000 28x16x24 recapped \$13k
- Yamaha PM 4000 \$48k
- SSL 4040 E/G TR call
- Harrison 4032A 40x32x40 \$10k

Call now for details & FREE catalog
The Friendly folks at H.T.I.C.S.
(610) 865-9151
Fax: (610) 758-9999
Email: HTICS@aol.com

Amek Einstein Super E 80 inputs Supertrue PB, \$35k; 9098 mic/EQ, \$1.6k; Neve 5324 24x8x2 with 33114 modules PB, \$30k; Neve 5315 12x4x2 with 33115 modules PB, \$14k; Neve 5104 24x4x2 PB, \$30k; Neve Kelso 10x2, \$12k; Neve 83065 comp/limiter, \$3.2k; AMS Audiofile 2-in, 8-out, SMPTE sync, \$2k; MCI JH24, 16 2" 16tr, \$7k; Neumann M 269c, \$4k; UM 57, \$1.3k; Studer 8202/24SR, \$40k; U67, \$4.2k. Tel: (847) 249-3467.

Quality Audio Gear For Sale

SSL 4056 E/G, 2 STUDER 827, 3 LYNX, A80VU1/2TR, 3800, 3500, 2300, MICS: Neumann, AKG, Sennheiser, Beyer, Audio Technica, Shure, Sony. AMPS: McIntosh, Bryston, Crown, Hattler, Ashly. OUTBOARD: 15ADS, RMX16, 224X, PCM70, PCM60, PCM42's, LXP15, LXP1, Primetime, H3000, 949 Rev7, SPX900, SPX 90's, EMT140S, PanScan, MXR AUTO FLANGER & Phaser, DBX120X Sub Box, Summit TLA100, UREI Black 1176's, Black LA3, DBX902's, Ashly SC-33, Behringer SNR202, FocusriteISA110, 6 Jensen / Boulder Mic Pre's, TubeTechPE-1A. MONITORS: Green Custom Biamp 813's, NS10's, & Auratones. MISC: Yamaha C5 Hammond A100 w/ Leslie, Marshall 50 Musician Stingray, E2 w/ huge Library, D50, Hammond/Karmon CD, Sony CD, Scholtz Rackman Sust, Mackie 1604, 30 AKG/Beyer Boom Stands, Countrymen D1's, Proco D1's, 13 Jensen D1's Bass Sans Amp 2Altech 604's, Loads of Test Gear, [tentalmeters, Oscilloscope] ect...

Ocean State Pro Audio
Expert Acoustical Design Sales & Installation

For Complete List & Prices Call (401) 247-0218 or 245-6080

sell high. www.digibid.com buy low.

ONLINE AUCTION - HAPPENING NOW!

Odyssey

pro sound
new, used & vintage recording equipment

BUY • SELL • TRADE

Vintage, Tube, Classic,
Consoles, Tape Machines,
Mics and Outboard!

Neve, API, Fairchild, Pultec,
Urei, Neumann, Studer,
Manley, Quested & more...

Customer Satisfaction & Quality Guaranteed!

Phone (978) 744-2001

Fax (978) 744-7224

MC VISA AMEX

www.odysseyprosound.com

(1) Crest Century GTX, 24 mono inputs, 4 stereo inputs, 8 groups, 8 aux sends, 8 FX returns, 12x6 Matrix, Full Meter Bridge, (2) Power Supplies, Flight Case, 4-Band sweep eq, (4) Mute groups. Plus (2) extra mono modules and one Stereo module. Used 2 years in one theatre, never moved & very clean. \$14k.

(5) DBX 160 Compressors, \$250 each. (1) FBX 2020 Feedback Exterminator, \$300. (1) TC 2000 Multi-FX processor, \$1,700. (1) TOA 70 volt amplifier, \$500. (2) Peavey 112 Floor Wedges never used, \$250 pair.

Please call Palm Springs Follies at (760) 7654 ask for Dan or Email us at: psfollies@aol.com

THE CASE SPECIALISTS
FREE CATALOGUE



(800) 346-4638

(516) 563-8326, NY

(516) 563-1390, Fax

Custom or stock sizes.

Our prices can't be beat!

Discount Distributors

VINTAGE



NEUMANN,
NEVE, API
& STUDER

Call for list.
512.338.6777



www.kdi.com/~stardog



New & Used, Buy, Sell, Trade
(313) 965-0456
Fax (313) 964-3338

SEE OUR AD IN MARKETPLACE pg. 234

www.UsedSSL.com

AMS Spectra & Audiofiles

S
A
L
E
(1) Color screen Spectra in great condition and (2) Green Screens with extra control surface, card rack-power supply plus many spares & cables. Call Chris at (213) 957-3399.

OKTAVA
BEST RUSSIAN MICS

- MK-012 condenser.....\$200
- VM-100 tube, condenser...\$650

VINTAGE
BEST GERMAN & AUSTRIAN MICS

from RUSSIA
TEL/FAX: 011-7-095-299-1161

SOUND ANCHOR
SPECIALTY AUDIO STANDS
(407) 724-1237

DESIGNED FOR ULTIMATE PERFORMANCE BEHIND CONSOLE AND FREE SPACE APPLICATIONS.
STANDARD & Custom Models
SEE OUR AD IN MARKETPLACE



SEE OUR AD IN MARKETPLACE pg. 234

Ribbon Mics

Sales, Parts & Service
The Best in the World

Matched Pairs & Stereo Bars



Coles 4038
RCA 44s & 77s

(800) 798-9127

Call Wes Dooley

NEW, USED, DEMO
EQUIPMENT
BEST SELECTION OF
DIGITAL/ANALOG
RECORDERS, CONSOLES,
DAWS, OUTBOARD GEAR

Otari C1 4032, Yamaha O2R, API 1200 rack system, Dynaudio Monitors, Alesis ADAT, Tascam DA-88, Sony PCM800, Otari Radar 24tk, Pro Tools III, All Digidesign Plug-Ins, Mackie 8-Bus, Apogee AD1000, Lexicon PCM80/90, TC Elec. M5000, CD Recorders, API, GML, ADL, Summit, Focusrite, Demeter, Lucas, TL Audio, Neumann, AKG, Microtech, RØDE, B&K, Genelec, Dynaudio.

Studio and System Design,
Financing, Factory Service/
Installation, Experienced and
Knowledgeable Sales Staff.
EAR PROFESSIONAL AUDIO
(602) 267-0600

http://www.ear.net

Every major brand of everything. Millions of dollars of musical gear in stock. ALTO MUSIC. Guitars, recording, keyboards, amplifiers, drums, pro sound, new & used. One of the largest selections in the country. We ship everywhere! (914) 692-6922 • 680 Rt. 211 East Middletown, NY 10940 Ask for Uncle Freddy—He loves ya!

MILAM AUDIO

"THE SOURCE"

SINCE 1967

SPECIALIZING IN
ALL TYPES OF RECORDING
EQUIPMENT, SUPPLIES,
DESIGN, INSTALLATION,
AND CONSULTATION

CONSOLES ■ D.A.T. ■ MICS
MULTI-TRACKS
MONITORS ■ AMPS

CALL US TODAY

MILAM AUDIO

1470 Valle Vista Blvd.
Pekin, IL 61554

Orders (800) 334-8187

Info (309) 346-3161

Fax (309) 346-6431

www.dpc.net/~milamaud

e-mail: milamaud@dpc.net



"this is not a problem"

(508) 543-0069 TEL

(508) 543-9670 FAX

http://www.mercenary.com

Equipment for Sale

Hard Disk Recording

Sales 800.801.0153
770.599.0681
F 770-599-6469

www.missionrec.com



(800) 264-6614

Looking for new and used recording, keyboard, or outboard equipment? We've got tons of super clean used, as well as new products from Tascam, Alesis, Kurzweil, Roland, Mackie, Genelec, Lexicon, Fostex, Yamaha, Korg and hundreds more. Discount Pricing and World-wide Delivery! 69 years in business. Trade-ins welcome. Visit our new 22,500-sq.-ft. location. Call, fax or email us today. carusomusi@aol.com OR sales@caruso.net. Visit us at www.caruso.net. Start saving money today! Call **Caruso Music**, 94 State St., New London, CT 06320 USA. Outside of US: (860) 442-9600 or (800) 264-6614.

FREE CATALOG

- ◆ MICROPHONES
- ◆ HEADPHONES
- ◆ MIXERS & AMPS
- ◆ CABINET & RACK ACCESSORIES
- ◆ STAGE LIGHTING
- ◆ SHOCKMOUNT RACK CASES
- ◆ HORN DRIVERS

PARTS EXPRESS - CALL TOLL FREE
1-800-338-0531

Source: *ode* MIX

SEE OUR AD IN MARKETPLACE pg. 233

OCEAN AUDIO INC.

SELLS AND BUYS USED EQUIPMENT SINCE 1942
LOTS OF RARE, OLD & NEWISH STRANGE AND SOME VERY FUNNY PIECES

LIST YOUR UNDER-USED EQUIPMENT FREE ON OUR DATABASE
THE LARGEST USED EQUIPMENT LISTINGS IN THE WORLD

Phone (310) 459-2743 (303) 449-8322

Fax (303) 449-8558

Email: hadlerd@netOne.com

Now internet Listings

<http://www.visionwork.com/oceanaudio>

Quality Audio Tracking Mixing and Mastering Tools

AKG•Amek/Langley•API•Apogee•ATI•Audio-Technica•Avalon Design•B&K
Behringer•Beyer/spl•Brainstorm•Bryston•dbx Blue•Digidesign Pro Tools
DAL V8•Dolby-Pro•Drawmer•Dynaudio•Equi•Tech•Event•Earthworks
Eventide•Focusrite•Genelec•GML•Grace Designs•Hafler•KRK•Manley
Lexicon•Mackie•Microtech Gefell•Mytek•NTI•Neumann•Otar•RØDE
Sony Pro•Soundtracs•Soundelux•Soundfield•Summit Audio•TC Electronic
Timeline•TL-Audio•Tube-Tech•Tube-Trap•Vac-Rac 4000 •Yamaha Digital
Waves and many more

9982 Monroe Drive, Suite 407, Dallas, TX 75220
(214) 358-0050 • Fax (214) 358-0947

Sales • Service • Installation • Consultation • Leasing



www.studiotechsupply.com

SUPERDIGITAL

The Recording Store

LOVES MANLEY World's Best Tube Gear



1-888-79-AUDIO 1-503-228-2222
www.superdigital.com
Super Prices • Friendly Service

SEE OUR AD IN MARKETPLACE pg. 229

SONY PCM-3324

Restored like new!

\$9500

(914) 356-0993

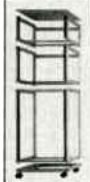
Visiting S.F. for AES? Visit
Us. Dan Alexander Audio:
located 2 blocks from the AES
site. Refreshments will be
served from 12-6 daily.
(415) 546-0200
665 Harrison 'tween 2nd & 3rd
We have Audio Gear For Sale!

Former "WARNER BROS"
Quad eight scoring board
just released, 40x24x32,
major credits! Mint *

AMPEX MM 1200 24-tk, 1w hrs,
Mint * SOUNDRAFT 6000
36x24x24, Mint! *
(818) 887-6600.

STUDER A-80 Mk IV 1/2" 2-track,
also w/4-tk. headstack, 700 hours,
MINT, \$5,500. NEUMANN U67
w/recapped P/S original yoke
shock-mount, box, in hard
shell carrying case, \$3,300.
VOYETRA 8 classic analog
synth module w/manuals,
\$1,500. (212) 533-4197. Lv. msg.
for Bob.

SOUTHERN CALIFORNIA
PRO AUDIO
NEW, USED AND VINTAGE
THE LAST CALL YOU'LL HAVE
TO MAKE!
Phone: (818) 222-4522
Fax: (818) 222-2248



The RACKIT™ System

Modular, stackable oak units
hold all recording formats
New: Racks with mounting rails!

Free mail-order brochure
(please mention Mix)

Per Madsen Design
(415) 822-4883 • PO. Box 882464
San Francisco, CA 94188

DENON REMOTE CONTROL

AVAILABLE NOW!
Wired Remote Control for:
DN-T 620

CD PLAYERS
DN-C680 DN-650F DN-951FA DN-961FA
AUDIO CASSETTE RECORDERS
DN-720-R DN-790-R DN-770R
MINI DISC PLAYER-RECORDERS
DN-1050R DN-1100R DN-980F DN-981
DN-981F DN-990R DN-995R
MINI DISC "HOT START" REMOTE
DN-1050R DN-1100R DN-981F



Twecomm Inc.
1831 King James Drive
Pittsburgh, PA 15237-1573
Phone (412) 369-8770
www.twecomm.com

Neumann/Telefunken
The German Source:
Akzent Audio
actual listing on
www.thatworks.com/akzent/
phone us: (212) 330-9124
Germany: 011/49/721/373/622
Fax: 011/49/721/373/611
e-mail akzentaudio@t-online.de

Looking for Music & Recording Equipment?

CALL SWEETWATER — YOUR
MUSIC TECHNOLOGY AUTHORITY!

Want the Best Selection?

Massive stock of recording, MIDI,
Sound Reinforcement Guitars,
Basses, Amps and Accessories.

Want the Greatest Convenience?

Shop by phone—no running around!
We deliver to your door! Top-notch
assistance—no high pressure!

Want the Best Value — Guaranteed?

The right gear at a fair price!
Outstanding tech support & service.
Genuine respect. A great experience!

Music Technology Direct —
and the Best Value, Guaranteed!



(800) 222-4700

(219) 432-8176

Fax: (219) 432-1758

www.sweetwater.com • sales@sweetwater.com

Digital Recording

Factory Direct Discount Dealer
* Alesis * Yamaha * Sony *
Tascam * Roland * Akai *
* Event Electronics * Digital
Audio * Fostex * Korg *
Pro Audio Plus
(800) 336-0199
Division of Rolls Music Center

We've got your n'hummer.™

Kills the hum in audio lines.
No transformers, noise gates
or comb filters. It works,
guaranteed! \$249.95 + s/h
for a 2-channel unit.
www.stro-ion-technologies.com
800.567.0881



The AMPEX Source

- ATR100 sales & restoration services
 - 1/2" two-track mastering conversion featuring Flux Magnetics heads
 - HDV-2 modular tube electronics and transformerless I/O for ATR100
 - Transports upgraded for better-than-new performance and reliability
 - MM1200 service and upgrades
- Call Michael Spitz at 650-574-1165
Fax 650-574-2064

ATR SERVICE COMPANY
AMPEX SPECIALISTS

SINGERS! REMOVE Unlimited Backgrounds™

From Standard Tapes, Records, & CDs
with the Thompson Vocal Eliminator™
Call for Free Demo Tape
Internet <http://tssound.com>
LT Sound, Dept MX-1
7988 LT Parkway
Lithonia, GA 30058
24 Hour Demo Info
Line (770) 482-2485 • Ext 8
Best Vocal Eliminator™, Key Changer, Voice Enhancer!

HARBORSOUND

HUGE SELECTION OF
USED, VINTAGE &
NEW GEAR

Consoles, Mics, Recorders.
Buy & Sell vintage NEVE & API
modules, Pulcets, Tube mics.
New Equipment in stock.
Credit cards accepted.

Ph (781) 231-0095

Fax: (781) 231-0295

www.harborsound.com

2 Neve Melbourne 12x2 mixers;
Neve 33115 EQ avail.
individually; Studer A80 MkII
16-tr. (very low hours) & 1/4";
LA2a; 1176 (pre-blackface);
GML 8900 MkIII limit; Neu-
mann U67; AMS ST250 stereo
"soundfield" mic. (604) 351-7109.
andrewgordon@yahoo.com

Check Out MIX Online
<http://www.mixonline.com>

Masterpiece A/V, Inc.
 Call Aaron & Jamey
 For a Wide Selection of New Professional
 Audio/Video Gear Media & Accessories
 Toll-free (888) 770-2835
 fax (860) 354-9057
 http://www.masterpieceav.com

Equipment Rentals

GEAR FOR DAYS
Pro Audio Rentals
 New Addition: Studer D-827
 \$600 p/day - \$2400 p/wk
615-812-GEAR
615-248-GEAR (FAX)
EMAIL:
 gear4days@aol.com

Equipment Wanted

EQUIPMENT WANTED
 BUY OR TRADE
 YOUR USED MULTITRACK
 RECORDERS
 AND CONSOLES
EAR PROFESSIONAL
AUDIO/VIDEO
 (602) 267-0600

USED ADATS WANTED
 Easy exchange toward a
 newer or different format.
 Everything available. Save
THOUSANDS when you deal
 with our 69-year-old company.
UPGRADE TODAY. Call, fax or
 email for details. Worldwide
 delivery. **CARUSO MUSIC**, New
 London CT: sales@caruso.net
(800) 264-6614
 Outside of the US (860) 442-9600
 http://www.caruso.net

Instruction

BE A RECORDING ENGINEER
★ TRAIN AT HOME ★
 Easy Home-Study practical training in
 Multi-track Recording. Join our successful
 working graduates or build your own studio.
 Career Guidance, Diploma, Accredited.
FREE INFORMATION:
Audio Institute of America
 2250-A Union St. Suite AL, San Francisco, CA 94123

**The Midwest's Premiere
 Recording School.**

 Non-Profit
 Est. 1987
MUSIC TECH
 Associate Degree in Music Production
1-800-594-9500 www.musictech.com

SEE OUR AD IN MARKETPLACE pg. 230

**Recording Engineer
 Broadcasting**
**Multimedia/Digital/Video/Film
 Radio/TV/Sports/News/DJ/Talk Show**
No experience required!
On-the-job-training
 in local major Recording Studios & Radio/TV Stations
 Part-time, nights, weekends - Call recorded info line for FREE video
1-800/295-4433 http://www.sna.com/musicbiz



**ThunderBird
 RECORDING**

SCHOOL
**EXTENSIVE TRAINING
 IN THE RECORDING
 ARTS**
**APPRENTICE-STYLE
 PROGRAMS**
LIMITED ENROLLMENT
 CALL TODAY FOR YOUR FREE BROCHURE.
1-800-914-8004

Internet Services

www.musicians-gear.com
 European-based dealer
 Lots of Products
 Professional Handling
 Check It out!

Maintenance Services & Repairs

DATs FIXED FAST!
 Expert solutions for all
DAT recorder problems
 • All makes and models
 • Experienced, factory-trained techs
 • Fast turnaround
 • Repairs, overhauls, parts
 "The DAT doctor is in!"

973-579-4849 FAX 973-579-7571

Pro Digital Inc. **DAT ADAT DA-88**
 DAT Recorder Service Specialists

- ★ Fast, expert repairs on all DAT and MDM brands and models
- ★ The **FIRST**, the **BEST**...over 7000 digital recorders serviced!
- ★ Warranty service on most brands!
- ★ FedEx return shipping at UPS prices!
- ★ Compare our rates & turnaround time!

(610) 353-2400 (610) 359-0937 FAX
 prodigiinc@aol.com

**Music Products/
 Software**

**AKAI MPC60 USERS
 UPGRADE TO
 MPC3000 SOFTWARE!**
 LONG SAMPLING TO 26 SEC •
 STEREO SAMPLING • MIDI FILES •
 VOICE RESTART • LOAD MPC3000
 SOUNDS • SOUND COMPRESSION
 DOUBLES MEMORY CAPACITY •
 HIHAT SLIDER DOUBLES AS TUNING •
 4 PAD BANKS • 8 DRUM SETS • 4 FREE
 SOUND DISKS AND MORE • \$195 OR
 \$445 WITH SCSI HARD DISK PORT
 •••••

 PH 415 474-0903 www.RLinnDesign.com
 FAX 415 474-1118 Sales@RLinnDesign.com

Recording Services

Hear the Magic
 Master with us...and make an impact!
CD MASTERING...
CD MANUFACTURING...
CD BOOKLET PRINTING...
 ...SEE US IN MARKETPLACE
 Orlando, FL (800) 344-4361
 http://www.digido.com 

SEE OUR AD IN MARKETPLACE pg. 234

CUSTOM COMPACT DISCS
 Affordable single copy CDs
 starting at \$15.
\$5.00 OFF WITH THIS AD
46 PRODUCTIONS
 42W557 Hawk Circle
 St. Charles, IL 60175
 TEL (800) 850-5423
 FAX (800) 203-1725
 Contact us on the Internet at info@46p.com
 Visit our Web page at http://www.46p.com

LOW VOLUME CD MANUFACTURING!
**PRO TOOLS DIGITAL
 MASTERING AVAILABLE!**
 Full color printing and packaging
ANY SIZE ORDERS!
50 RETAIL-READY CDs:
 \$348.98
 100 CDs ONLY \$648.98
 74 minutes • FULL COLOR ON
 DISC • Full-color 2 panel insert
 • Full-color tray card • 2-day
 turnaround • shrink wrapped.
 (765) 457-0471
 www.discmasters.com

Subscription Questions?

 Call (800) 843-4086

OH NO!

 Now
 973-579-5773
 After 19 years (and thousands of these stickers), they changed our area code! So don't forget to dial 973 first when you need...
 • Analog Head Relapping
 • Replacement Heads
 • Precision Alignments
 • 1/2" 2-Track Conversions
 • Custom Heads and Assemblies
973-579-5773 fax 973-579-6021
 e-mail jrf@jrmagnetics.com
 www.jrmagnetics.com

HEAD RELAP/REPLACEMENT
 multitrack analog specialists
iem
 Palatine, IL
 (800) 227-4323

Recording Services

EuropaDisk

Why deal with brokers when you can work direct with our factory and save? Major credit cards accepted.

- Retail-Ready CD Packages
- Bulk CD Replication (as few as 100 pieces)
- Cassette Duplication
- 7" / 45 & 12" Vinyl Records
- Graphics Design & Printing

Disks With No Risks

BEST PRICE. BEST SERVICE. PERIOD.

EUROPADISK LTD.

<http://www.europadisk.com>

Free catalog or quote:
(800) 455-8555

COMPACT DISCS • CASSETTES

LOWEST PRICES

ACCURATE AUDIO LABS, INC.

(800) 801-SONG (7664)

SC Mastering Studios

Sixty minutes of your audio
Digitally Mastered for
\$449.95.

(404) 634-3430, lv. msg.
<http://www.mindspring.com/~SaucyChaucer>

888.999.1760

Short Run Duplication • Printing • Design
CD's • Cassettes • DVD • Vinyl
Conversion Media
www.conversionmedia.com

Records Tapes CD Services

BASE Multimedia Inc.

Price Includes:
Full Color CD Label,
(customer supplied film)
Jewel Box
Glass Master
Assembly &
Overwrap

300-\$599
300 full length CD's! (74 min. max)

500-\$750
Our most popular package for independent artists!

1000-\$1150
That's only \$1.15 per CD packaged & retail ready!

www.bmmi.com

1-800-579-7010

CD & CASSETTE MANUFACTURING

Serving the country with over 25 years of experience.
The Southwest's premiere full-service manufacturing facility!

**PRINTING • GRAPHIC DESIGN • BLANK CASSETTES
DIGITAL MASTERING & EDITING • ONE-OFF CD-RS**

RETAIL READY PACKAGES! CALL FOR FREE CATALOG!

CRYSTAL CLEAR SOUND
1-800-880-0073
mc/visa accepted www.crystalclearsound.com

ARE YOU GETTING YOUR MONEY'S WORTH?

CD • CASSETTE • VINYL • DVD

FULL-SERVICE MASTERING AND POST-PRODUCTION
REVOLUTIONARY GRAPHIC SERVICES
COMPLETE INTERNET DEVELOPMENT AND HOSTING
DIGITAL BIN CASSETTE REPLICATION
DIRECT TO METAL VINYL MASTERING (HQ180™ VINYL)
CLIENT GRAPHIC PROOFING ON THE INTERNET
DIGITAL COLOR PREPRESS AND SERVICE BUREAU
COMPLETE CUSTOM RETAIL-READY PACKAGES
DISTRIBUTION SERVICES ARE AVAILABLE

FREE Web SITE With AUDIO FILES

WWW.GATEMUSIC.COM



The Gate Music Services, Inc.

1-800-655-1625 - 510-558-9045 - F 510-558-9504

500 CD Package
\$1295.00
1000 CD Package
\$1895.00
Cassette Package
\$2295.00



PACKAGES INCLUDE: PACKAGING, MASTERING, GLASS MASTERING, FULL COLOR INSERT, 3 COLOR PRINTING ON CD OR VINYL, BAR CODE, CUSTOM GRAPHIC SERVICES, FILM, CONSULTATION AND MUCH MORE... NO HIDDEN COSTS, TAX, "MISCELLANEOUS FEES" OR "SURPRISE" EXPENSES!

DRT Mastering

You will have the big, high-impact major-label sound that sells discs... or the work is free! Custom-built analog signal chains. 1st class results. Outstanding replication. Free broch. 800-884-2576 www.drtmastering.com

PROTOSOUND
Compact Disc &
Audio Cassette Mfg.
(800) 900-7995
(802) 453-3334
Fax: (802) 453-3343

SEE OUR AD IN MARKETPLACE pg. 233

**1000 Bulk
CD's \$620!**
III MEDIA
1.888.891.9091

SEE OUR AD IN MARKETPLACE pg. 232

Creative Disc & Web Services

Phone (615-356-4906) www.CreativeDisc.com
Fax (615-353-1948) Email Cds@home.com
CD REPLICATION CASSETTE DUPLICATION
PRINTING COLOR FILM SEPARATIONS
GRAPHIC DESIGN TYPSETTING
BAR CODES WEB SITES

100 CD's \$399
200 CD's \$448
300 CD's \$489
500 CD's \$599
1000 CD's \$699
www.eastcopro.com

FREE COLOR CATALOG

1-800-365-8273

- COMPACT DISCS
- VIDEOS
- CASSETTES

Direct from Digital
• Complete Graphic Design
• Printing/Packaging
• Blank Tapes & Accessories
• 100% Guaranteed

13 Years Serving The World
EASTCO PRO
Audio/Video Corporation

69% CD'S?!
THEM BOYS
IS
CRAZY!



THE NAMES YOU KNOW AND TRUST...

HIGH BIAS BULK-BLANK AUDIO TAPES
UNBOXED-UNLABELED

LENGTH	TDK PRO-SA COBALT	maxell XL II	BASF CHROME PLUS	BASF CHROME SUPER
C-10	24 ¢	25 ¢	25 ¢	28 ¢
C-15	26 ¢	27 ¢	30 ¢	31 ¢
C-20	28 ¢	30 ¢	31 ¢	35 ¢
C-30	33 ¢	36 ¢	35 ¢	45 ¢
C-46	40 ¢	45 ¢	42 ¢	58 ¢
C-62	47 ¢	50 ¢	50 ¢	68 ¢
C-80	56 ¢	68 ¢	65 ¢	85 ¢
C-92	62 ¢	75 ¢	72 ¢	87 ¢
C-100	70 ¢	83 ¢	76 ¢	95 ¢

FULL LINE OF RECORDING AND DUPLICATING SUPPLIES



DIRECT ON CASSETTE PRINTING
CUSTOM LABELS AND J-CARDS

ALL LENGTHS AVAILABLE - 1 MINUTE TO 126 MINUTES

...FROM THE COMPANY YOU KNOW AND TRUST

764 5th Avenue,
Brooklyn, New York 11232
In NYC Tel: (718) 369-8273
24 Hour Fax: (718) 369-8275



National Recording Supplies Inc.

145 Laura Pinero Ave.,
Ceiba, Puerto Rico 00735
In Puerto Rico Tel:
(809) 885-2336



CALL TOLL FREE 1-800-538-2336

SMG
MEDIA SERVICES
CD/Cassette Duplication
Printing & Graphic Design
Complete full-color packages
(800) 791-7464
www.SmithMusicGroup.com

visit us on the internet!

10 CDs • \$100
20 CDs • \$180
Master 10 Songs
Get 10 CDs for \$50
800-684-8071
Random Access Media

MINIDISCS
best prices in the world!!
Minidisco
2124 Kittredge St. #56
Berkeley, CA 94704
sales@minidisco.com
www.minidisco.com
sales: 510-848-6703

Fleetwood MultiMedia
1000 CDs from \$799
500 Chrome Tapes \$715
Includes Everything
7-10 Day Turnaround
800-353-1830 (617) 289-6800

SEE OUR AD IN MARKETPLACE pg. 231

SEE OUR AD IN MARKETPLACE pg. 231

1000 Raw CDs for \$800

CD Replication Mastering
CD/Cassette Duplication Printing
one-offs Posters
CD/CD-Rom Hybrids Professional Design

call for a free catalog

1-888-DISC-MFG
1-888-347-2634
www.prophetmedia.com

PROPHET
Disc Manufacturing

includes 3 color disc label

(617) 577-0089

MWORKS

MASTERING
DIGITAL EDITING

1630 transfers
cd replication
individual cds
multi-media
digital noise
reduction and
restoration

call today.

WANT BETT
ANY PRICE ON CDS

- CDS
- QUICK
- BEST QUALITY
- DIGITAL CASSETTES
- PERSONALIZED SERVICE
- TOTAL COMPLETE PACKAGES
- LOWEST PRICES, CALL US LAST!

(813) 446-8273

Total Tape Services
639 Cleveland St. / Clearwater, FL 34615

500 CDS w/ 2pg color BOOKLET OR 1000 CDS w/ JEWEL CASE, INSERT YOUR BOOKLET AND SHRINKWRAP

999

800-401-8273
BALLISTIC COMMUNICATION

Our CDs, cassettes and videos are the **BEST** and **CHEAPEST** because we are the new kids on the block for **DUPLICATION** in New York.
Ph# (718) 392-9099
Fx# (718) 392-9317

OPSUNIC & MONSTER
HAVE JOINED FORCES TO CREATE THE

MONSTER X
digital media

CD'S & CD-ROMS
GRAPHIC DESIGN
REAL TIME & HI SPEED CASSETTES
WEB SITE DESIGN & HOSTING
FREE WEB SITE WITH CD PACKAGES

1-800-476-8211
www.monsterx.com

MasterCard VISA

RECORDING & DUPLICATING SUPPLIES

ARCAL® TDK BASF SONY AMPEX MAXELL

Cassettes • Reel-to-Reel Tapes
C-O's • Cassette Albums • Labels
R-Dat's • CDR's • Video Tapes
Data Storage Media

ARCAL CORP.
2732 Bay Rd., Redwood City, CA 94063
TOLL FREE 1-800-272-2591
FAX (650) 369-7446
Visit our web site: <http://www.arcal.com>

HEALEY disc
Manufacturing

Premier Quality CD/CD-ROM, VHS and Cassette manufacturing

CD PACKAGE INCLUDES:
Color 4 page / 2 panel insert, 2 color on CD printing
pre-master, glass master, jewel box and shrink wrap.

BARCODE INCLUDED.

500 CD'S \$1099
1000 CD'S \$1599

CALL NOW 1-800-835-1362
for your free catalogue ▶ www.healeydisc.com

Professional mastering at affordable rates.
Special STUDIO and INDIE label rates.

"Who's making your music."

S E R V I C E S

- + complete packaging solutions
- + graphic design
- + multi-media/interactive presentations
- + illustration
- + animation

taag DESIGN
design for the music industry

300 CD singles

Includes: pre-master, glass master, 2 color CD label printing, 5" sleeve & manufacturing.

\$695.00

www.taag.com
call for your catalogue

1-800-410-4855

FREE!

GUIDE TO MASTER TAPE PREPARATION

Find out how to prepare your audio master for error-free manufacturing. A must for recording artists and studio engineers.

\$7.95 Value

DISC MAKERS
1-800-468-9353 • <http://www.discmakers.com>

ARE YOU GETTING YOUR MONEY'S WORTH?

THE GATE

The Gate Music Services, Inc.
See our other ad in Classified's
800-655-1625
CD - CASSETTE - VINYL - DVD

Records Tapes CD Services



RELIABLE "ON HOLD" TAPES*PLAYERS
*MADE IN USA
CALL OR FAX FOR SAMPLE TAPE

MANN ENDLESS CASSETTE INDUSTRIES
3700 SACRAMENTO ST., S.F., CA 94118
TEL: (415) 221-2000 FAX (800) 683-7569

Our CD & Cass's are BETTER & CHEAPER!
(800) 421-8273
Progressive Music



Bulk CD's
as low as
60¢

CD-Audio & CD-ROM

- Audio & Video Cassette Duplication
- Mastering • 1630 • PMCD • CDR
- Graphic Design & Printing
- Retail-Ready Packages • Fast Turn

CD SONIC

Tel: (617) 424-0670 Fax: (617) 424-0657
Toll Free 1-888-CD SONIC (237-6642)

TAPE COMPLEX
RETAIL READY
1000 CDs \$1349.
With 4-panel 4/1 booklet + tray card
FROM YOUR CD MASTER & FILMS

NEW LOW PRICES
SHORT RUN CDs
WITH ON-CD PRINTING!
10 - \$100 • 25 - \$200
50 - \$350 • 100 - \$500
FROM YOUR DAT, CD OR CASSETTE MASTER
UP TO 30 MIN.

STUDIOS!
BLANK CDRs WITH YOUR
LOGO AS LOW AS \$2.75 EA

1-800-381-2717

SEE OUR AD IN MARKETPLACE pg. 233

Good Vibrations - RJR Digital
MASTERING
1-800-828-6537

OUR CD PRICES INCLUDE ABSOLUTELY EVERYTHING
1000 CDs - \$2175 (or less!) retail ready.
3 day promo CDs in quantities of 1 to 100.
Call for 4/1s, free samples, special quotes.
<http://www.fliabloweb.com/goodvibrations>

cdca
artist development associates

CD Singles Special \$559

- 500 CD's, 2 Colors on CD
- 500 Window Envelopes
- Layout, Design & Films Included
- Glass Mastering included

no tricks, no gimmicks, just bring us your CD!

Digital Dime Bag \$1,499

- 1000 CD's, Jewel Boxes & Over-wrap
- 2 Color on CD printing
- 1000 4/1 4 PP folders & 4/0 tray cards
- Film output
- Glass Mastering included

Full color, retail ready, quick turns

UNBEATABLE DUPLICATION PRICES
(888) rubber-8
PRICES SUBJECT TO CHANGE WITHOUT NOTICE

CDs Fast!
500-\$750
800-DIGIDOC
www.digidocpro.com

SEE OUR AD IN MARKETPLACE pg. 230



Perfect Duplication Deserves a Perfect Master.

The only difference between a great CD and a run-of-the-mill CD is how good it looks and sounds. Both are made with the same equipment, at the same manufacturing cost.

At Punch Media, our in-house graphic design department creates great looking layouts. We also make sure all the technical specifications are correctly met, to ensure optimal print quality every time.

The digital audio mastering suite at Punch Media is optimized for CD and cassette mastering — good clean two-track stereo sweetening in an acoustically designed room, with an experienced engineer.

Don't let your project be another run of the mill.

Visit our website for a chance to win FREE graphics and mastering for your next CD project!!

Punch Media, the full-service mastering, graphics and duplication company for CDs, Cassettes & CD-Roms.

1-888-39PUNCH (1-888-397-8624)
www.punchmedia.com

Discover MMS Advantage #3

Our staff of musicians and industry professionals means you work with people who know and care.



MUSIC MANUFACTURING SERVICES
NOT JUST DIFFERENT. BETTER!
1-800-MMS-4CDS
Call us for a free brochure and custom quotation.

MAKERS OF
CDs, CD-ROM, Cassettes,
Vinyl, Video, Mastering,
Design & Packaging
SINCE 1948



LOWEST PRICE PERIOD!!!
1-888-256-DISC

- CD/TAPE/DVD DUPLICATION AND PACKAGING
- GRAPHIC DESIGN & PRINT PRODUCTION
- AUDIO/MEDIA SUPPLIES nfaudio.com

Mix Marketplace Mix Classifieds

For Rates and Deadlines
Call Robin Boyce-Trubitt

(800) 544-5530

CD REPLICATION

- Cassette Duplication
- Mastering & Digital Editing
- Graphic Design & Printing
- CDR Blanks



We Anticipate Your Every Need

1-800-527-9225

(716) 691-7631 • Fax (716) 691-7732

DIGITAL MASTERING
INTENSE GRAPHICS
ONE OFF CD'S
CD REPLICATION
CASSETTE DUPLICATION
VIDEO DUPLICATION

1000 CD'S AS LOW AS \$999

Free Full Color Catalog • Toll Free 1.888.88XTRAX
OUTSIDE THE USA (713) 237-8636

"OUR 30TH YEAR OF FAST GUARANTEED SERVICE"

FREE CATALOG

4212 14TH AVENUE - BROOKLYN, NY 11219
ANDOL
AUDIO PRODUCTS INC.

LENGTH TYPE	C-10	C-20	C-30	C-40	C-50	C-60	C-70	C-80	C-90
BASF CHROME PLUS	.27	.32	.37	.41	.46	.51	.57	.63	.68
TDK SA	.25	.30	.35	.39	.44	.49	.53	.58	.63
MAXELL XR	.27	.32	.38	.44	.47	.52	.67	.70	.76
BASF CHROME SUPER	.30	.38	.47	.56	.65	.69	.80	.87	.89

CUSTOM LENGTHS FROM 1-126 MINUTES

100 PIECE MINIMUM

TELEX
TDK
BASF
AMPEX
maxell

IN HOUSE DIRECT ON CASSETTE PRINTING
• CUSTOM PRINTED LABELS & J-CARDS •

IN NYC 718-435-7322 • **800-221-6578** • 24 HOUR FAX 718-853-2589
www.andolaudio.com andolaudio@aol.com

FREE LABELS WITH EVERY CASSETTE ORDER
ROUND EDGE OR STANDARD NORELCO BOXES \$0.12 EACH

Sound Effects

Hollywood Sound Effects library online. Feature film SFX from mega-movies available in all popular formats. Immediate delivery and ready for editing. Buy only what you need. Today!
www.sounddogs.com

Busy S.F. 24+-track studio for sale. \$100,000. Established 20+ years. Serious inquiries only.
(415) 584-3874.

RECORDING STUDIO—NYC
4,000-sq.-ft. John Storyk designed facility with 2-control rms, 2 ISO booths, beautiful live rm, 2 lounges, offices, security system & much more! Serious inquiries only. (388) 873-2596.

Studios

PERSONAL STUDIO POTENTIAL
Timeless Architecture
Extraordinary Acoustics
www.steen-mansion.com

Sale: Co-op for Sale. New state-of-the-art Digital Recording Studio. Penthouse Loft SoHo, NYC. Live/work. Views N, S, E. 2,300 sq. ft. incl. 1,000-sq.-ft. studio w/isolated recording rooms. Featured in March '98 issue of EQ pg. 78. Acoustic Design consultant: John Storyk. Artist certification req. Asking \$1.5 mil+equip. (optional). Maint: \$1,400 mo. Must sell immed. (212) 546-1588. Serious inquiries only.

FAX your Mix Classified
510 • 653-8171

Nashville studios and real estate for sale or lease, 3,700 sq.-ft. Large and small rooms. Zoned commercial. 7 minutes from downtown. Heavily constructed from the ground up as a studio. Neve 8232 consoles, Studer 827s etc., also available. Platinum and Gold performances. Call (615) 269-0828.

THE WAREHOUSE

Studio Sales & Services

CD & Cassette Packages
1000 color CDs from \$1,899
CDRs · DATs · ADATs · R2/R
Custom Graphics
Blank cassettes (BASF, TDK, Maxell)
Behringer Equipment
Warehouse prices
Call
800-GUD-TAPE • 800-483-8273
<http://www.Warehouse-Studio.com>
Visa · MasterCard · Discover
2071-20mx Emerson St., Jacksonville, FL 32207
904-399-0424 fax: 904-399-9683

What Are You Looking For?

Buy it —
Rent it —
Sell it —
through Mix Classifieds

(800) 544-5530
FAX (510) 653-8171



Also Available

- CD-Rom
- Cassettes
- Digital Mastering
- Posters

500 CD's Complete Full Color package

CD package includes:
color 2 page insert, 2 color CD Label,
all mastering, jewel box,
shrink wrapping, graphic insertion.
• From Client Supplied Film Separations

\$999⁰⁰

500 CD's we do it all! package

CD package includes:
graphic design, film,
color 2 page insert, 2 color CD label,
all mastering, jewel box, shrink wrapping,
graphic insertion.

\$1299⁰⁰

Call for our WHOLESALE MANUFACTURING GUIDE

1.800.582.3472

www.spinnerworldwide.com

World Famous
Recording Studio
Celebrity owned. 2 studios and offices. Great, convenient L.A. location. Currently operating; good income. Owner moved to East coast. Serious inquiries only! No Brokers.
Mark @ (213) 660-5976.

Mix Classifieds (800) 544-5530

Video Equipment, Services & Supplies

VIDEO w/TC FOR LOCKUP.

Rebuilt 3/4" w/Warr., Betacam. 1" VTRs: SONY, JVC & AMPEX. JVC & SONY Remote Controls. SONY VP-5000, 5600, 5800, 5850, BVU-800, 950, VO-9800, 9850. Four-Month Warranty. (212) 580-9551 or (212) 206-1475. Fax: (212) 929-9082. Michael Temmer.

Subscription Questions?
Call (800) 843-4086

Miscellaneous



10 CD-Rs for \$59.95

Package Includes:
Direct to Disc Imprinting
Duplication
Media
Jewel Box

Great Replication Prices, Too!

Call: 888.387.4202 **HAVE** inc.

SEE OUR AD IN MARKETPLACE pg. 233

DIGITAL FORCE™



TOTAL
CD & CD-ROM
PRODUCTION
149 MADISON AVENUE NY NY 10016
Call for free sampler & quotes!

MASTERING
REPLICATION
PRINTING
PACKAGING
GRAPHIC DESIGN

www.digitalforce.com

212-252-9300

MASTERING • MANUFACTURING • PRINTING

DIGI-ROM™

CD-AUDIO • CD-ROM
REAL TIME & HIGH SPEED AUDIO CASSETTES

COMPLETE PACKAGES • CD-ROM STRIKE-OFFS • GRAPHIC DESIGN STUDIO
CD-ROM PRODUCTION & ARCHIVING • 1 TO 500 DISCS DUPLICATED OVERNIGHT



(800) 815-3444

(212) 730-2111

www.digirom.com



130 West 42nd Street • New York, NY 10036

MIX CLASSIFIEDS WORK!

Phone: (800) 544-5530
Fax: (510) 653-8171

e-mail:
mixclass@intertec.com



Classified Ad Deadlines

August 15, '98 deadline for
OCTOBER '98 issue

Sept. 15, '98 deadline for
NOVEMBER '98 issue

Call

Robin Boyce-Trubitt
(800) 544-5530

INSIDER AUDIO

—FROM PAGE 26, 200...POUNDS?

one didn't last long. The big bank I was now cashing my checks through announced it was being absorbed by an even bigger bank, to create the biggest bank in the state. What bank was doing the absorbing? You guessed it—the one with the usurious exchange policies I had stormed out of not long before.

So I was back where I started. Only now there was one bank on the corner where there had been two. The lines were twice as long, the personnel turnover was twice as fast, and the protocols for nonstandard procedures, like foreign exchange, were twice as difficult and just as expensive as they had always been.

One day, after my now-customary 45-minute wait to get to a teller (who, of course, had no idea what I wanted to do), I found myself yet again arguing with a manager about how her employer could justify charging huge fees for the privilege of handling simple foreign exchanges and tying up the funds for

weeks, when we both knew full well that international transactions take place at the electronic level in milliseconds and cost the participants fractions of pennies. Suddenly, the words "Provisional Credit" slipped out of her mouth.

I stopped screaming. What was that? I politely enquired. Provisional Credit, she explained, was a policy extended to "good" customers of the bank who wanted to deposit nonstandard items. I ventured that I might qualify as a good customer, inasmuch as I had maintained an account with some institution or other that eventually became this bank for the last 20 years; plus, my wife and I had a joint account there, which we had opened when we bought a house, through which we paid our mortgage; plus, my wife had some good-sized IRA Certificates of Deposit she had opened many years ago, in a different institution in another part of the state, which was also now part of this bank.

She agreed. Now, under this miraculous Provisional Credit, when I presented my English check, my account would be credited immediately, using

the day's published exchange rate, and there would be no fee. If the check bounced, however, I would be subject to a heavy penalty. Since I considered the likelihood of EMI's sending me a bad check about equal to that of Elvis playing rhythm guitar on my next album, I thought this was a good risk. We shook hands, filled out the forms (twice—some things hadn't changed) and for the first time I could remember, I walked out of a bank with a smile on my face.

A few weeks ago, I went back to this bank, waited the requisite hour, smiled at the teller (whom, of course, I had never seen before), handed her my EMI check and uttered the magic phrase. She didn't smile back, but looked puzzled and asked me to repeat it. I did, but her expression didn't change. Another teller overheard me and rushed to her colleague's aid, saying, "Oh, we don't do that!" "You sure as %^&* do," was my considered reply, which apparently caused her to press some kind of button, at which point a manager (whom I had also never seen before) suddenly appeared at my

elbow. "Come into my office," this manager said soothingly.

We sat down, and he calmly explained that the bank had recently decided to stop the policy of issuing Provisional Credit because it was losing money on it, and if I wanted to cash my foreign check, it was back to the good old days of fees, waits and lousy rates. And, oh yes, the fee had gone up. I asked how it was possible for the now-defunct policy to have lost money, since the privilege was presumably only being extended to customers with enough in their accounts to cover any potential bad checks, and since the penalties were so large that this actually should have been a profit center for the bank. He had no answer.

Then I asked if the fact that there had been a story in the newspaper earlier that week about how his bank had suffered a \$76 million loss at the hands of one of its own loan officers (who had funneled the money through several dubious companies in Uruguay run by a well-known convicted swindler, and was now being sought by the FBI and Interpol) had any influence on this decision to chisel just a little more out of its customers. He assured me it didn't.

Then I asked about another story in the paper. This one reported that the building down the street that had previously housed the big bank that had most recently been absorbed into *this* big bank was being kept deliberately empty for the seven years, remaining on the big bank's lease at a cost of \$80,000 a year, so that a competing bank wouldn't be able to move in. (The story noted that the town fathers were getting pretty pissed off at the prospect of an empty concrete hulk occupying the town center until 2005.) Did that have any effect on this decision? He assured me it didn't.

This time, I couldn't storm out with my money because there was nowhere else to go. This was the last bank in town that would even *accept* a foreign check. I didn't want to lose my ATM privileges, I didn't want to move our house account and I didn't want to tell my wife to take her IRAs somewhere else. So I gave him the check, thanked him for his help, watched him fill out the form (only once, for a change) and left, not wearing a smile.

When I got home, I sent a fax to EMI in London asking how much it would cost for them to send me checks in U.S. dollars instead of pounds. "Oh, we don't charge for that," came the immediate reply. "When would you like us to

start?"

Why did I tell you this story? Well, it doesn't really have that much to do with banks, although I do worry about the banking industry. Apparently, I am in a small minority, because if you believe the newspapers, everyone in America except me owns bank stocks, and if these continuous mega-mergers inconvenience, penalize or just plain rip off customers or employees, it's of little consequence compared to how beneficial they are to shareholders. There are a few other far-left kooks who share my concerns: A few pesky New England Congressmen have been heard muttering about how, as huge banks merge with other financial institutions like insurance companies and stock brokerages, they become "too big to fail," and that if one of them does, it will wipe out the Federal Deposit Insurance Company's reserves ten times over. But, of course, since everyone involved is so busy getting rich, no one's paying much attention to them.

I told you this story because it relates to monopolies in general, and monopolies, as they were in the 1890s, are once again a very big part of the business landscape in the 1990s. A monopoly is generally a good thing only for one group: the owners of the monopoly. It is not a good thing—as even AT&T would probably admit by now—for the vast majority of people who use the products and services produced by the monopoly.

Am I worried about some mega-manufacturer getting a corner on professional audio products? No, at least not when it comes to hardware. Our industry is eclectic enough, and populated with people who are creative and individualistic enough, that no matter how big Sony, Yamaha or Harman get, there will always be room for entrepreneurial companies with good ideas and strong messages to find a niche. There's a lot of turnover in our industry: Former giants like MCI, Scully and 3M are nowhere to be found, while upstarts like Alesis, Digidesign and Mackie are the new powerhouses. Come back in 15 years and the names will have changed again. And as long as standards like AES/EBU, MIDI, SMPTE, TCP/IP and maybe even OMF are free to all who want to use them, our industry will continue to nurture new ideas and practices.

But there *is* an industry in which this churn, this constant renewal and replacement of dominant forces, is in danger, thanks to the monopolistic policies

of one of its practitioners and the passive acceptance of those policies by its customers. Read my story again, but whenever you come across the words "foreign exchange" or "foreign checks," change them in your mind to "third-party applications" or "other operating systems." When you see "exorbitant fees," change that to "licensing agreements," or perhaps "incompatible file formats." When you see "clerk" or "teller," change it to "tech support line." When you see "bank," change it to "operating system maker." And when you see "mega-bank," change it to "Microsoft."

More and more of our tools are moving inside machines whose operating system is the sole property of a company who, according to many in the computer world, has defined the term "predatory business practices" for the past two decades. Microsoft didn't single-handedly kill off all of their competition—the people running Commodore, Atari and IBM had a lot to do with it as well, and now we are witnessing Apple, whose aim at their own feet seems uncannily accurate, continue the tradition—but they are making damn sure that no new company will rise to challenge their hegemony. And it's not just in the field of operating systems where they're bulldozing competition: The same tactics are being used for Internet browsers and development tools, office software, games and multimedia tools, and delivery systems, database management and, of course, content.

So far, they have stayed out of professional audio, but as the barriers between "desktop" and "professional" production tools continue to crumble, and audio becomes more integrated with visual media on discs and over modems, it could be only a matter of time before they gaze on our little corner of the world and decide it's time they owned that, too. And then how long will it take for them to figure out how to get us to pay for licenses to produce and deliver our products—both the tools and the content—the Microsoft way?

And when we are forced to do everything the Microsoft way (not because it's the cheapest, the fastest or the best, but because it's all that exists) and they make decisions we don't like, there will be no one in any country on the planet who we can call up and ask to bail us out. ■

Paul Lehrman is editorial director of Mix Online (www.mixonline.com). He is on his fifth Macintosh.

YAMAHA SPX990

TIPS TO ENHANCE FUNCTIONALITY

There is perhaps no more ubiquitous effects processor than the Yamaha SPX990, a universal staple of live sound and studio outboard racks. The unit offers a wide range of effects, and many operators are content to use a few stock presets with minimal modifications, but a few tricks can open new vistas of processing possibilities.

Frequent users know that any four presets can be recalled with one keystroke by using the first four function keys below the LCD. To assign a function key, call a memory location, but instead of selecting "Yes" to confirm recall, press one of the first four function keys to store it.

If not being used for bypass, the footswitch jack can be used to step through a range of presets in sequence. Edit Page 5 has the footswitch control where upper and lower memory locations are specified for a sequence that steps back to the beginning at its conclusion. From a band's set list and a handful of working presets, an engineer can build a sequence to step through during the show, customizing effects on a song-by-song basis.

MEMORY CARD

The SPX990 offers 80 factory presets and 100 internal user memories. An additional 100 programs can be saved onto a Yamaha MCD32 memory card, which may also be used to transfer user settings from one SPX990 to another, a great way to carry presets with you. The SPX990's contents may also be bulk-dumped to a Yamaha MDF3 MIDI Data Filer, which stores MIDI sequences onto 3.5-inch floppies. Finally, you can directly bulk dump from your own SPX990 to other machines. (The proprietary MCD32 cards are now out of stock, but the MCD64 also works.)

EXTERNAL CONTROL

Two MIDI controllers can be assigned for use by external MIDI devices for real-time control of the

SPX990's parameters. For example, using a Lexicon MRC in Generic MIDI mode allows two of its sliders to modify two parameters, such as "RevTime" or "RevDly," on-the-fly. The same two MIDI controllers are used for all programs in the SPX990, but the parameter assignment for each preset can be changed on Edit Page 2 and can be scaled for the most useful range. In a GMIDI setup, the MRC's four switches can also be assigned to recall four particular memories.

PROGRAMMING TIPS

Filtered Reverb programs such as Bright Hall (P6) include crossover parameters like the more sophisticated reverb algorithms found in the Lexicon PCM 70, allowing the user to tailor the reverb to dovetail with the acoustics of a particular venue—shortening the lows in concert halls or opening them outdoors, for instance. The HiFq parameter offers more control over the cutoff for high-frequency reverberation than the HiRatio found in other SPX990 programs.

Along with the main effect, each preset also contains algorithms for pre- or post-effects, which include compressor, 3-band parametric EQ and Aural Exciter. These are stereo processors, with separate controls for each channel, and they can add creative and useful features in some situations. A little compression can fatten reverb or echo, and the Exciter can make it sparkle. However, as with any effect, a little goes a long way and a lot is often too much. The EQ can be used to overcome the shortcomings of effect returns on budget consoles or to tweak the effect for the room's sound. These functions are all easily turned off on the first parameter page if not needed.



Many live sound engineers have successfully used the SPX990 in a pinch as a delay for aligning distributed speaker designs; select Stereo Echo (Preset 40, Karaoke Echo) with no feedback regeneration and open the lowpass filter. The pre- and post-effects can be used as a 3-band parametric EQ to equalize; an Aural Exciter can be used to brighten delay speakers.

EXTRA EFFECTS

Other stereo effect presets can be effectively split, allowing the SPX990 to function as a dual-mono effects processor and providing an economical way to get two-for-one out of a limited effects rack. The Rev/Rev preset (P4, Plate Hall) is a dual-effects program; the left side is a Plate and the right side is a Hall. When the Output parameter is selected as monox2, the two outputs are independent, without cross-feeding. Other dual-effects programs that can be used as splits are Early Reflections/Reverb (P3, Drum Chamber), Echo/Reverb (P80, Silverheart) and Chorus/Reverb (P66, Underwater Moon).

Some interesting programs by huge industry giants (HIGs) like Chemey, Nichols and Parsons can be found in a Yamaha publication called "Professionals' Voices" on the Web (www.yamaha.co.uk/proaudio/effects/spx990/introduction.html). Unfortunately there's no third-party editor or librarian software available for the SPX990, but a useful form for manually archiving presets can be found on the next-to-last page of the owner's manual, which your favorite sound company or studio can photocopy for you. ■

Mark Frink is Mix's sound reinforcement editor.

BY MARK FRINK

Pro Tools® 4.1 productivity breakthrough!

Analog Feel. Digital Power. All Mackie.

HUMAN USER INTERFACE



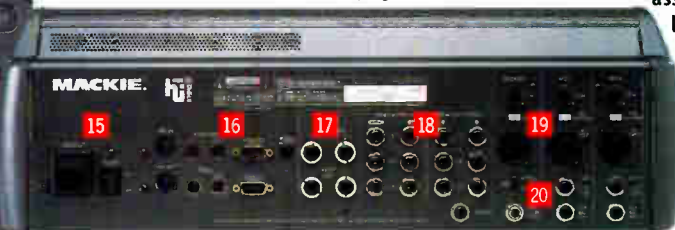
A HUI™ GUIDED TOUR.

- 1 Assign Section.** V-Pot™ assignment control lets you configure Sends A thru E, pan and channel bus I/O functions.
- 2 Channel Strips.** Eight channels are considered the maximum human hands can handle at once. Stereo/mono LED meter bridge displays digital dBFS levels.
- 3 DSP Section.** Fluorescent display shows plug-in DSP parameters. Rotary V-Pots let you "tweak" settings with fingers instead of mouse.
- 4 Switch Matrix section** handles automation configuration and edit functions such as cut, paste, copy, delete, etc.
- 5 Control Room Section** controls I/O selection, master monitor level, and global muting.
- 6 Navigation Controls.** Scrub and shuttle wheel controls, timecode display, cursor controls, virtual "tape transport" buttons, window buttons for Pro Tools screens such as Mix, Edit and Transport, and keyboard shortcut buttons including Save, Undo, Edit Mode, etc.

©1997 Mackie Designs Inc. All rights reserved. Digidesign and Pro Tools are registered trademarks of Digidesign, a division of Avid Technology Inc. The following are registered trademarks or trademarks of Mackie Designs Inc.: The "Mackie" logo, the "Running Man" figure, HUI, and V-Pot.

THE CHANNEL STRIP DESCRIBED.

- All eight HUI strips can be soft-configured in Pro Tools® 4.1 as an aux return, group or main master or channel strip.
- 7 Record Ready** toggles track record.
 - 8 Insert** calls up DSP plug-ins.
 - 9 V-Pot's and V-Pot function selectors** can act as pan pots or aux sends. Built-in LED display gives visual indication and displays recalled settings.
 - 10 Auto** toggles automation modes.



THE HUI REAR PANEL REVEALED.

- 15 Built-in power supply.**
- 16 Digital comm ports** including two parallel/thru ADB mouse and keyboard sockets, RS422/RS232 serial connectors, MIDI I/O, and expander port.
- 17 Trigger ports** add foot switches for Stop/Play/Punch, On-Air, external console solo, etc.
- 18 Analog Control Room I/O.** Three stereo pairs can be switched between six discrete signal paths for surround sound.
- 19 Discrete mic preamps** with gain controls and switchable phantom power. Balanced XLR inputs.
- 20 Inserts** for your favorite NON-plug-in (hardware) signal processors.

PRO TOOLS

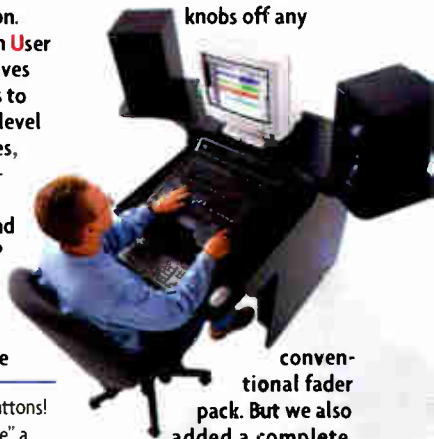
Digital audio workstations need hands-on control. Not just a fader pack, but a whole

"cockpit" of controls that you can get your hands — and even FEET¹ — on.

Mackie's Human User Interface (HUI) gives you 100mm faders to record and tweak level automation moves, virtual rotary controls for functions such as panning and adjustment of DSP plug-in parameters and dedicated function buttons for things like

muting, soloing, or "arming" a virtual Pro Tools 4.1 track. Then HUI lets you "touch update" levels as the motorized faders play back your automation sequence.

If we stopped there, we'd have beaten the knobs off any



conventional fader pack. But we also

added a complete analog control room section and two of our renowned microphone preamps. For many post production applications, HUI provides all the mixer you'll need — including discrete/mono

assign, master monitor level control and built-in talkback microphone!

If you're a serious professional who makes your living running Pro Tools day in and day out, call us, or contact your Digidesign® vendor for more information on HUI.

Then get behind the jog/shuttle wheel of the ultimate workstation control surface and accelerate your productivity.

¹ See number 17 to left

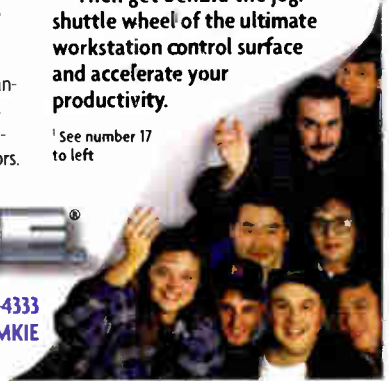
HUMAN USER INTERFACE



MACKIE®

U.S. 800/898-3211 • Outside the U.S. 425/487-4333
www.mackie.com • e-mail sales@mackie.com • NASDAQ: MKIE

CIRCLE #17 ON PRODUCT INFO CARD



THE NEWEST TECHNOLOGY IN MONITORS

FROM THE FIRST NAME IN SOUND



- Dynamic Braking
- Low Power Compression
- Differential Drive®



- Neodymium Motor Structure
- 2" Edgewound Voice Coil
- Butyl Rubber Surround



- Ultra Low Distortion
- Controlled Dispersion
- High Power Capacity
- Maximum Transient Response



- High Rigidity
- Ultra Low Resonance
- Reduced Diffraction and Reflection

LSR12 Subwoofer (Vertical)



LSR28P



LSR32 (Vertical)
Mid field Reference Monitor



LSR32 (Horizontal)
Mid field Reference Monitor



New multichannel formats are challenging old monitor concepts. While traditional stereo is still prevalent, 4, 5 or more channels are being monitored in modern production environments, daily. The LSR Family applies new technology to meet these requirements. By going beyond traditional design techniques with Linear Spatial Reference performance, JBL has literally redefined how a system is created. The LSR concept helps to dramatically expand the listening area, creating a larger, more accurate mixing space.

The LSR32 introduced the world to the Linear Spatial Reference philosophy. This 12" 3-way mid field monitor offers maximum performance in both vertical and horizontal configurations.

The LSR28P is an 8" bi-amplified near field monitor, ideal for multichannel mixing in small to medium-size production environments.

The LSR12P is a 12" powered subwoofer that easily integrates into a wide variety of stereo and multichannel formats, and complements both the LSR32 and LSR28P.



LSR

Hear Every Thing



A Harman International Company

SEE US AT NAMM BOOTH #1528

For more information on the LSR Family
www.jblpro.com

© 1998 JBL Professional

CIRCLE #172 ON PRODUCT INFO CARD
World Radio History