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RECORDING
& SOUND

EXCLUSIVE REVIEW
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OUR EDITORS REPORT ON ALL THE LATEST AUDIO GEAR

CREATING COMMERCIAL JINGLES

World Radio History

MARCH • 2001
A UNITED ENTERTAINMENT MEDIA MAGAZINE
USA $3.95 • CAN $4.95 • U.K £2.95 • ISSUE #3

TRITON

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* 512 Programs/512 Combinations
* User sampling w/graphic wave editing
* 5 Insert/2 Master effects plus 3-band EQ
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CIRCLE 23 ON FREE INFO CARD

World Radio History

It doesn't take a million-dollar console to create a million-selling song.

Why our analog 8•Bus remains the industry standard.

Last year, four of the world's top-selling singles were tracked and mixed on Mackie analog 8•Bus consoles. So were at least two Platinum albums.

Bottom line: It takes a sonically impeccable console to make a hit. But that *doesn't* mean you need a million-dollar, block-long British console to get the job done.

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The industry standard 8-bus.

The analog 8•Bus comes in 24 and 32-channel flavors. Each channel strip has six aux sends, true parametric 4-band EQ and a Mix B in-line "channel strip within a channel strip" that's used for monitoring during tracking and as another input during mix-down (effectively doubling each console's input count).

The master section has six master aux sends, six master stereo aux returns with a wealth of assignment possibilities, separate Solo, Mix B Monitor, Studio/Control Room and Solo sub-sections as well as two headphone source selection matrices.

Punctilliously-accurate faders.

One reason that top engineers take this console seriously is its logarithmic taper, 100mm faders. They behave like those on megabux consoles: You get accurate, linear sound control along the entire fader travel length – instead of an abrupt, unplanned fade-out about 3/5 of the way down.

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single + six other album cuts

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Enrique Iglesias*
"Bailamos"

Tina Turner*
"When the Heartache's Over"

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24•8s, 32•8s and 24•Es are made by Mackoids in scenic Woodinville, USA.

[1] *Suggested U.S. retail for Mackie 24•8. Meter bridge is extra.*

[2] *Okay, we'll admit it: some really good microphones and outboard effects won't hurt either.*

**Listing in this ad represents usage of our consoles as reported to Mackie by an independent producer or engineer and is in no way intended as a real or implied endorsement by the artist.*

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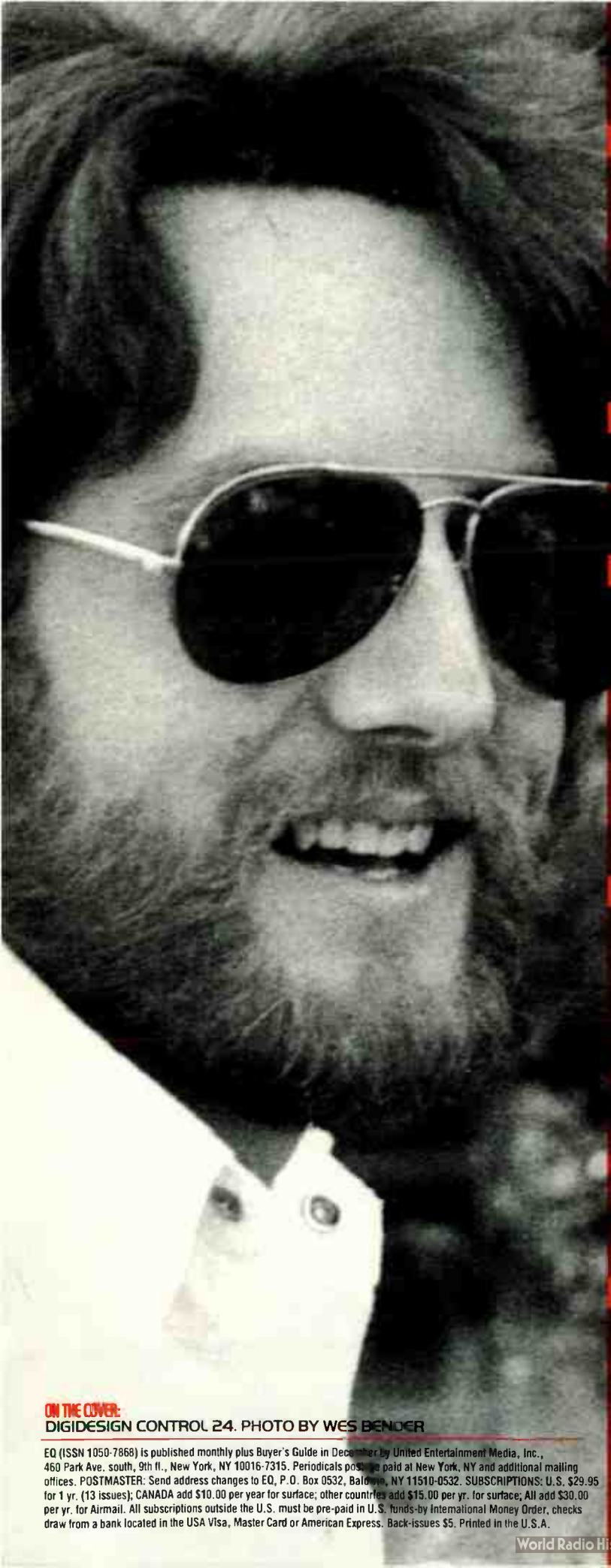

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Chuck Ainlay

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World Radio History

EDITOR

EDITORIAL

Change

Hard to believe, but I've already spent a year in this chair. Not the specific chair I'm sitting in right now, you understand, but the more figurative EQ Editor's chair. Some things have stayed the same: One year ago almost to the day, I was writing my first editorial and cranking out a Winter NAMM tradeshow report, which pretty much describes my agenda for today.

But in other areas, there's been tons of change in the last year — more so, probably, than at any point in this magazine's 11-year history. Most obvious is the graphic makeover the book received last fall. Another significant change was the launch of the EQ discussion forums at www.eqmag.com, which opened up a whole world of online possibility to us. In support of this, you'll see a brand-new EQmag.com website rolling out by the time you read this.

But it's not just EQ that has undergone change. The audio industry itself has changed immensely since this magazine was launched with its mission to define and support the burgeoning professional project studio arena. These days, it's difficult to discern the difference between "project" and "commercial" studios. The gear is often the same, and the work done in those studios is often of a similar nature. This has caused us to significantly redefine and refocus the content of EQ. In recognition of this, we're making another change: We're dropping the word "project" from our tagline, which will henceforth read, "Professional Recording and Sound." Don't worry, the EQ you know and love isn't going away; we're simply recognizing that our industry has changed over the years, and that our coverage has changed along with it. The modified tag more accurately reflects what we — and you — are all about.

HELLO/GOODBYE

You might have noticed another change if you've taken a gander at the masthead to the right of this editorial. John Hurley, our erstwhile publisher, has taken off in search of — of all things — music. He's taking a swing at being a full-time guitar player and is planning to record a CD in his studio. Best of luck, John, let us know when we can pick up a copy! Tradeshows will (sadly) be much tamer without you.

But I'm pleased to announce that the publishing reins are being taken up by Adam Cohen, who some of you may know from his recent stint as director of sales for pro audio manufacturer Apogee. "Just what's a publisher do?" I hear from the back row. I don't know how things work at other magazines, but here at EQ, the publisher has a few primary responsibilities: Maintaining the comfort of the editor is one, and making sure the editor isn't bothered is another. But first and foremost, never — ever — allow the vending machine to run out of diet soda for any reason.

Beyond that, the job also carries secondary duties, such as heading up the ad sales force, coordinating circulation and production, and other minor stuff.

Oh, and one more thing Adam...never bother me before noon.

—Mitch Gallagher
mgallagher@uemedia.com

EQ

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CIRCLE 81 ON FREE INFO CARD

World Radio History

THIS iZ™ THE FUTURE™.

THIS iZ THE STORY

RADAR® (*Random Access Digital Audio Recorder*) was launched in 1992 by our design team here at iZ™ Technology. RADAR® was the first hard disk recorder to provide a viable alternative to 24 track, 2 inch, analog tape recorders. It gained immediate acceptance in professional studios around the world and has been making converts of die-hard analog users ever since.

In 1994, the Otari® Corporation expressed interested in RADAR® and became the worldwide distributor for the product line. In 1996 we developed the world's first 24 bit, 24 track hard disk recorder, the RADAR II.

In 2000 the distribution agreement with Otari® expired. iZ™ Technology chose to take over the sales, marketing, distribution and support for RADAR® and the UFC 24® format converter. We thank Otari® for helping us introduce RADAR® to the world and wish them continued success.

iZ™ TECHNOLOGY PLANS FOR THE FUTURE

At iZ™Technology our purpose, and our passion, is to ***"create visionary audio products"***. The iZ culture promotes excellence in our people as well as our products. We strive to help each other become what we are each capable of becoming. Our mission is ***"recording the world"***. You can trust your tracks to RADAR®.

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Our third generation RADAR®, the award winning RADAR® 24, is the world's first multi-track hard disk recorder with a 192 kHz recording engine. Our "Adrenaline board" is an ultra-high performance SCSI recording engine which takes audio directly from our world class converters and routes it directly to removable SCSI hard disks, bypassing the host computer completely. This proprietary design, combined with RADAR® 24's renowned low jitter, rock solid clock, allows RADAR® 24 to provide superior sonic performance. Devoted professionals love the way RADAR® sounds and they have demonstrated it by using RADAR® on scores of hit records produced in major recording studios around the world.

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The RADAR® 24 is the first integrated hard disk recorder to use BeOS® a robust, multi-media focused OS designed to provide superior, real-time performance. The BeOS® platform also offers unlimited potential for future development and product enhancements.

Using valuable feedback from our users we are constantly improving the stability of our product. We are passionate about creating the most reliable products possible and to back that up we now provide 24/7 technical support and round the clock, in house, product testing. Our website (www.recordingtheworld.com) features comprehensive support materials and an online forum for discussion and support.

SO EASY TO USE - YOU DON'T NEED A MANUAL!

RADAR® 24 is so intuitive that you can integrate it into your workflow right out of the box and never miss a beat. With dedicated function keys on all remotes, there is virtually no learning curve. Start recording immediately and experience the simplicity and the quality of sound that is heard on so many of today's hit records.

The strength of this system is its simplicity, its stability, and its audio fidelity . . . there's one other in iZ's favour – track record. iZ Technology undoubtedly have the longest and most outstanding track record when it comes to hard disk recording.
- Audio Technology Magazine

"RADAR is the most analogue sounding digital recorder. It is stable as a rock and brilliantly designed by an expert team that know their audio" *- John Oram "Father of British EQ"*

" The sonics are superior to everything else I've ever used."
- Tony Shepperd
(Boyz IIMen, Barbara Streisand, Backstreet Boys)

"If you want to catch a glimpse as to where our industry is headed look no further than the iZ Technology RADAR 24 . . . they also offer a service hotline staffed by devoted users. Hopefully other manufacturers will follow their lead."
- Surround Professional Magazine

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A DIGITAL HARD DISK RECORDER SO EASY TO USE YOU DON'T EVEN NEED A MANUAL!
NOW ANY STUDIO CAN AFFORD ONE! OR MAYBE EVEN TWO!
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*RADAR 24 shown with optional Session Controller ($1,195) and SVGA Monitor (not included) Price is subject to change without notice. Shipping and applicable taxes extra.
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CIRCLE 22 ON FREE INFO CARD

World Radio History

"OBVIOUSLY, THE BAR HAS BEEN SERIOUSLY LOWERED IN THE PAST TWENTY YEARS AS TO WHAT STANDARDS OF MUSIC ARE CONSIDERED 'GOOD' OR MARKETABLE."
—JIM CURTIS, VIA EMAIL

THE UNDISPUTED KINGS

I was only skimming the article on Stone Temple Pilots [December 2000], and I had to write. When I got to the part about the article's subject stating a preference for analog tape because it just sounds better, I had to laugh out loud.

In my opinion, if your music is crap, your recording medium, desk, pre-amp, etc., is irrelevant. It's like taking a photo of a pile of crap with the best camera and lens in the world...you've still got a picture of a pile of crap.

Obviously, the bar has been seriously lowered in the past twenty years as to what standards of music are considered "good" or marketable. Otherwise, bands like Emerson Lake & Palmer, Yes, and Happy The Man would be the undisputed kings of the rock music industry, and bands like STP and Marilyn Manson wouldn't even register a blip on the radar.

I don't blame you, I suppose, for writing about these talent-less recording acts...you're just giving "the people" (clueless as they are) what they want. I realize that only a small fraction of the acts selling records today have any real talent, and you have covered many of them well. But you contribute to the inexorable lowering of the bar when you feature stories on hacks, posers, and wannabees, and thereby glorify their so-called contributions to the art of recording and music.

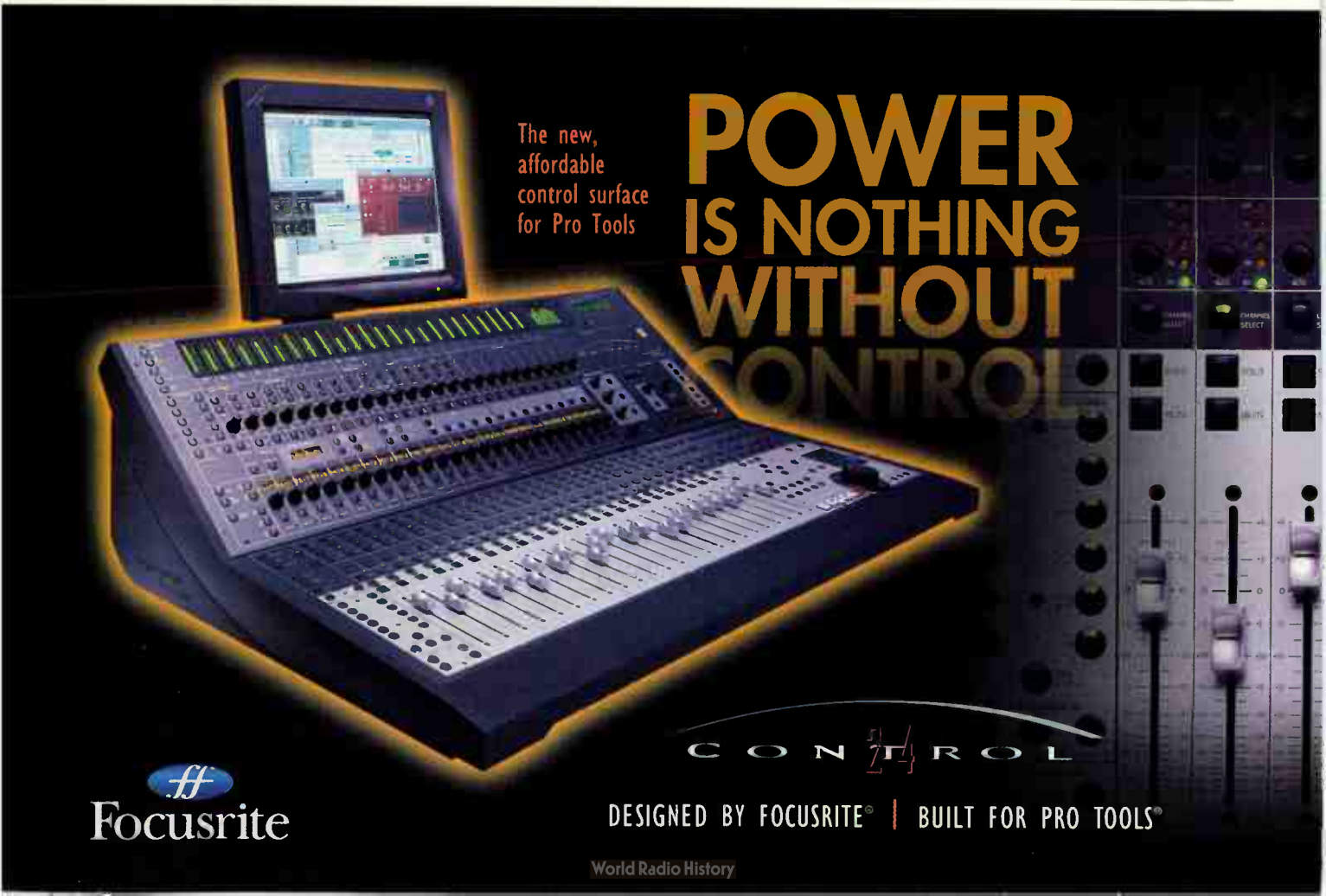
I love your magazine, anyway.

Jim Curtis
via email

DIRE STATE

The state of the music industry must be dire indeed. In the same issue that has letters from people worrying about a Marilyn Manson cover and a scantily clad chick hawking blank tape, we have the "new" producers telling us that the major labels not only can't afford to put more than one "good" song on a CD because the producers are too expensive, they can't even find room in the budget to sing the second chorus! Holy priorities, Batman!

What does the future hold? Soon maybe these guys can just sample a voiceprint of the "artist" and, using a text



World Radio History

program for the lyrics, avoid having them sing at all. If this is what we now consider to be music, the labels deserve the Napster network.

Jim Foster
via email

WHAT DOES IT MEAN?

"Manson" does not mean "Charlie"! Is art dead in some parts of the country? Why are people canceling their *EQ* subscriptions? What are they afraid of? Think of all the great music/art that people were afraid of that turned out to be classic and cherished. I love all forms of music and all recording information, and thank God for your magazine.

James Weeks
Cloud Cuckooland Recording Studios

OH, MARILYN

Just so you will know, Rick at Bassax Music Studio [letters to *EQ*, January 2001] wasn't the only one to take your issue with Manson on the cover straight to the trash. You certainly have the right to put anyone or anything on the cover of your magazine, to feature or otherwise glorify any act or artist. Likewise, we readers have the right to refuse to accept such coverage.

I have made purchase decisions based on your articles and advertisements in the past. What a shame for those advertisers who paid money to run ads in the Manson issue.

Stephen Pell Haley
MAX VideoGraphics

REALITY CHECK

Thanks for the Jim Bordner piece in the January 2001 *EQ*. The world would be a better place if more people lived by Gustav Stickley's credo, *"Als ik Kan"* — "the best I can." Jim's comments about the love of the craft really hit home with me. What better time than the new millennium for a reality check on why we do what we do, and a reminder that good craftsmanship is good business. Words to live by. Thanks again.

Erik Huber
ReelWorld Productions, Inc.

DONGLE REDUX

In response to the letter entitled "The Dongle Dilemma" [January 2001], Christopher Hawkins is absolutely correct about the software license agreement: Installing Nuendo on multiple machines is a violation. However, there is a legitimate reason why a dongle is a weakness. With PC's that are dedicated to music, the parallel port is often disabled to free up much needed IRQ's.

Craig Allen
Echo-1 Productions

BARKING UP THE WRONG TREE

On page 38 of the January 2001 issue, you describe the Decca Tree, but not accurately. In fact, three *small-diaphragm* omnis are to be used. The Neumann M50 is/was the microphone of choice, and used exclusively by Decca in a tree configuration. The M50 is a small-diaphram mic, unlike it's sister, the M49, which does have a large diaphram and the same grille shape. The current fad of using cardioids and/or large-diaphram omnis generally defeats the purpose of the tree: To obtain a spacious/ambient pickup while maintaining detail, image, and good stereo/mono coherence.

Shawn Murphy
film scoring mixer

World Radio History

MICROPHONES

Hypothetically, if you were to have to go out and buy "off the shelf" microphones for a new studio, what would you include? —blairl

Well, here's where I'd start: A couple of AKG C12's, good for vocals, overheads, percussion, strings, acoustic guitars...just about anything acoustic that moves air and needs to be clear and airy.

Neumann U67's, modified by Stephen Paul, would be on the list. They're great and under-appreciated for vocals, strings, percussion, rooms, spaces, and pianos.

Lately, I've fallen in love with Royer ribbon mics on electric guitar amps...that's a "just-push-the-fader-up" mic on decent sounding amps. I have also been using them on horns; they've got plenty of headroom for a ribbon and are warm, yet still clear.

In the more reasonably priced range, I love my Audio-Technica AT4060T, a moderately priced tube mic that has a fairly unique character (especially for singers that have thinner voices) and still can take a lot of level.

I would also include a pair of B&K 4011's. They're very directional, very clear, and you can't blow them up. They're good on acoustic guitar, acoustic bass, and percussion — especially sound sources that are delicate — in addition to capturing transient material really well.

Neumann FET U47's are another under-appreciated mic, good for kick drums, the low end of pianos, basses, etc.

Oh yeah, Audio-Technica also makes the ATM23. It only costs a couple of hundred dollars but rocks on toms...that's the ticket for me, today.

Of course, you can always use some Shure SM57's and Sennheiser MD421's, and if I could own a couple of sweet Neumann M50's.... —Ed Cherney

If I had to do it all over again, I'd start with: A load of Shure SM57's, a Neumann U47FET, a bunch of Audio-Technicas including AT4060T's, AT4050's, and AT4047's, a Shure PZM, and B&K 4003's. —George Massenburg

Let's see, for a start:

2 — Shure KSM44
4 — Shure KSM32
2 — Neumann TLM170
2 — Neumann U87
1 — Sony C800-G
2 — beyerdynamic digital mics.
8 — Shure SM57
2 — Audio-Technica AT4053
2 — AKG C414-EB
4 — BSS AR116 direct boxes

This wouldn't be that expensive, and I could record anything. —Roger Nichols

I did a search on George's forum and here's a summary of what I found on his microphone opinions:

Kick: Neumann U47FET and AKG D112 (both used at the same time)
Snare: Sennheiser 431 or Shure SM57 (top), Neumann KM84 or AKG C12 (bottom)
Hihat: AKG C12 w/Stephen Paul diaphragm
Toms: AKG C414
Overheads: Has used Schoeps M221B, Neumann KM 84, Schoeps CM5 and B&K 4011, currently uses custom Doug Sax mics with C12 capsules
Room Mics: B&K 4003

WEBLINK

Have a question you'd like answered? Visit Roger Nichols, George Massenburg, Ed Cherney, Al Kooper, and David Frangioni online at www.eqmag.com.

Percussion: Coles 4038 or B&K 4011
Trumpet: Coles 4038
Trombone: Coles 4038 or Neumann U67
Acoustic Guitar: Audio-Technica AT4060T
Vocal: Audio-Technica AT4060T, Neumann U67, or AKG C12 —blairl

THE STUDIO OF THE FUTURE

So what would the studio of the future look like? If you were going to build a new facility what would it have in it? What would it do? If you want to be commercially viable for the next 10 years, how would you plan for new technologies and formats? —gizmo

Surround sound. —alphajerk

Audio and video would be integrated; of course, everything would be FireWire. It would have an Internet server, and its own live real-time website. It would be all digital (except for the singers), and have a DVD recorder/duplicator for printing demos. It would also have a fully automated robotic martini bar. —Curve Dominant

One computer with huge touchscreens, a super-duper keyboard/fader box and a good 7.1 monitoring system. Tons of "virtual" gear. —Jochen

Cup holders. Or maybe sippie cups for clumsy clients. And a true real-time internet-style connection to other studios that's affordable and can stream video and 5.1 at the same time. —David R.

Very few wires running all over the place, please! —stevepow

Pro Tools, baby! I know they are all over the place now. but I'm talking about an all-Pro Tools studio, with a Pro Control system and nice mics and preamps. Video production is possible, surround projects are no problem, and with all the plug-ins that are available now, I can't

AL KOOPER
GUIDE TO THE MUSIC BIZ
ED CHERNEY
BEHIND THE BIG BOARDS
ROGER NICHOLS
DIGITAL RECORDING FORUM
GEORGE MASSENBURG
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CIRCLE 60 ON FREE INFO CARD

CIRCLE 75 ON FREE INFO CARD

imagine what they'll come up with next.

Upgrading the software will only be a fraction of what it will cost to get a new console, so I think this is the way to go. I wasn't around the studios in the '80s, but I heard that's when the SSL revolution began. The new revolution? All Pro Tools! —dwkim

I'm not sure about all Pro Tools, but certainly Pro Tools seems like a thing that would bring business. Here's some of what I've come up with after an initial brainstorming session with a fellow studio owner: two tracking/mixing rooms, one with a video soundstage, 5.1 surround in both. Maybe in-house graphics and web people; maybe even an Internet service — at least a tie-in with a local server to offer to clients. Maybe a rehearsal hall with tie lines for audio and video. Short run CD/DVD replication. Maybe a repair shop/gear broker (and rental service) to feed the gear slut habit and keep good techs around. ISDN and DSL for hooking up with other studios — phone your parts in. Modular setup so that new gear (boards, DAWs, tape/HD systems) can come and go without necessitating a total renovation project. —gizmo

I want a new interface! Something with goggles and datagloves a la "Johnny Neumonic." Just think: 128 virtual faders floating in front of your face in 3-D with tactile feedback through the gloves, switchable to a track editor for waveform editing, with cuts, pastes, and destructive fades, all controlled by hand gestures. That would be something to see. —oznimbus

Lots of analog gear from the past? —stevepow

How about a straight brain hookup that records whatever is in your head, along with complete track upload; you hear the music in your head. Truly a digital connection, no analog anywhere, no mics, no speakers. —alphajerk

I particularly like the modular concept. Some sort of non-wire based patching like infrared might be nice. In-house video, CGI, and tech shop, man, that sounds like the place to be! —Cristofe

X-Ray goggles. And unbounceable checks. And software that enables us to get a refund every April 15th. And a single standard for bit length and sample rate. —David R.

All components, except for mics, would be software, period: mic to converter to software. Let any mixer be virtual, and that takes care of the outer world. Then let any synth sound/sample be generated by whatever controller the musician wants used. We are still in the "hardware" frame of mind, but that's changing. There will no longer be any concept of "tracks," as this will have no meaning in the future. Only, "How many do we want to record?" MIDI will be for the old gear. FireWire will allow computers to talk. Musicians will be more important than engineers. —Electrox

The studio of the future will be a goldfish bowl full of algae-like goo in which we sit around and think of music. The quantum fluctuations of the brain will be recorded as DNA variances in the algae soup that will be decoded. The debate will be over full-strand DNA or multi-strand RNA. Since the RNA will bind with other strands more easily, it will be better for editing, but since the DNA is already bound together it will be more stable and will last longer (some will say it has a richer tone).

In the short-term future, I think that consoles are going to need to be able to handle sample rate conversion better, and, as bit depths increase, the maximum depth of the master bus will go up. I see 128-bit reverbs in 24-30 months. —wormhole

Actually, I'm back to just wanting good mics and good players in a good acoustic space. If I must sit in algae and wear a tin-foil hat to get that, okay! —Mark L.

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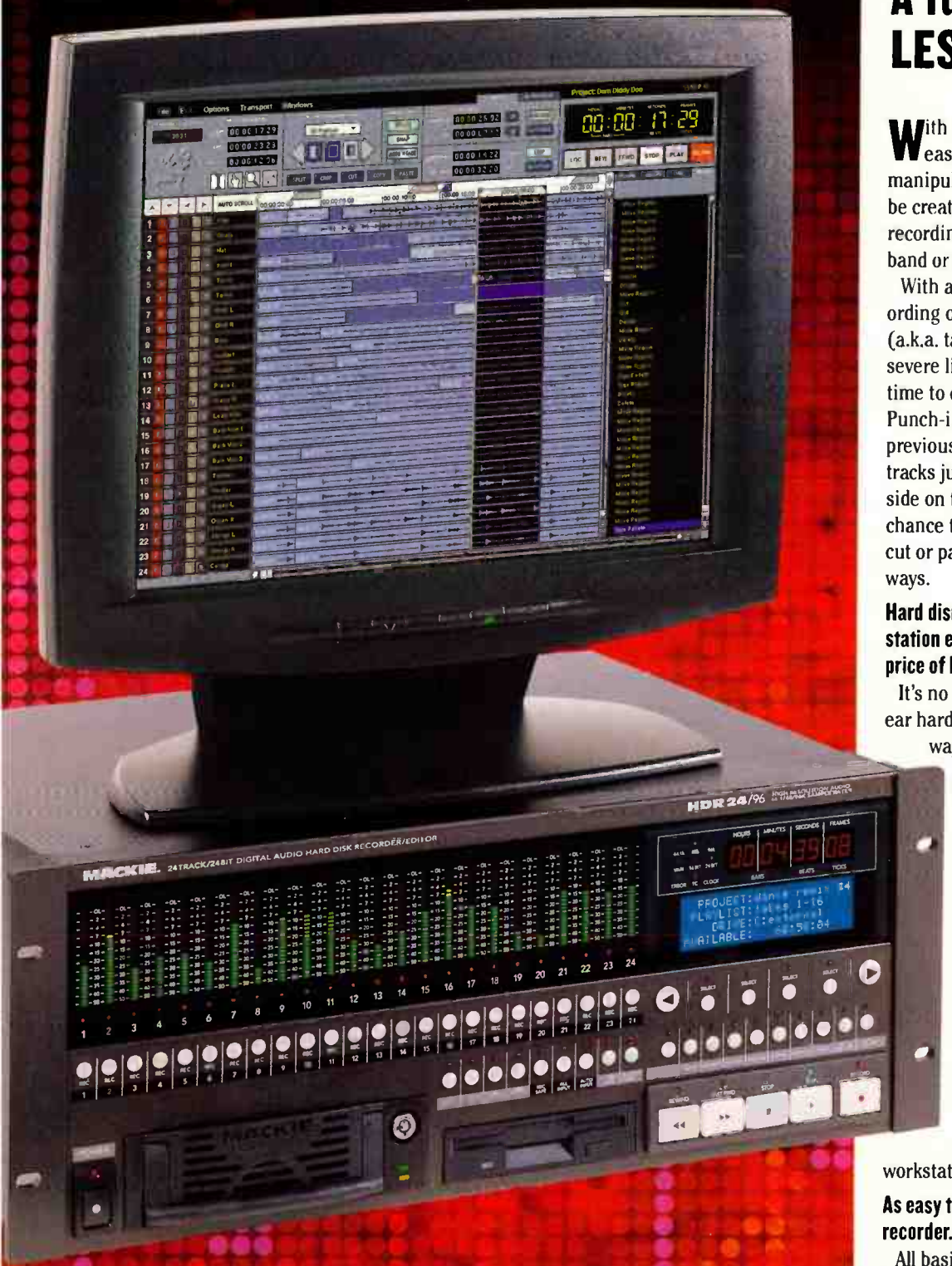
CIRCLE 76 ON FREE INFO CARD

World Radio History

The HDR24/96 versus recording on



A fully-equipped LESS than three

With an HDR24/96 it's so easy to record, edit, and manipulate tracks, so easy to be creative…whether you're recording for yourself, your band or for a Fussy Client.

With all due respect, recording onto linear media (a.k.a. tape) has some pretty severe limitations: Access time to cue points is slow. Punch-ins erase stuff you previously recorded. And the tracks just sit there side-by-side on the tape with no chance to easily slip, slide, cut or paste them in new ways.

Hard disk recording and workstation editing for less than the price of linear recording.

It's no secret that non-linear hard disk recording is the way to go. But until now, 24- track/24-bit recording and playback required serious investment in a digital audio workstation. — And a heckuva lot of mousing and clicking.

Only the HDR24/96 combines the intuitive, analog-like convenience of a tape deck with the editing versatility of a computer-based workstation.

As easy to use as an analog recorder.

All basic functions are right there on the HDR24/96 front panel including transport buttons and individual Record Enable buttons for each track. Just hit Record and Play

* based on current U.S. list and pro audio dealer "street" prices at the time of ad production and on the assumption you will buy a CRT-type SVGA monitor and not an ultra-pricey flat panel model like our art director insisted on using for this ad.

** based on average of length of current pop songs using 24 tracks @48Hz/24-bits and a liberal number of extra regions and virtual takes. Does not apply to extended trance remixes.

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World Radio History

long thin strips of rusty plastic.

Mackie 24-track HDR24/96 Hard Disk Recorder/Editor costs tape-based, 8-track digital recorders*...and does much more.

without even cracking the manual. But if you plug in an SVGA computer monitor, things get even better.

The graphic interface that tape recorders always should have had.

Even if you immediably don't use the HDR24/96's editing functions, you'll love the graphic interface for recording.

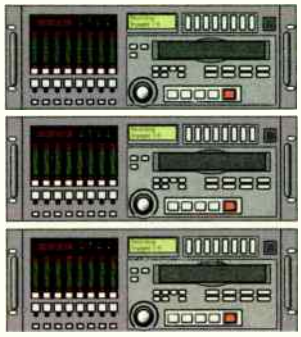
It gives you one-click access to all deck functions without a lot of annoying pull-down/fly-out menus.

Choose from 2x, 4x, 8x, 12x or 24-track views and then watch them scroll smoothly past a centerline.

Mark hundreds of cue points and four locate points for looping and auto-punch-in modes. Cue points are visible on screen and are accessible from a side list.

Use the mouse to "scrub" individual tracks, Cue, Punch and Loop points with continuously variable velocity.

Each track also supports eight "virtual tracks," so you can do multiple takes and comp them together easily.



Even with three OPT•8 I/O cards, a MackieMedia removable disk, SVGA monitor, keyboard and mouse, the HDR24/96 costs less than three digital tape recorders...which don't offer loads of workstation-style editing features, super-fast access and true 24-bit recording.*

Think of MackieMedia™ as "tape in a brick."

Right out of the box, the HDR24/96's internal drive will record 90 minutes of 24 tracks at 48kHz. Your backup choices are simple—

1. Record directly to a MackieMedia™ M90 external drive. They're considerably less expensive than the SCSI drives some HD recorders require — $10 a song** — and they're in stock at your Mackie dealer.
2. For a quick back-up of just a song or two, we also offer an optional 2.2GB ORB™ drive that uses *really* inexpensive media.
3. For real economy use the HDR24/96's 100BastT Ethernet port to back up to your computer and its media.

Serious editing tools built in... with 999 levels of un-do.

Once you've experienced non-destructive editing of tracks, you'll never go back to linear recording.

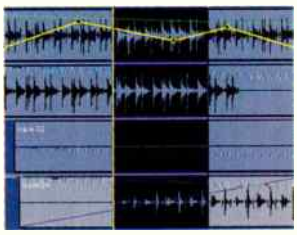
You can mark a segment (or multiple non-adjacent segments) as a *region* and then cut, copy and paste it anywhere — onto a blank track or right in the middle of an existing track without erasing anything (the part of the track after the insert just "slides down").

You can audition regions or modify their start/end points instantly, capture them as "sound elements" for later use or quantize them to user-defined time grids. And all regions are easy accessible from a side menu.

Create fade-ins, fade- outs and crossfades just by dragging and dropping them ...and then set their length by dragging the mouse.

Add volume envelopes for simple level automation of regions or whole tracks.

Then use Track Render to combine all or selected regions of a track just as you hear it — complete with crossfades, volume envelopes, mutes, etc. — into a single region.



Zoom in to the waveform level. Drag, cut, paste, and slip tracks and segments of tracks just like on super-expensive workstations. Adjust track levels. Add editable crossfades. All with 999 levels of undo.

Get a demo at a Mackie dealer.

This ad only scratches the surface of the HDR24/96's features, options and capabilities. Visit our web site...or get your hands on an HDR24/96 and experience (pun intended) *unparalleled* creativity.

Hard-shell case. Really ugly pink anti static foam.

*Twenty-four track songs for under ten bucks each!! Divide the cost of a MackieMedia M90 into the 20+ pop tunes you can record on it and you're looking at under a ten-spot for each 24-track master. —Much less if you do a little disk drive housekeeping. Remember, hard drives can choose only to store audio data, not silence. Tape just rolls merrily along...costing money... whether you're using a track or not.***

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CIRCLE 29 ON FREE INFO CARD

World Radio History

By Mikail Graham

Macworld 2001

Every six months for the past several years, Apple Computer has found a way to create a big buzz at the Macworld show, and this year's 2001 San Francisco edition was no exception. Four new G4 desktops, a slick titanium PowerBook, iTunes, a drag and drop CD-to-MP3 jukebox app, iDVD for drag-and-drop DVD creation, and DVD Studio Pro, the first full-featured DVD authoring tool for under $1,000, were some of the products on display. The G4 Desktops are available with 466, 533, 667 or 733 MHz PowerPC G4 processors, and use a 133 MHz system bus (boasting over a gig-per-second throughput) with up to 256K of Level 2 cache and a megabyte of half-speed Level 3 backside cache on the 667 and 733 models.

Besides the speed increase, the G4's offer four PCI slots and a 4x AGP slot for faster graphics card support. The 733 MHz model comes standard with a 60 GB ATA/100 hard drive, 256 MB of RAM, 32 MB of video SDRAM, two FireWire and USB ports, Airport support, 56K modem, iTunes, iMovie 2, and iDVD software, plus a SuperDrive that reads DVD's at 6x, writes to 4.7-gig DVD-R discs at 2x, reads CDs at 24x, writes to CD-R at 8x, and to CD-RW at 4x.

For PowerBook fans, the new G4 model is a beauty, coming in at just one inch thick and weighing only 5.3 pounds. Encased in titanium, the new model offers a 500 MHz G4 processor using a 100 MHz system bus. Its slot-loading DVD-ROM player can display movies at full width on the 15.2 inch 1152 x 768 pixel screen.

After years of no Apple support, the folks at Creative Technology announced their Sound Blaster Live! sound card for the Mac. It uses their EMU10K1 digital signal processor, has outputs for connecting up to a four-channel speaker system, and inputs for MIDI and both digital and analog devices.

Glyph was showing off their SAN (storage area network) Coba/SE Fibre channel solution. It's a two-user system moving data at 100 MB/second, runs on a Mac G3 or G4, has capacities from 72 to 290 GB, and can have up to 127 devices online.

Griffin Technology, known mostly for their Mac serial/ADB adapters, debuted iMic, a USB audio interface with stereo 1/8-inch line/mic inputs and outputs, support for up to 24-bit recording at sample rates from 5 to 55 kHz, and at only $35, it's a perfect audio input solution for G4 Cube and iBook users. Archos Technology showed the Jukebox 6000 MP3player ($349) running up to eight hours on four NiMH batteries. It's unique in that in addition to providing instant access to over 100 hours of music, it's also a 6 GB USB hard drive for storing other data. SmartDisk showed yet another new MP3 player, Flashtrax ($100), which looks just like a standard audio cassette. The trick is that it has a slot on top for inserting a 64 MB SmartMedia card so you can play up to 120 minutes of music on any cassette player.

On the software front, Roxio, the recently formed software sibling of Adaptec, announced Toast 5.0 Titanium CD burning software, which provides a host of new features including support for DVD burning, a new user interface, background burning, and 80-minute CD support. Toast 4 Deluxe users can upgrade for $59.

Finally, Apple announced that Mac OS X is slated to ship on March 24th. ■

WEB LINK

APPLE COMPUTER: www.apple.com
ARCHOS TECHNOLOGY: www.archos.com
CREATIVE TECHNOLOGY: www.soundblaster.com
GLYPH TECHNOLOGIES: www.glyphtech.com
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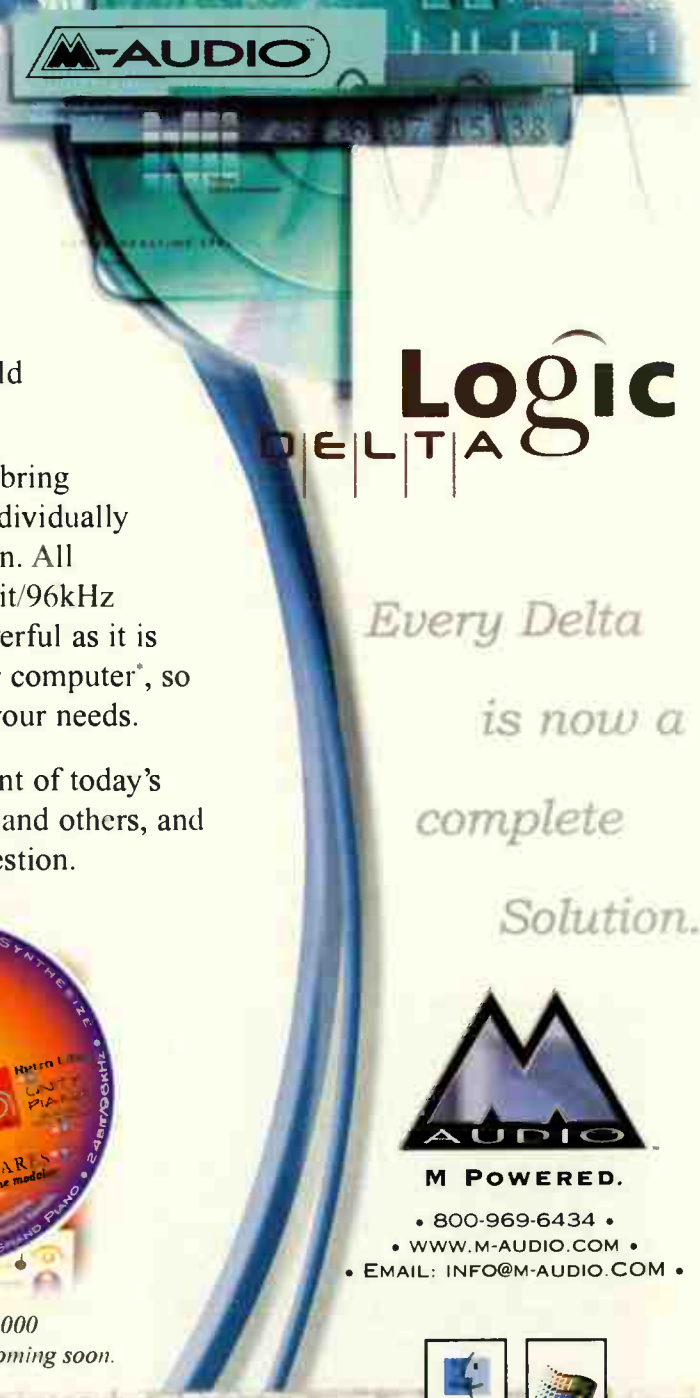

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1-Computer Music, January 2001; 2 Sound on Sound, January 2000
** - Dependent upon CPU resources. Multicard drivers for Mac coming soon.*

Mac

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CIRCLE 51 ON FREE INFO CARD

World Radio History

By Steve La Cerra

Midiman Surface One

One of the most unusual products announced at the Winter NAMM Convention in Anaheim several weeks ago was shown by Midiman. Their Surface One Virtual Control Surface is a user-configurable controller that may be used to generate any type of MIDI data. What sets the Surface One apart from most other MIDI controllers is that it employs some very clever optical technology to translate user movements into MIDI data.

On the front panel of the tabletop console are a series of controller elements or "objects," which consist of eight virtual touch panels, a thumb panel (user-definable with one to three regions), eight virtual buttons, and 16 traditional rotary encoders. All of these objects may be programmed to transmit any message within the MIDI protocol including note on and note off, volume change, program change, and continuous controllers. The interface behind the touch pad objects is a fiber-optic-based, touch-sensitive material. This "smart" fabric was originally developed by the Canadian Space Agency and is now licensed by Tactex. The fabric transmits the information it receives through touch for conversion into MIDI data. Once converted to MIDI, control information is sent out of the Surface One to any compatible device. A USB interface is included for programming the Surface One via software graphic user interface.

Objects on Surface One utilizing the Tactex material are capable of reading up/down, left/ right, and pressure information; correspondingly, Surface One can send out multiple messages simultaneously. Surface One's "buttons" or pads can transmit a variety of information ranging from solo and mute commands in a sequencing environment to MIDI note on/off in a performance control application (we can envision percussionists going wild with the Surface One and a MIDI drum module). Any message may be assigned to a MIDI controller message. Different types of motion on the smart fabric can be used to trigger specific commands. A shift command allows an operator access to a second layer of objects that may be programmed for commands different from those in the first layer. The resolution of each object may also be user-defined, providing (for example) coarse and fine pitchbend controllers. If an object is defined as a fader, pressure applied to the top or bottom of the fader can result in a fade in or out of data on that particular channel.

Since Surface One's objects are virtual controllers, they can exchange roles, locations, and functions. This allows the unit's functions to vary depending on the environment in which it's used. In one application, the eight touch pads could control MIDI note on/off for drum sounds; in another they could control delay time or chorus depth of a multieffects processor. Other possible uses for the Surface One would be as a virtual mixer for digital audio/sequencing software, or even an input device for 3D graphics or animation software.

The Surface One's I/O complement includes two MIDI ins, two MIDI outs, and a USB port for connection to a computer. Upgrades may be loaded into the unit via flash ROM, and the controller is capable of functioning as standalone device without the need for a computer. ■

MIDIMAN SURFACE ONE

WHAT IS IT? A MIDI control device utilizing fiber optic material to translate motion into control data.

WHO NEEDS IT? Anyone interested in pushing the envelope of performance control over MIDI devices.

WHY IS IT A BIG DEAL? The Surface One employs Tactex's "smart" fiber optic fabric as its interface.

SHIPPING: June, 2001

SUGGESTED RETAIL PRICE: TBA

CONTACT: For more information, contact Midiman at 626-445-2842 or visit www.midiman.net. *EQ* free lit. #101.

World Radio History

Never say Never again...

You're working hard, the new movie trailer's final mix is due tomorrow by 10 am, everything is going great and then you hear it, somebody made a mistake, you think it might be about twenty edits back, but you don't have a backup!

The bad news...

In this ever changing fast paced world of studio project deadlines one mistake like this can quickly add up to hours, or even days of extra work, costing you both time and money.

The good news...

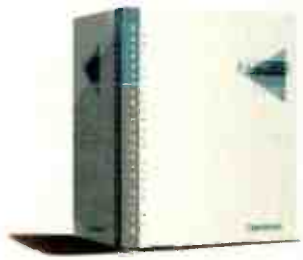
With Nuendo, mistakes are a thing of the past.

Thanks to Nuendo's powerful unlimited Undo and Redo, it's no problem if a mistake is twenty edits back or a hundred. The Edit History window displays all changes made the past hour, three hours, or until you Close the project, making it easy to target that potentially costly mistake. And rest easy as the original audio files remain untouched unless you choose otherwise.

But Nuendo goes even further. You can process any audio segment with a wide variety of powerful edit operations and plug-in effects with the integrated Sample Editor, or even from directly within the Project or Browser windows. And as each segment has its own individual off-line history which is stored with the Project, the edits you make today can be selectively removed, or even re-applied with new parameters within seconds tomorrow, giving you total freedom of choice.

With Nuendo you'll never say never again...

"The top grayed section of the Edit History window indicates events you can Undo or Redo, while the Offline History window behind it shows the various processes that can be modified, replaced, or removed for each audio segment."



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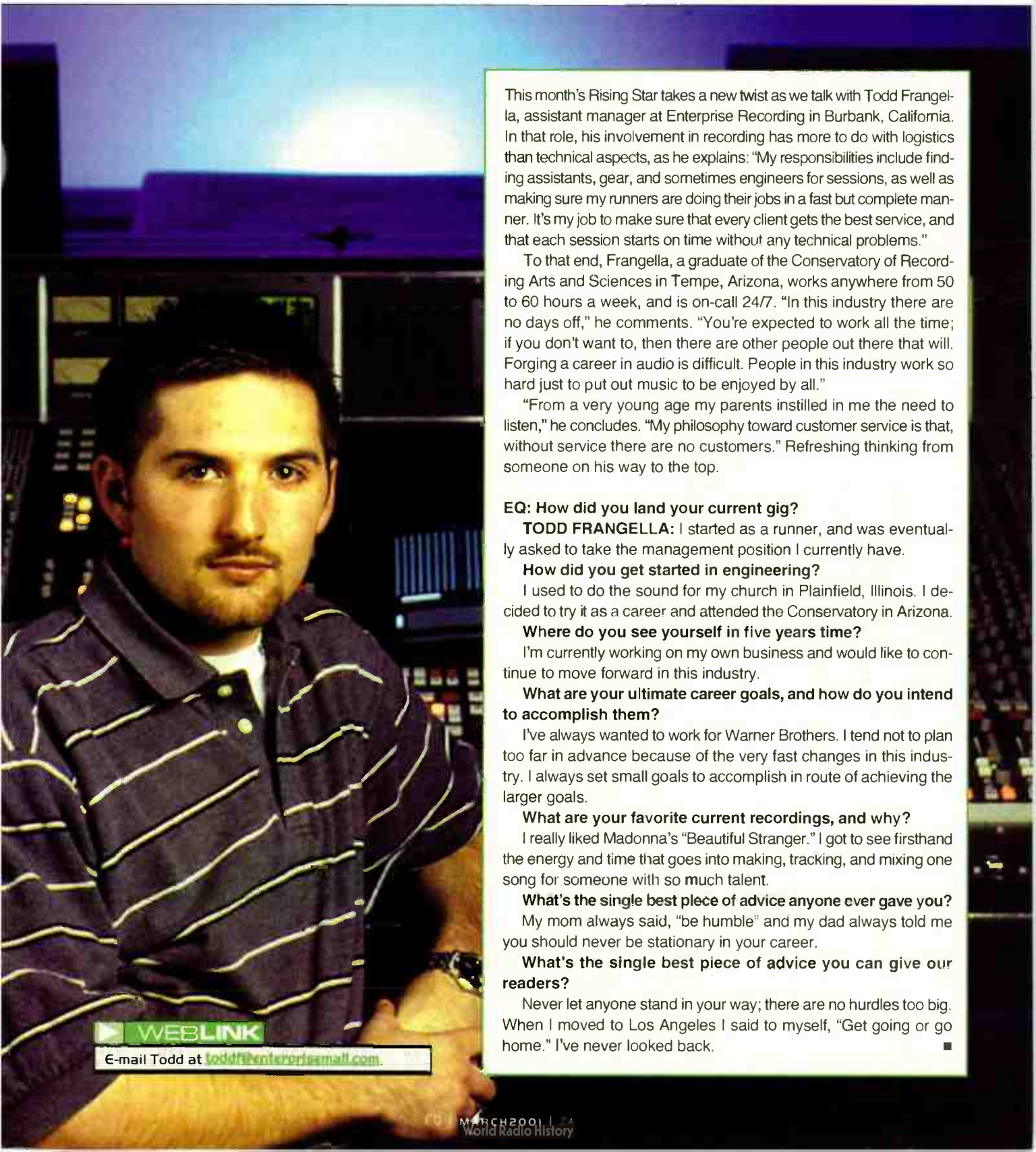
World Radio History

RISING STAR

Todd Frangella

EQ questions an up-and-coming engineer who's starting to make his mark on the music business



This month's Rising Star takes a new twist as we talk with Todd Frangella, assistant manager at Enterprise Recording in Burbank, California. In that role, his involvement in recording has more to do with logistics than technical aspects, as he explains: "My responsibilities include finding assistants, gear, and sometimes engineers for sessions, as well as making sure my runners are doing their jobs in a fast but complete manner. It's my job to make sure that every client gets the best service, and that each session starts on time without any technical problems."

To that end, Frangella, a graduate of the Conservatory of Recording Arts and Sciences in Tempe, Arizona, works anywhere from 50 to 60 hours a week, and is on-call 24/7. "In this industry there are no days off," he comments. "You're expected to work all the time; if you don't want to, then there are other people out there that will. Forging a career in audio is difficult. People in this industry work so hard just to put out music to be enjoyed by all."

"From a very young age my parents instilled in me the need to listen," he concludes. "My philosophy toward customer service is that, without service there are no customers." Refreshing thinking from someone on his way to the top.

EQ: How did you land your current gig?

TODD FRANGELLA: I started as a runner, and was eventually asked to take the management position I currently have.

How did you get started in engineering?

I used to do the sound for my church in Plainfield, Illinois. I decided to try it as a career and attended the Conservatory in Arizona.

Where do you see yourself in five years time?

I'm currently working on my own business and would like to continue to move forward in this industry.

What are your ultimate career goals, and how do you intend to accomplish them?

I've always wanted to work for Warner Brothers. I tend not to plan too far in advance because of the very fast changes in this industry. I always set small goals to accomplish in route of achieving the larger goals.

What are your favorite current recordings, and why?

I really liked Madonna's "Beautiful Stranger." I got to see firsthand the energy and time that goes into making, tracking, and mixing one song for someone with so much talent.

What's the single best piece of advice anyone ever gave you?

My mom always said, "be humble" and my dad always told me you should never be stationary in your career.

What's the single best piece of advice you can give our readers?

Never let anyone stand in your way; there are no hurdles too big. When I moved to Los Angeles I said to myself, "Get going or go home." I've never looked back. ■

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E-mail Todd at toddf@enterprisemail.com

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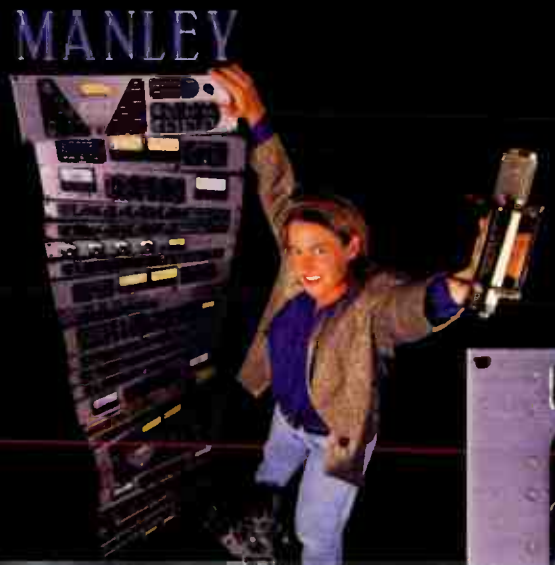

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World Radio History

Ad Astra

Vermont A-frame becomes a studio

By Steve La Cerra

STUDIO NAME: Ad Astra ("to the stars" in Latin)
LOCATION: Williston, Vermont
KEY CREW: Peter Engisch owner/chief engineer
CREDITS: Peter Engisch credits include Vermont Public Radio, IBM, Circus Smirkus/Disney, International Paper, Sporting Goods News, Roadshow Entertainment, Resolution, Inc., Digital Frontier, St. Michael's College, UVM Choral Union, Camel's Hump Radio/VPR, Essex Children's Choir, and many more
MIXING CONSOLE: Soundcraft Ghost 32x8 with meter bridge and Cybermix Automation, Mackie 1604VLZ, 1202
MONITORS: Alesis Monitor One, Truth B2031 (powered), Polk Studio 10a, TOA 22-ME-AV, Panasonic boom box
HEADPHONES: Fostex T-20 [4], AKG 240M, Beyer DT-770 [2]
AMPLIFIERS: Alesis Matica 500, Samson Servo 150, Rane HC-6 Headphone Console
RECORDERS: Alesis ADAT [3] with JL-Cooper Datasync+, TASCAM 102, 103; Panasonic SV3700, HHB CDR-850 CD recorder, Akai GX912 cassette deck, NAD cassette deck
OUTBOARD: Behringer Ultrafex II, Multicom; BBE 422, 411 Sonic Maximizer; ART PRO VLA tube leveling amplifier [2], Levelar, Tube EQ; dbx 1066, 166a; FMR RNC, Presonus Bluemax, Line 6 Pod
EFFECTS: Ensoniq DP Pro, DP-2; Lexicon Alex, MPX100; Alesis Wedge, Quadraverb+, Microverb 4
MICROPHONES: Neumann TLM103 [2], AKG Solidtube, Earthworks OM-1 [2], Rode NT-2, CAD Equitek E-200 [2], Crown SASS-P, PZM 30GP [2], CM-700 [2]; Shure Beta 52, Beta 57 [2], SM57 [2], SM58; Audio-Technica ATM33a [2], ATM25 [2]; Beyerdynamic M 380, MCE 81, M 160 [2]; Audix OM-5, Sennheiser MD504 [2]
MIC PREAMPS: Digitech VTP-1, ART Tube Pac, Tube MP; dbx 286, Presonus MP20, Joemeek VC3Q
SAMPLERS/KEYBOARDS/MIDI MODULES: Roland FP-1 [2], D50, Juno 60; Korg Wavestation SR, M3R, DW8000; Ensoniq MR rack with World expansion board, TS-10; KMX-8 MIDI patch bay
COMPUTER: Quantex w/Pentium III 550
SOFTWARE: Sonic Foundry Vegas Audio 2.0
DAW EQUIPMENT: Frontier Dakota PCI soundcard
INSTRUMENTS: 100-year-old Steinway grand piano, Mapex drum kit
STUDIO NOTES: According to Peter Engisch, "Ad Astra was built out of an A-frame structure, so there are almost no parallel surfaces. I blew out the roof on one side. This gave me more space for the control room, plus a nice sitting area for clients. Then I turned the main space into the studio, soundproofing and modifying the area with wood, slate, brick, and carpet. There's a loft above we call 'the nest.' I'll put guitar amps up there and occasionally a horn player for isolation. The loft also gives me access to the peak of the 'A,' so I can place mics way up high, or maybe tape a PZM or two onto the ceiling to get some interesting sounds." ■

Hurricane Pass

Staying dry on the Florida coast

By Rich Tozzoli

PHOTO BY SUSAN J. GEIER

STUDIO NAME: Hurricane Pass Recording
LOCATION: Dunedin, Florida
KEY CREW: Dan O'Brien, Esther O'Brien, Gumbi Ortiz, and guest engineers such as Roger Nichols, Pete Karam, and Leslie Chew.
CREDITS: Gumbi Ortiz's upcoming CD *Return to Pangia,* featuring guests such as Dave Weckl, Al DiMeola, Jay Beckenstein, Joel Rosenblatt, Scott Ambush, Eric Marienthal, Jeff Lorber, Rachel Z, Tom Kennedy, Mario Rodriguez, Ernie Adams, Brandon Fields, and Barry Miles.
MIXING CONSOLES: Panasonic DA7, Yamaha O3D, Mackie 32•8
MONITORING EQUIPMENT: JBL LSR32, LSR28P; Hafler TRM8, 10-inch powered subwoofer; Meyer HD-1. Headphones: Beyer DT 770 R [2], GK Music SuperPhones [2]
AMPS: Hafler P3000, P4000, Behringer Powerplay headphone amp
RECORDERS: Alesis ADAT XT [3], XT 20; Akai DR8, TASCAM DA-30mkII, Yamaha CD burner
OUTBOARD GEAR: Oram HD-EQ 2, Manley Vari-MU, Presonus ACP-8 [2], Rane DC 24 , Symetrix 551E parametric EQ [3], TC Electronic Finalizer Plus, Behringer Composer, cabling by Monster
EFFECTS: Lexicon 300L, MPX1 [3]; TC Electronic M3000, M2000; Alesis Q2, Quadraverb
MICROPHONES: Beyer MCE 834, M 500; Shure SM57, SM58; Audix D2 [3], D4 [2]; Audio Technica AT4031 [2], AKG C408
MIC PREAMPS: Manley Dual Mono, Oram Octasonic, dbx 386
KEYBOARDS AND MIDI EQUIPMENT: Ensoniq TS 10, Alesis QS8, MOTU MTP AV
INSTRUMENTS: Various guitars including Gibson, Ovation, Fender, Godin
INSTRUMENT AMPLIFIERS: 1952 Fender Showman, Mesa Boogie Nomad, Peavey Classic 30, Ultra 112, Classic 50/50; JBL and EV cabinets, Digitech 2120
COMPUTERS: Apple G4 with 21 GB internal drives [2], Adaptec 39160 Ultra160 SCSI accelerator, Medea 180 MB RAID
DAW EQUIPMENT: MOTU 2408, 1224 [2]
SOFTWARE: MOTU Digital Performer, Antares AutoTune, Microphone Modeler; TC Works Native Bundle, Waves Gold Bundle, Metric Halo Channel Strip, Adaptec Toast, Jam
STUDIO NOTES: O'Brien reveals interesting construction issues one must deal with on the coast in Florida. "I'm right on the water here," he notes. "If needed, we can seal the place up in case of a hurricane, and I've actually done it several times. When we blew out the garage for a control room, and built additional rooms for tracking, we kept flooding in mind. First, an eight-inch slab was poured to elevate the control and tracking rooms. Then we floated the walls and smoothed over and sealed all door casings, so they could be siliconed and taped at a moment's notice. All lower blocks were treated with waterproof mason sealer, making the studio basically a 'boat.' All doors coming into the house can be sealed within 20 minutes, and all secondary doors coming into the studio and tracking rooms can be double sealed in half an hour."
EQUIPMENT NOTES: "Both John Oram and EveAnna Manley make great mic pres, allowing us to capture clean, warm tracks direct to hard disk or ADATs. We realize the future is computer-based recording and mixing, and feel that blending upper-end analog and high-end digital turns out the best product." ■

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Email Hurricane Pass at www.globalmidi.com.

WorldRadioHistory

Ed Cherney has engineered for some of the biggest music artists of the last two decades – and is still going at it. Cherney's engineering credits are literally a Who's Who of the music industry: Jackson Browne, Eric Clapton, Bob Dylan, The Judds, Bette Midler, Iggy Pop, Bonnie Raitt and The Rolling Stones – to name only a few.

World-renowned producer Don Was has worked with Ed on numerous projects over their long and prolific partnership. Was has produced an impressive number of major recording artists including The B-52's, Barenaked Ladies, Bob Dylan, Elton John, B.B. King, Willie Nelson, Randy Newman, Bonnie Raitt and The Rolling Stones.

When it comes to choosing the right mic for their Grammy winning work, the Audio-Technica 40 Series tops the list. "My AT4060's have great body and warmth and still give me the clarity and presence I want," says Ed. "I put up a 4060 and everyone is happy – the artist, me, everyone."

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Special thanks to The Record Plant, Hollywood, CA

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PHOTO BY WES BENDER

RCA BK-5B

MICROPHONE NAME: RCA BK-5B
FROM THE COLLECTION OF: Bob Paquette, The Microphone Museum, Milwaukee, WI
YEAR OF MANUFACTURE: Circa mid-1960's
PRICE WHEN NEW: Approximately $150
TYPE OF MIC: Ribbon
POLAR PATTERN: "Improved" cardioid (see notes)
FREQUENCY RESPONSE: 30 Hz to 20,000 Hz (+/–5 dB)
OUTPUT LEVEL: –56 dBm at 1,000 Hz, ref. 10 dynes/square centimeter
HUM PICKUP: –128 dBm, maximum at 60 Hz, 0.001 Gauss
ELECTRICAL IMPEDANCE: 250 ohms (as shipped)
MOUNTING: Half-inch pipe thread
FINISH: Low-luster gray
DIMENSIONS: 7 inches (length) x 1.75 inches (diameter)
WEIGHT: 27 ounces, less cable
MIC NOTES: In addition to television studio applications, RCA's BK-5B was also intended for use in pro sound situations where quality pickup was required under adverse conditions. Incorporated in the BK-5B's front grill is a blast filter that is intended to reduce the possibility of damage to the ribbon element due to exposure to gunshots(!) and other rude noises. This blast filter consists of two separate cloth layers supported by perforated metal screens. Over a frequency range from 500 to 1,000 Hz, the BK-5B exhibits a classic cardioid response pattern; however, above 5,000 Hz, the BK-5B produces more of a flattened omnidirectional pattern.
USER TIPS: The BK-5B differs from the BK-5A slightly in frequency response (the BK-5A was rated at 50 Hz to 15,000 Hz), and also features a three-position, low-frequency contour switch which the BK-5A lacked. The three switch positions — labeled "M," "V1," and "V2" — indicate choices for music or voice applications. When set to "M," frequency response of the BK-5B is within RCA's specified tolerance down to 30 Hz. In the "V1" position, low-frequency response of the microphone is down 10 dB at 70 Hz. The "V2" position contours the low frequencies even more severely, down approximately 16 dB at 70 Hz.

For related information see MicroPhile in the April 1996 EQ. *Technical data courtesy of Arthur Garcia.*

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POE is haunted

POE

SUSPECT:	POE
ANCESTRY:	POElish, French, and Irish
OCCUPATION:	Singer/songwriter/engineer/producer
BIRTHPLACE:	NYC
RESIDENCE:	LA-LA Land
VEHICLE:	Ford Explorer Sport
DIET:	"Good food with good friends. The quality of the food is not nearly as important as the quality of the company." One recent obsession: salt-and-vinegar potato chips.
IDENTIFYING MARKS:	Tatoo reading "psycho" on skull. This information has not as of yet been confirmed.
INFO FROM WEB:	Haunted was recorded on POE's computer, in her present hometown of Los Angeles with her "partner in crime," co-producer Olle Romo. With her hard drive and Pro Tools, POE composed and constructed the album with a hi-tech collage method. "For instance," says POE, "we might take a guitar performance that was part of a particular song and end up splicing it into an entirely different one."
CREDITS:	Debut album, Hello, 1995. New album Haunted recorded by POE and her co-producer Olle Romo. Mixes by Ed Cherney, Tim Palmer, Dave Reitzas, Mike Shipley, David Thoener. Album explores intimacy, family, loss, mystery, madness, terror, interacting with the dead — and is linked thematically with the book House of Leaves, by her brother Mark Z. Danielewski. Audio cassettes of her deceased father were discovered years after his death and sampled for the album.
NOTES:	Mixer Dave Reitzas told me: "Her vocal sound is incredible. When I put up her material for the first time and brought up the faders, it was one of the few times where everything sounded great from the get go."
LOCATION OF PHOTOS:	POE's "studio in a tent" set up at Extasy Recording Studios North.

EQ: What are your main recording tools?

POE: A Mac 9600 with a nice souped-up [Digidesign] Pro Tools system, microphones, a Neve sidecar, lots of plug-ins, a bunch of [Empirical Labs] Distressors, a caffeine I.V., musicians, and all the cool gear they can cart over. Oh, and a sense of humor.

Why couldn't this record have been made without Pro Tools?

Editing. It's all about editing. Here's an example — the second half of the song "Wild" was, with the exception of one vocal line, composed entirely out of material recorded in the first half of the song. Some of that could perhaps have been done with samplers and sequencing, but a lot couldn't, simply because the pieces of audio we were using were too long. We used over two minutes of the drum performance, from the body of the song, as though it were a sample and manipulated its sound to serve a new purpose — and that's only one example. I suppose we could have done a lot by physically editing tape, but with the amount of editing done on this record, tape editing alone would have taken 20 years.

Was everything recorded direct to hard disk? How do you keep "track" of everything?

Yeah. Everything was recorded direct to hard drive. As for keeping track of everything — to be honest, things were a bit of a mess by the end of it all. We'd have files from one song split out over 13 or 14 drives and we really ran into some nightmares. One problem is a SCSI chain like that could take forever to locate and fix. Yikes. In a perfect world, it would be great to have one or two songs neatly located on one drive, but that's expensive. As for staying organized in general, I depended heavily on Olle, my co-producer, and Kirk, our second engineer. They're both way better at keeping things neat than I am.

What happened in the studio re-do remix of "Wild" as a single?

You'd have to ask Mr. [Dave] Reitzas. He was given the original session of "Wild," from the album and he took it from there. It was very cool to see someone take a totally new approach to that song and he did a great job. Only problem is he's put terrible ideas in my head, due to the fact that the "Wild" session is so big. Dave had

POE PHOTOS BY MR. BONZAI

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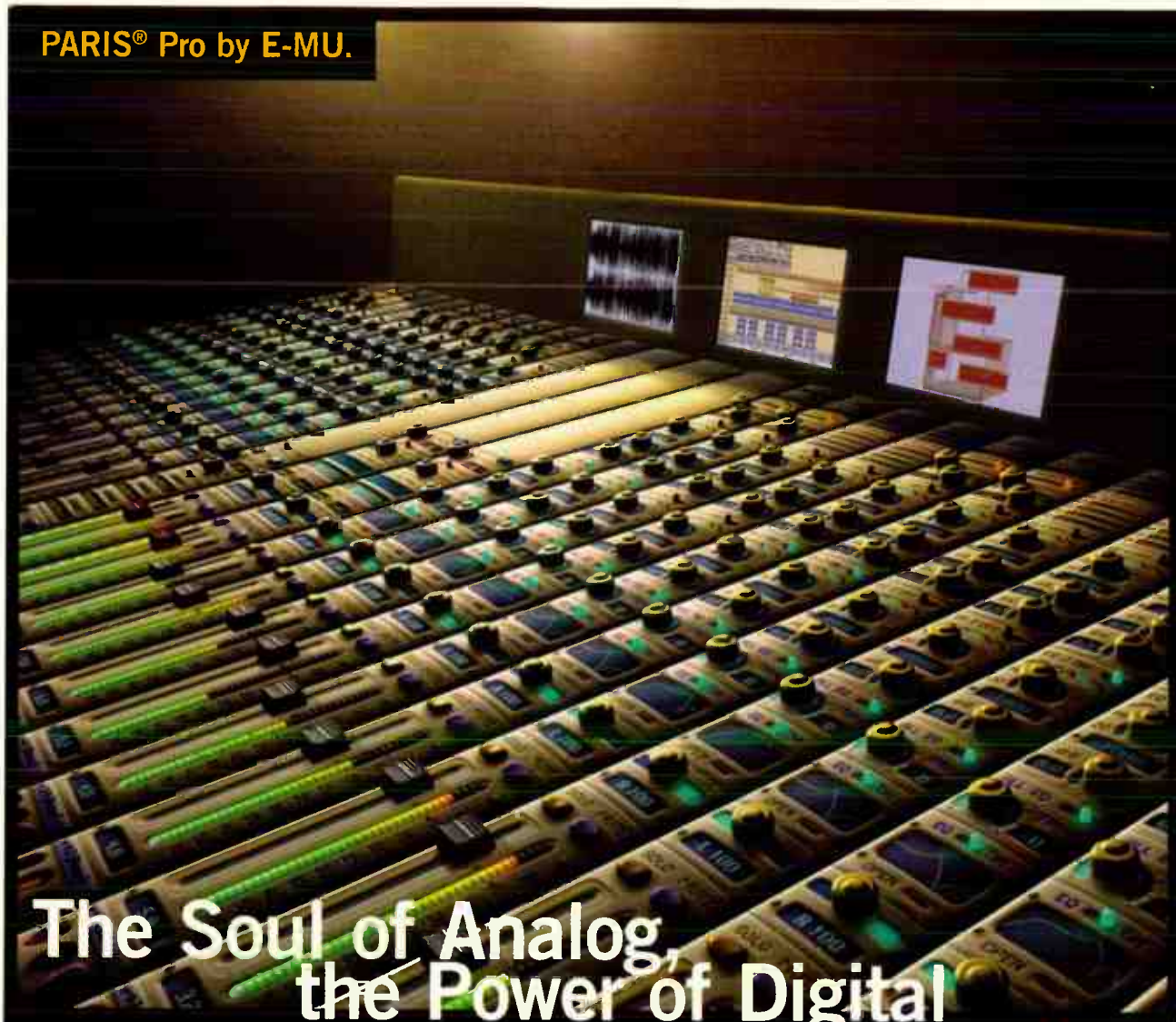

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to slave another Pro Tools system up to ours. I took one look at that and wanted to start filling up all those new tracks. Very, very dangerous. Come to think of it, maybe I should make my next album on a four-track.

Can you share one Pro Tools insight that you discovered?

The more DSP, the better. And somewhere along the way, give yourself a deadline.

What's your secret to editing?

Really, really liking all those pretty colors on the screen because you have to look at them for a long, long time.

Vocals — what microphone do you prefer?

My favorite vocal mic is an old [Neumann] U47. Problem is that it's a very expensive mic to rent or buy. It's also hard to find good ones. Not every U47 sounds the same. When they're good, they're good, and when their not, they really suck. I opted, at Olle's suggestion, for a Manley "Black," which was used for all the vocals on this album. It's much cheaper and I think it sounds great.

Do you record your vocals while you're alone?

Yeah. It was liberating to record vocals that way. Especially for the extremely personal songs like "If You Were Here." Never is your train of thought interrupted because you have to tell someone where you want to punch or what you need to hear again. I was free to take risks and also to sit with a song, all night if I had to, until I was right where I wanted to be. A pocket is a heavy thing and sometimes it takes a little time to find the place in it that really feels good.

What was the set up?

Vocal chain one: one Manley black microphone, one Distressor, one Focusrite EQ. Vocal chain two: one Shure SM58, one Roland Space Echo and/or Echoplex, one Mutron Wah pedal — to be used with the Space Echo — one Distressor, one Focusrite EQ. Vocal chain three: one Shure 58, one Sansamp rack unit, one Distressor, and one Focusrite EQ.

How does Olle Romo fit in?

Well, I don't know that I could say Olle ever really fit in — just kidding. Olle was really my partner in crime on this album. It was a labor of love on both our parts. Olle is an incredible engineer with extensive experience in both the analog and digital realms. He's also a very accomplished drummer — he used to play with the Eurythmics, and so he can always be counted on to make sure your rhythm section is slamming. He's very much a team

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player who isn't driven and controlled by his ego, but by a love for music. For me, that's the most important quality anyone in production can have — and I've found that quality to be exceedingly rare. John O'Brien also contributed a lot to the sound of this record. He's a great programmer with a vast palette of sounds.

Mixers — what did these guys do for your music?

They provided fresh ears, and a fresh approach to music we'd been listening to for far too long.

What did your years at Princeton contribute?

The opportunity to screw around with cool gadgets and get credit for it.

Did you ever lose control?

Just last night. Oh, and the night before that too, oh and.... If you mean with the album, there were a few very frightening moments when I thought I wasn't going to be allowed to continue. Thank God — in the end the process was allowed to continue.

If you were a car, which would you be?

Hasn't been invented yet. To begin with, I would want it to fly.

What's wrong with the music industry?

The word "industry."

What music would you like played at your funeral?

I never plan that far ahead.

What do you listen to while you're driving?

Recently, Manu Chao — I f*cking love that record!

What do you visualize when you're recording vocals?

On this record, I often saw an image of my father's eyes.

If you could go back in time before the birth of recording, what would you like to hear?

Angels.

What is the first music you remember hearing?

My dad singing — he had an awesome voice and he sang all the time.

What did you learn from leaving home at 16?

That you can never go home again.

Who were your musical heroes when you were getting started?

The Beatles, David Bowie, Blondie, Bob Dylan, and Billy Holiday.

Who do you respect and admire today?

My brother.

Is there anyone in the world you would like to record with?

Cornellus.

What is your strongest characteristic as a human being?

I'm a great nurturer. I'm also extremely loyal.

Do you know any interesting business tricks?

Honesty.

▶ continued on page 118

SOUND ADVICE!

"With clients like Don Henley, the Dixie Chicks and Marty Stuart, we rely on SurgeX to keep our sessions running smoothly."

Mark Petty, Chief Recording Engineer
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3 1999 TEC AWARD WINNER!

Normally we don't name competitors in our ads. But in this case, Mix Magazine published the other nominees for the 1999 TEC Award for Outstanding Technical Achievement in Small Format Consoles: Allen & Heath's GS-3000, Digidesign's ProControl, Panasonic's WR-DA7, Spirit's Digital 328 and Yamaha's 01V. Thanks to all who helped us win this prestigious award.

CIRCLE 74 ON FREE INFO CARD

World Radio History

Behind the scenes of a burgeoning new high-resolution format

Intro To SACD

by Rich Tozzoli

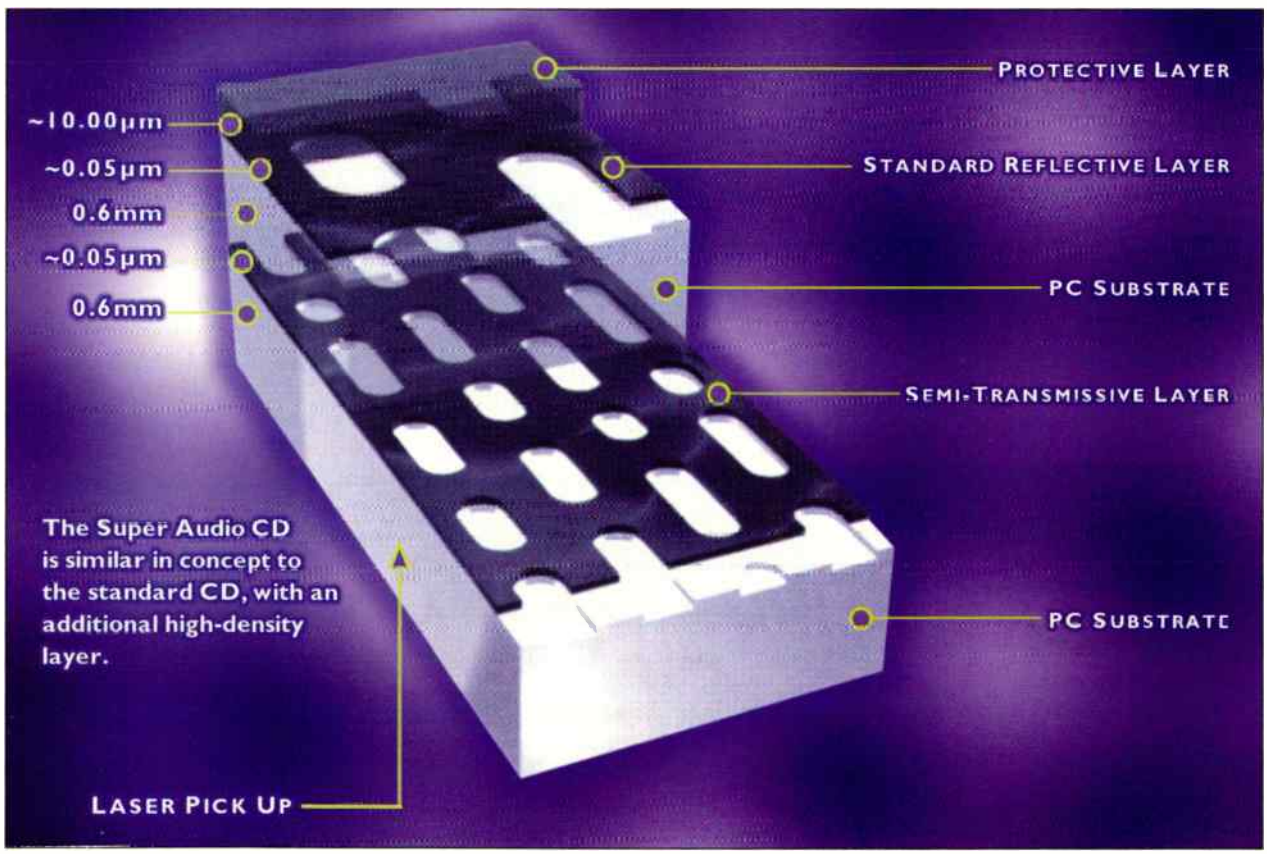
SACD. To many people, even those in our industry, this acronym conjures up images of a little understood, high-resolution music format that audiophiles are drooling over. There is the mystery of those high-priced players, but what kind of discs do they play? Is it stereo or multi-channel? Are the record companies into this? How do you record SACDs? Questions abound, and below I've dug into some of the facts and fictions about SACD. More in depth articles will follow, but this should help you get your feet wet!

Developed jointly by Phillips and Sony, SACD (Super Audio CD) is based on Direct Stream Digital (DSD) encoding technology. To understand DSD, it helps to step back for another look at our standard 16-bit/44.1 kHz PCM (Pulse Code Modulation) sampling theory. We know that every PCM system requires "brick-wall" anti-aliasing filtering of frequencies over 22.05 kHz. In addition, decimation (downsampling) filtering is also required, as well as the need for multi-stage interpolation (oversampling) for playback. While sampling frequencies and word lengths have increased above 16-bit/44.1 kHz, decimation and interpolation are still a part of the musical equation.

Enter DSD Encoding, with a whole new way of capturing audio information. The analog signal is converted to digital by 64-times oversampling delta-sigma modulation, *i.e.,* sampling at 2.8224 MHz. The analog-to-digital conversion provides a one-bit digital representation of the audio signal, which is recorded directly to DSD. Without the need for decimation, DSD frequency response is a whopping 100 kHz, with a dynamic range of 120 dB. With specs like that, it's becomes clearer why the format sounds amazing and is a big step up from PCM audio.

Currently, there are three types of "Scarlet Book" Super Audio CD discs. The single-layer disc features one high-density (HD) 4.7 gigabyte layer of information. The dual-layer disc features two HD layers, with total storage of 8.5 GB. The third type is a hybrid disc, containing one HD layer and a standard audio CD layer, allowing playback on the many millions of CD players out there. The hybrid features two 0.6 mm bonded layers, one with the CD data and one with SACD data.

All SACD discs look like a standard 12 cm wide, 1.2 mm thick CD or DVD. SACDs are read by a dual-laser optical



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pickup; the CD layer is read by a standard 650 nm laser, and the SACD layer is read by a 780 nm laser. Interestingly, the SACD layer is transparent to the light of the 650 nm laser (CD), but reflects the 780 nm laser. This advanced technology is what allows playback of the disc in all CD players, and is one of the major selling points of the format.

Currently, several units are capable of recording direct to DSD format. They include the Genex 8500 M/O, Philips Pyramix system, and the Sony Sonoma system. Both the Sonoma and Pyramix are complete workstation processors, capable of full recording, editing, mixing, and processing. Sonic Solutions also developed a system using a Sony DSP processing card, and Sony developed a stand-alone system, but only a few of each were made. Those who use the Genex tend to use external drives due to the massive data storage needs. Other companies are sure to follow; as one example, TASCAM has announced their DSD-98 recorder, slated to be available this summer.

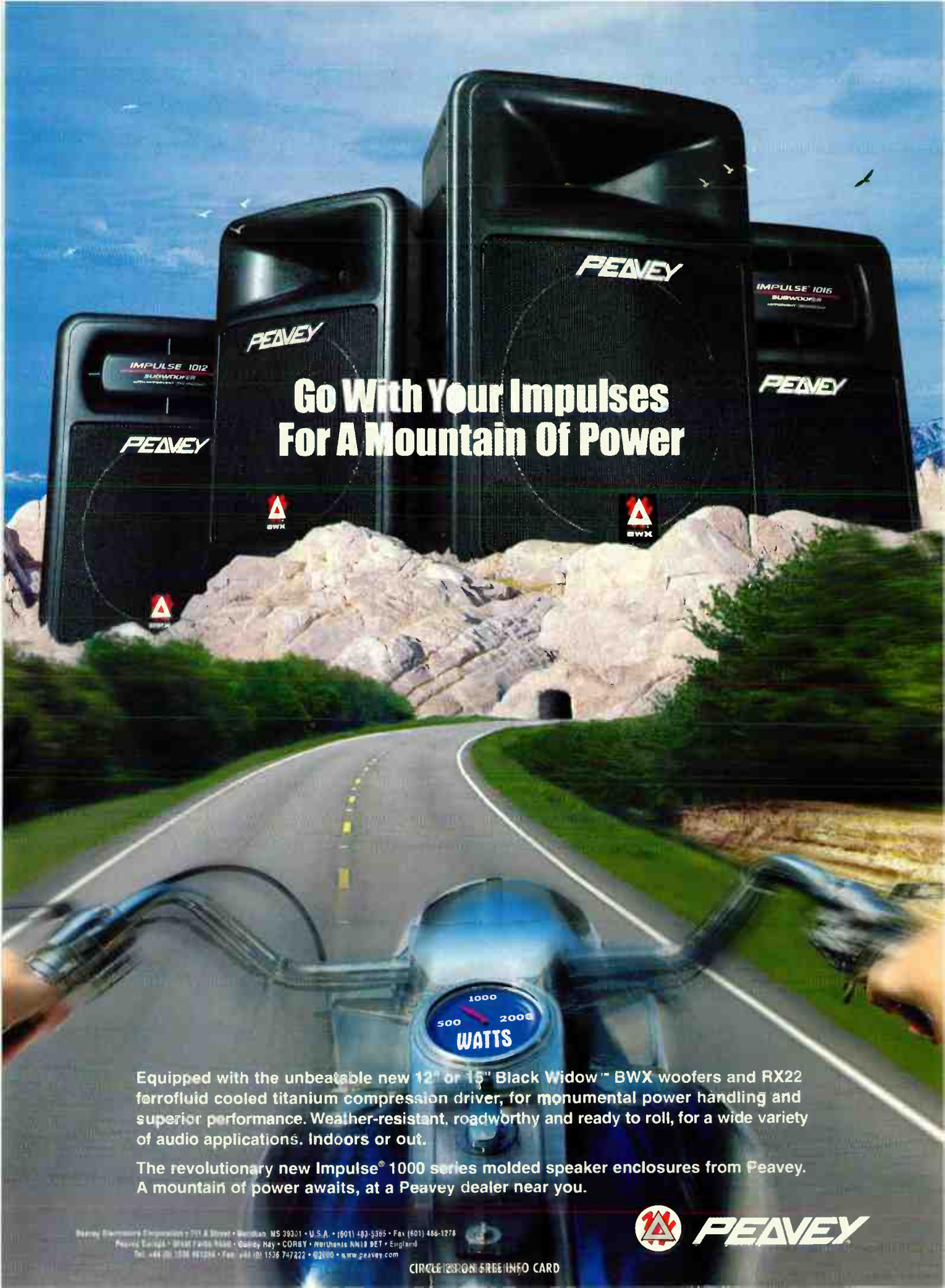
For mastering, most projects are delivered on an AIT or DLT tape, if not on analog tape or in the native recorded format (Genex, Sony, etc.). Projects not recorded direct to DSD are converted at this stage. David Glasser, founder and chief engineer of Airshow Mastering in Boulder, Colorado, has had his hand in producing some 50 SACDs out of the 200-plus titles now on the market. Airshow was one of the first studios worldwide to install Sony's Sonoma recording and editing platform. "We did one of the first SACD surround project from analog tape, Mike Oldfield's four-channel Tubular Bells for Virgin Records," says Glasser. He also comments that files come in on each of the different formats, but that he ultimately transfers everything into the Sonoma for mastering. "After the Sonoma, the final mastered sound file is exported as a file format called DSD-IFF. This is a single file containing all the channels of a master, and that's what gets sent to the plant for final duplication."

DSD's 2.8224 MHz sampling rate was specifically designed for easy downconversion to all current PCM word lengths and sample rates using a new Super Bit Mapping Direct processor technology. (Note that the 2.8224 MHz rate divides evenly by 44.1 and 48, as well as any of their multiples such as 88.2, 96, 176.4, 192, etc.) The DSD signal is filtered and noise-shaped in a single stage, and this processing is said to create higher quality 16-bit masters for consumer use. For projects that require more than 4.7 GB, a loss-less type of compression called Direct Stream Transfer (DST) encoding is used.

As for SACD players, the first were two-channel only, and were priced in the hefty $5,000 range. As with DVD-A, the players use six analog outs for the HD audio, due mostly to the lack of copy protection (a whole different article). Players do have a standard digital out for CD playback, which could also handle AC3 and DTS streams. As expected with any new format, the economies of scale come into play, and Philips, Sony, Sharp, and Marantz are releasing players at much more affordable prices, many under a $1,000. With the "official" launch of multi-channel SACD at this year's CES show, a new breed of players such as the universal Sony SACD 1000 are coming out, capable of handling SACD, DVD-V, Video CD, and even CD-R and -RW discs. Sony is planning a large marketing push this year to increase the installed SACD user base.

The SACD catalog is steadily growing, and the list of supporting companies includes the likes of Telarc, Sony, Virgin, DMP, Denon, Columbia, Delos, and Chesky, among others. One can be sure many of the other labels are waiting out the initial break-in period, and will simply follow the trail of the leaders. Artists and producers have begun to track directly to DSD, taking advantage of the amazing dynamic range and multi-channel aspects of the format. Other projects are simply being transferred over from the original recordings, such as Jeff Beck's Blow by Blow and Miles Davis' Kind of Blue (reportedly, there's a three-channel master of this).

SACD provides consumers a monumental sonic improvement over CD, yet retains backwards compatibility. It's use as an archival format extends its possibilities, and with the added benefits of multi-channel sound, text, and graphics, it appears to be a winner. However, only time will tell if there will be sufficient market penetration and ultimate acceptance by the consumer. I feel that with lower price points on "hybrid" players that handle all formats, the public will be able appreciate a whole new music experience without having to worry about compatibility or what type of disc they're playing. ■



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CIRCLE 128 ON FREE INFO CARD

Surround panning from a stereo console

5.1 Panning Tricks

By Bobby Owsinski

Most of us are interested in experimenting with surround mixing, but not all of us are ready to spring for a surround-ready mixing console. Here's a little trick that will give any standard stereo mixer the ability to do surround panning as long as you have at least four busses available. Although the following is a bit easier to visualize on an English-style split monitor desk, it can be performed on an in-line console just the same.

In the stereo world we're used to panning from left to right using a left and right mix buss or odd/even recording busses. This doesn't quite work if we try to apply the same setup to surround. If we dedicate two mix busses, say busses 1 and 2, to the left and right front, and busses 3 and 4 to the left and right rear, then we're restricted to only being able to pan back and forth between left and right either in the front or in the rear. The hard part, and what we want most, is the ability to pan front to back.

We can do this by assigning the busses a little differently. Since we always have to have an odd and even combination to pan between, we just have to think outside the box a little bit. Simply make busses 1 and 4 the left and right front mix and busses 2 and 3 the left and right rear. Now by assigning busses 1 and 2 you can pan left front to left rear and busses 4 and 3 pan right front to right rear (See Figure 1). If you have a desk where the busses are linked in pairs, just use busses 1 and 8 for the front left and right and busses 4 and 5 for the rear left and right. Busses 2, 3, 6, and 7 go unpatched.

Although this method isn't perfect, you do get the sense of panning diagonally as well by using three busses such as 1, 2, and 4 for left rear to right front for example. In fact, some combination of buss assignments (even all four at once) will get you most places that you want to go in the surround field.

This method doesn't give you the ability to pan through the center speaker, though. You'll still need a hard buss assignment (buss 5 perhaps) or an aux send for that. But it does stretch some added surround mileage out of that seemingly over-the-hill stereo desk. ■

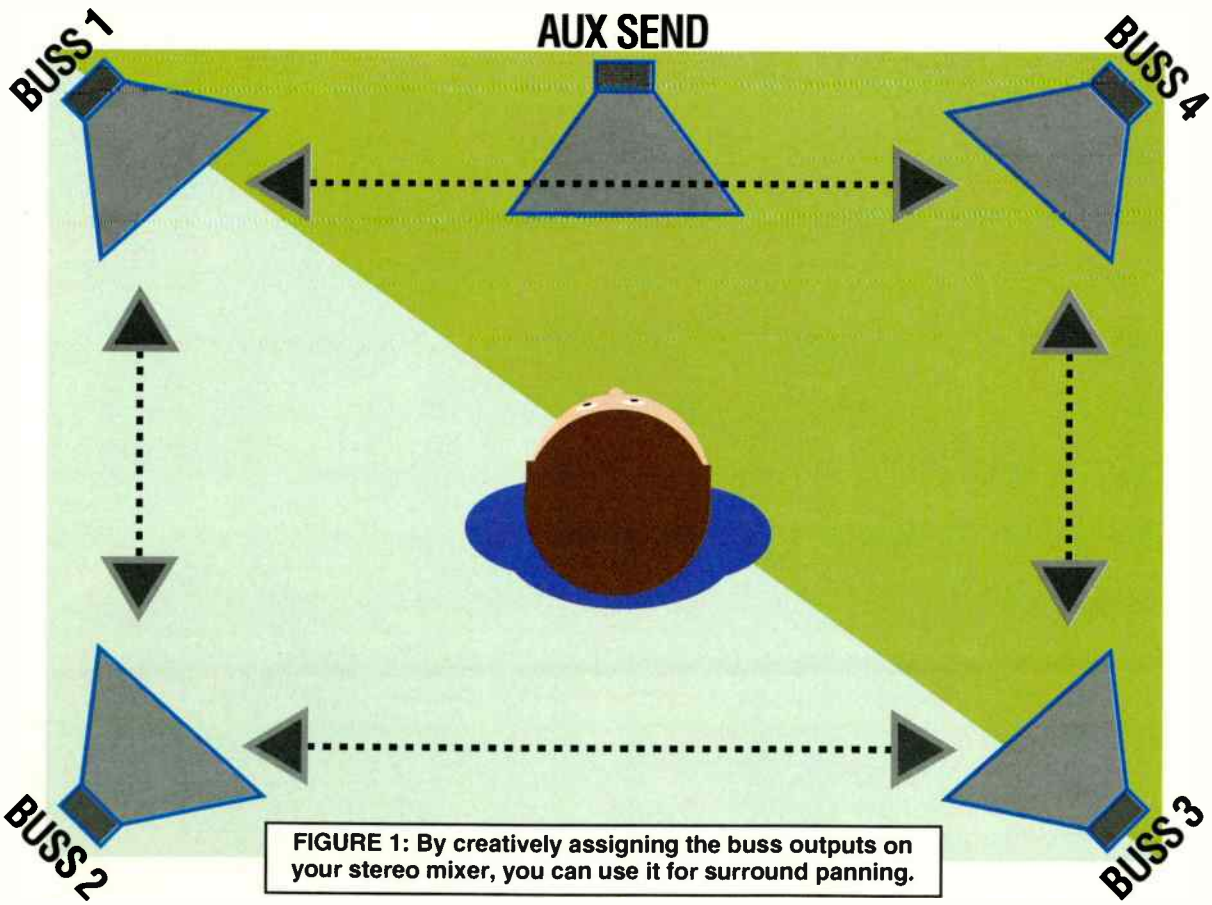

FIGURE 1: By creatively assigning the buss outputs on your stereo mixer, you can use it for surround panning.

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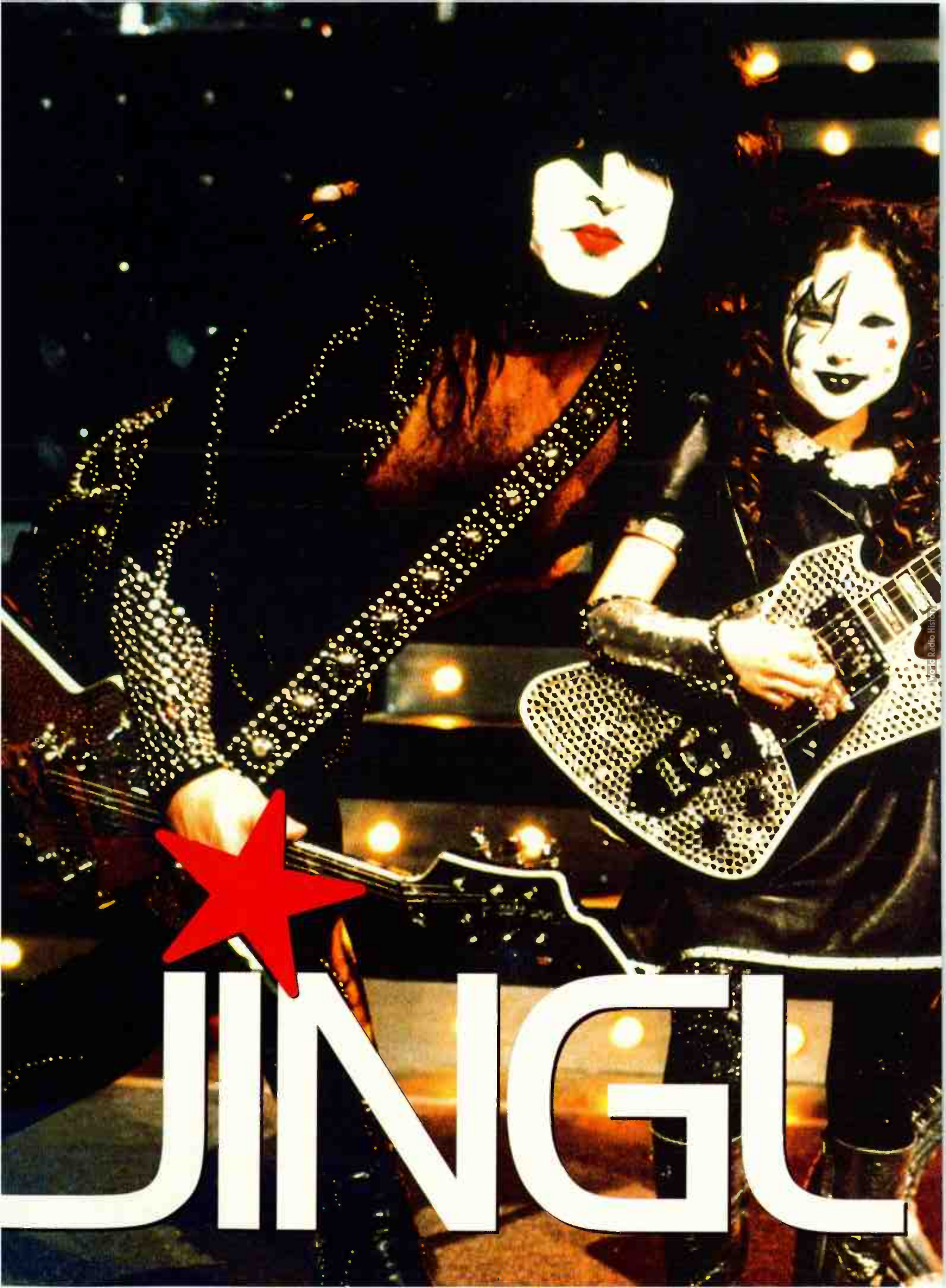

JINGL

BY JIM BORDNER

TRENDS AND TIPS FOR COMMERCIAL MUSIC PRODUCTION

"PEPSI COLA HITS THE SPOT, 12 FULL OUNCES, THAT'S A LOT...."

Widely considered the first jingle, this catchy bit of fluff had all Americans singing, "nickel, nickel, nickel, nickel." Hooky and straight to the point, as grating and unforgettable as a stone in your shoe, Pepsi's little rhyme let everybody know that a bottle of Pepsi had twice as much soda for your nickel than that other brand could offer.

The guys who wrote that tune wouldn't last ten seconds in today's commercial music business. The modern jingle house has to work in a kaleidoscope of styles, at incredible speeds, and under extreme pressure. Not only does the work have to be turned on a dime, but big-agency producers expect the same kind of production quality formerly reserved for hit records.

Even in smaller markets where commercial music often means snappy jingles for local merchants, the massive growth in recording technology has put greater pressure than ever on jingle producers. From Pepsi-Cola to the florist's shop in your neighborhood, clients are demanding more and better work, produced faster and cheaper all the time.

I recently talked with the principals of some of the best-known music houses in four major production markets. Their insights demonstrate that there are as many ways to succeed in the jingle business as there are producers.

NEW YORK

Mary Wood, partner, Crushing Music

Long before founding partner Joey Levine started Crushing Music, he was used to hearing his songs on the radio. Levine was a producer of pop music, already writing hits in his teens (as the Crushing Music website states, "if you don't know at least ten of Joey's hits by heart, you're legally dead."). What does a guy do after he's scored Andy Warhol movies and written "Yummy, Yummy"? He goes into advertising and builds one of commercial music's largest and most respected firms. Crushing is responsible for such classic pieces as "Sometimes You Feel Like a Nut," "The Unsinkable Taste of Cheerios," "You Asked For It, You Got It — Toyota," and "The Heartbeat of America" for Chevrolet.

I had the pleasure of talking with Mary Wood, a partner in the company whose own credits include writing and singing the original version of "The Joy Of Cola" for Pepsi. Mary began her career on the agency side, eventually working as a music producer for international

World Radio History

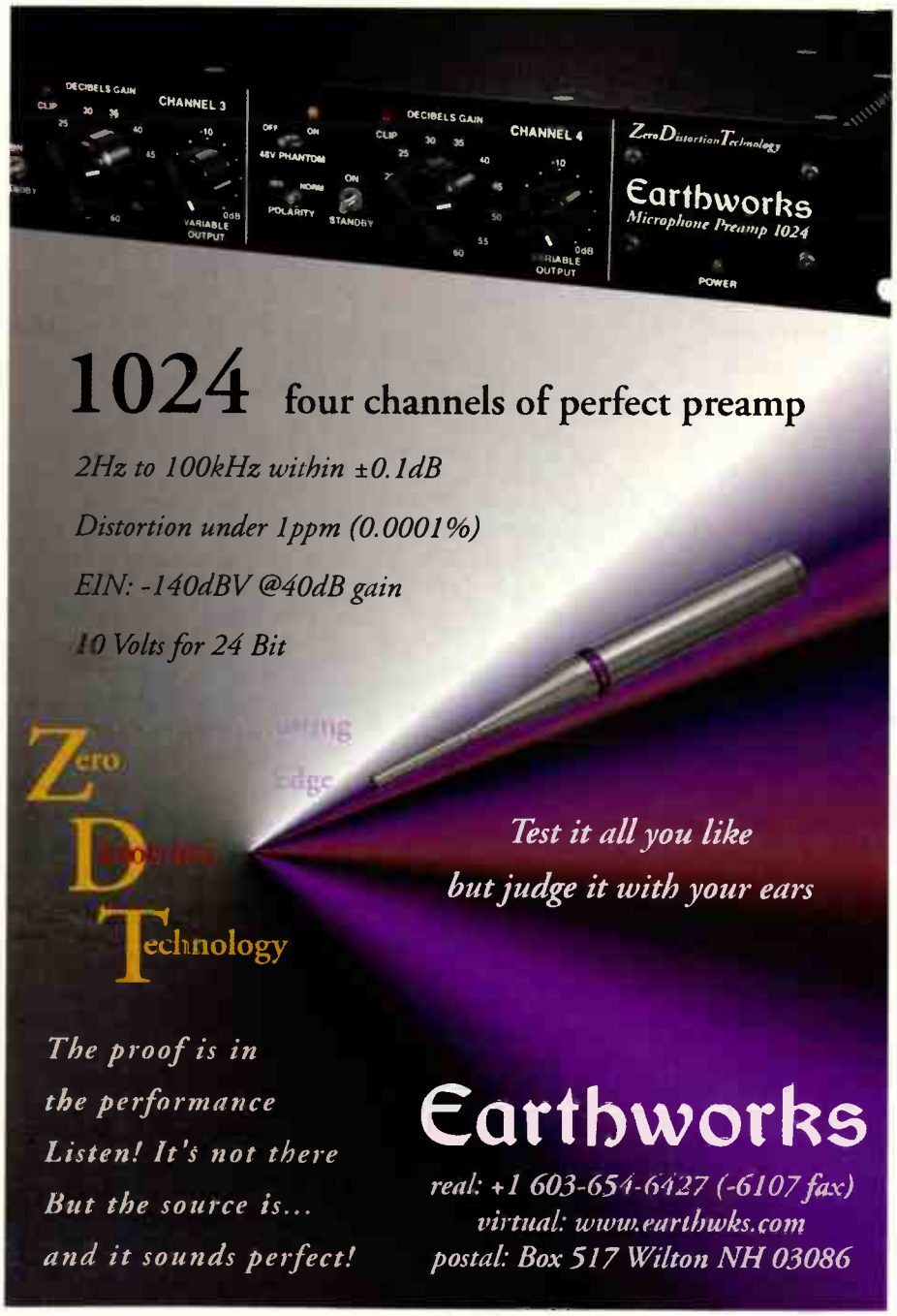
they know you can do it in the computers. Even with all the increased demand, I don't think demo fees or creative fees have gone up in ten years."

Crushing combats the increased competition in the industry by promoting their solid track record and their personal style. "There are new music companies opening up every day, and it has changed the business. But when it's a big brand and a big campaign on the line, they're still going to call in the majors. Now, when it comes to selling our style, our whole attitude is, if you want something to sound like another record, we don't want to do it. We have our way of working — if you want to match a mood, we'll do it, but we don't do hit songs sideways."

Crushing is also moving into new areas of the business as demand changes. "We've always been known as a jingle house, but we're getting more and more into underscore and sound design, just because there's more demand for it."

NASHVILLE

Bob Farnsworth, president, Hummingbird



CIRCLE 17 ON FREE INFO CARD

JINGLE TIPS #2
WRITING A BETTER LYRIC

Jingles are advertising, but the structure of a great one isn't really that much different than any pop song. When working with local or regional retailers, it's easy to get caught in the trap of "singing the strategy," using lyrics that force the singers to chirp, "When it comes to heating and air conditioning, we're the best...our service department is more dependable than the rest!"

Take a cue from expert lyricist Mary Woods: The first step in writing a great jingle lyric is understanding the target audience and the marketing problem. Keep in mind that the client is very close to the product, and what they feel is the most important thing to say ("We've been in the same location for over 32 years") may not mean anything to the consumer. Find out who you're singing to before putting quill to parchment, and keep a clear mental image of their hopes and desires in mind while you're writing.

When you have a handle on the message, remember that music's function in advertising is largely emotional. Selling points are for the copywriters. Your job is to create an emotional response in the listener. Sure, the guys at Peter Paul probably felt that there was little to say about their candy bars other than "they're delicious" and "one has almonds and one doesn't." Joey Levine understood that a candy bar is fun food, and wrote "Sometimes You Feel Like A Nut," a song that still communicates Almond Joy's unique position.

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CIRCLE 66 ON FREE INFO CARD

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JINGLES ALL THE WAY

New York's Crushing Music is responsible for such lasting jingles as "Sometimes You Feel Like a Nut" and "The Heartbeat of America."

My first exposure to Hummingbird came early in my career, when I was working as a copywriter in a small agency. We were going to produce a song for a chain of optical stores, and I started calling for demos. We got tons of them, most dull and uninspired. But, one jumped out of the slush pile, filled with clever lyrics and blistering arrangements — a jingle demo so good I starting listening to it in my car for entertainment. That demo was from Hummingbird, now in their twenty-fifth year of business. In their quarter-century of existence, Hummingbird has produced music for Coke, Pepsi, McDonalds, Dodge, Kellogg's, and many others. But, they're probably best known for the original Budweiser frogs. And they've done it all from a city that, while known for music, is pretty far from advertising's nerve centers.

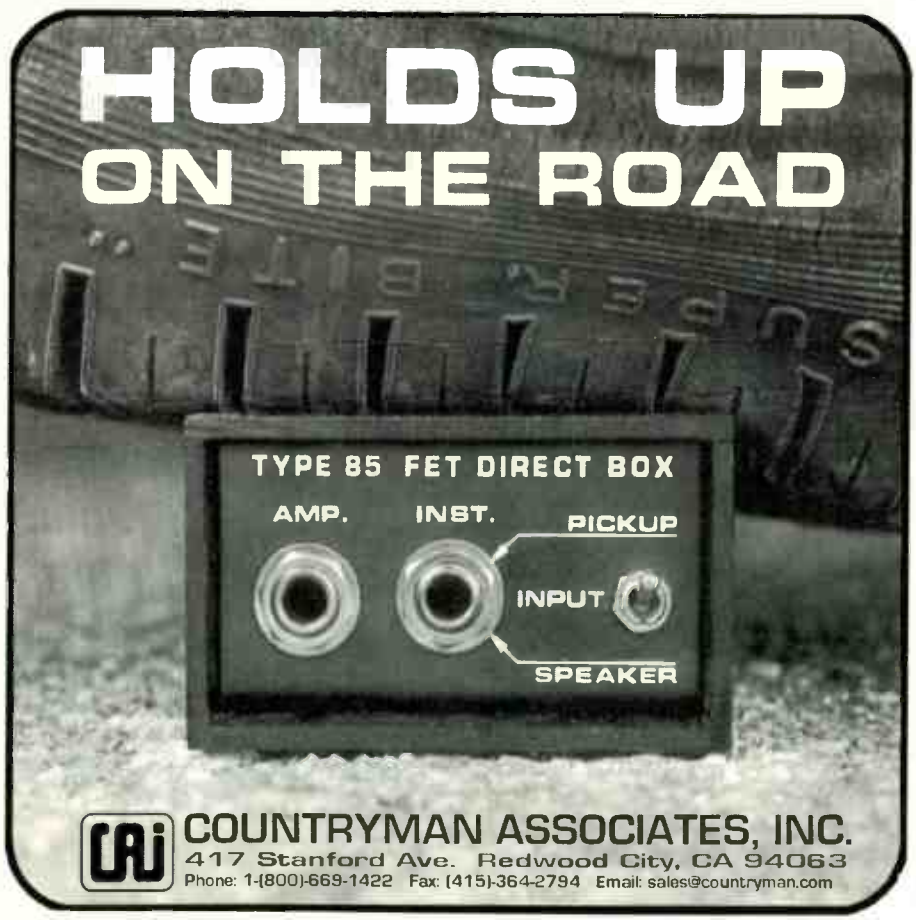
"Yeah, the first thing I learned," says founder and president Bob Farnsworth, laughing, "is to not open a music house in Nashville when all the advertising is in Chicago and New York! But, I also think part of our success has been based on the fact that I didn't know what not to do."

What Farnsworth did know was that he had a strong musical knowledge, and a real passion for music. "I didn't even know what they called those little ad songs on the radio," he says. "The first time somebody said to me, 'Oh, did you do that jingle?' I was like, 'Did I do what?' The first tune I worked on was for a brand of country sausage, and the client asked for something 'really different.' So I did a song about how you didn't want to brush your teeth because you'd lose all that great sausage flavor. Oh, it was different, alright," he recalls, laughing. "So different the client almost had a heart attack."

Since then, Hummingbird has produced thousands of spots for major clients, and Farnsworth has seen a lot of change in the business. "It's changed due to technology, MP3, email, and FedEx," he says. "Just like any business has changed. It's moving so fast, faster than ever, and it puts a lot of pressure on the agencies. We don't have the time to do what we used to do 15 years ago...the agency guys would come to Nashville for a couple of days, hang out at the sessions, we'd take them to dinner and get to know them — it was fun for everybody. But now nobody has time to come to town. They want a demo today and, 'oh, can you shoot me an MP3 of the rough?' So owning our own big studio just isn't as important as it was."

"We have a big studio downtown on Music Row, and that was always great for impressing clients. But I've been building a studio at home, originally just for convenience and functionality, and we've all been doing more and more work at home, and in other studios. So we started renting our big room out to the record companies — I think we're going to be putting that building up for sale pretty soon."

"In a way, it hurts us, because you don't develop the kind of personal relationship you once did," Farnsworth muses. "But you have



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Optimum Performance Ultimate Sound

When Your Sound is an Ideal, Not a Compromise

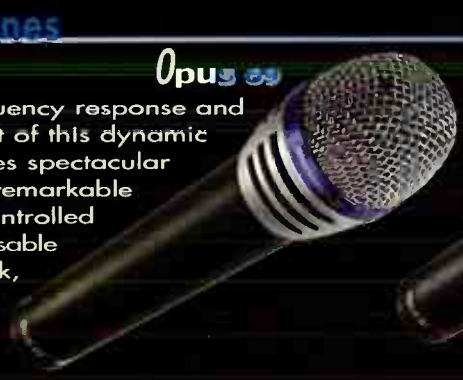
beyerdynamic introduces Opus, a selection of high performance touring and sound reinforcement microphones for the demanding musician and audio engineer.

The collective work of German engineering and ingenuity, the Opus range of microphones is a cohesive family of products optimized for music performance. Classic technology and 21st century materials combine to create a complementary range of microphones for the musician on stage or in the studio.

Vocal Microphones

Opus 89

A wide,uncolored frequency response and warm proximity effect of this dynamic microphone produces spectacular vocal reproduction. Its remarkable response and tightly controlled polar pattern enhances usable gain before feedback, producing a crisp, natural sound.



Opus 81

Advanced technology and extraordinary engineering has produced this state of the art condenser microphone. The Opus 81 can be used on the stage or in the studio. It produces a smooth, warm sound, accurately reproducing the rich textures of a vocal performance.

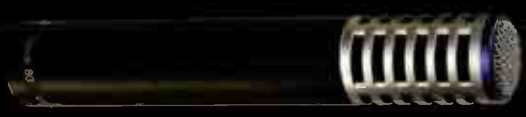
Instrument Microphones

Opus 51

A boundary microphone, the Opus 51 captures direct and reflected sounds from an instrument in perfect balance and at an equal level. This microphone is ideal for capturing the full sound within an instrument such as the piano or bass drum.

Opus 65

The Opus 65 is built with a 1.5 inch diameter diaphragm within a powerful neodymium magnet. The Opus 65 requires little or no equalization to produce the natural sounds of low frequency producing instruments, virtually eliminating the problems incurred by other kick drum microphones.



Opus 83

The Opus 83 is a condenser microphone ideal for drum and percussion overheads, cymbals, and acoustic instruments. Built from solid brass, the casing of the microphone protects the sensitive element from the rigors of the road.

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Relive the Magic.

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JINGLE TIPS #3 MELODY AND ARRANGING

While they had different words for it, the producers I talked to mentioned the same thing when asked about what makes a great jingle: they all feel that simplicity is at the heart of good commercial music.

One of the most common mistakes beginning jingle writers make is to try to show off their musical prowess by writing painfully "original" chord progressions and melodies. But this often defeats the purpose of commercial music, which is to be a memorable expression of a marketing idea.

When writing and arranging, simplify. Break down melodies to their simplest form, and add the necessary musical interest by harmonizing a simple melody in engaging ways. Folk and gospel music from all parts of the world are excellent sources of inspiration.

Keep your arrangements sparse and clean, eliminating parts that conflict with the vocal and adding parts that keep the piece moving in the spaces between vocal phrases. But whatever you do, don't lose sight of your twin goals of clarity and simplicity. You've only got a few seconds, so make every note count.

to constantly reinvent yourself in this business, you've always had to. If you're in the train business, and trucks come along, well, if you cling to that train thing, you're finished."

As project studio technology has grown, however, Hummingbird has moved more and more in the other direction, emphasizing their expertise in orchestral and "roots" forms of music. "You'd think we'd be big in country music, being in Nashville, but the only time we focused on country was when it was really red-hot. Right now, we're focusing on "roots" music because you can't really talk about country music as a style. I mean, what is it? Is it Shania Twain or Wilco? When we say "rootsy," we're talking about real players and singers, acoustic instruments. See, we still know how to do that stuff. There are thousands of guys doing the synth thing, so it's a way we set ourselves apart."

LOS ANGELES

Brian Banks, owner, Ear To Ear Music

You get a hint of the pace of the L.A. music scene in the way Brian Banks talks: fast, emphatically, and right to the point. "First off, let me say that I'm in this business because I have a really good time," he says. "I love my job."

Only seven years in business, and Ear to Ear has become one of the more in-demand SoCal producers. Located in the rapidly growing production corridor that is Santa Monica, Ear To Ear's client list includes IBM, Nissan, VISA, Ford, and Anheuser-Busch.

Like many producers, Banks came into the advertising business by way of the record business. "I did the whole little fat Jewish four-year-old piano prodigy thing, got my BA in music at Cal State, and got interested in synthesizers. My piano teacher gave me a copy of Switched on Bach, and I was just mesmerized by the synthesizers," he recalls.

"So I took a job at David Abell pianos while I was in college. Abell was the premier dealer in the biz — all the stars bought their pianos there, and it had a synth department with ARP 2600's and really exotic, elaborate stuff. The synth wizard there was a guy named Clark Spangler. He was doing all this studio work, playing and programming synths, consulting with Yamaha on the CS-80, and I started learning from him. So I got free lessons from the premier synth guy in Hollywood every day for years! I started getting studio gigs as a programmer and player through Clark — one of those 'I'm busy, but call my student' deals. I was working for the Eagles while I was a salesman in the store."

A turning point in Banks career came with the introduction of the Synclavier. "I had a student who was head of promotion at KNBC, and he bought one. He was producing all the music for promos and stuff at home. He threw me the keys to his house, told me to learn the thing and just leave stuff behind he could use." Banks quickly became one of Hollywood's most sought-after Synclavier experts, working on movies, TV, and records — everything from War Games to Thriller. In 1993, after years of

JINGLE TIPS #4 BRINGING TRACKS TO LIFE

As Brian Banks pointed out, you can have all the synth chops in the world, but nothing brings a track to life better than bringing in real instruments and professional players.

In the bigger markets you have access to lots of great players in specific styles and genres. But, if you're working in a smaller market, take a page from Butch Stewart's book and develop some versatile players on instruments you can't easily reproduce on synths. Saxophones and guitars are good choices. Find players you enjoy working with and who have some enthuslasm for the work, and season them to studio work by exposing them to new styles or writing charts for them that stretch their horizons a bit. A year or two of working together like this and you may find you've created a studio monster.

And, don't neglect what you can bring to the party on your own. Sampled drums can be given a new lease on life simply by playing real cymbals or percussion tracks created with real hand instruments (maracas, bongos, and tambourine are all good candidates). Learn to play harmonica or melodica. If you're a solid singer, try creating orchestral effects with background vocals (some of the best tracks I've heard this year consisted of nothing but percussion, bass, and voices). Every half-baked synth patch you replace with a real live instrument or voice gets you one step closer to the major league sound.

mastering the art of synthesizer orchestration, he opened Ear to Ear Music.

Asked about trends in the industry, Banks says, "The clear trend I see in the business is that agencies now seem to be far less confident in their ability to make a decision regarding music. Some of the bigger houses were able to capture a lot of this by having six or eight staff composers. They'd come back with five or seven demos and say 'which one do you like?' So now, agencies are expecting a grab bag. As a result, there's a much slower approval process than before."

Banks takes pride in the fact he composes or supervises the composition of every piece of music that comes from Ear To Ear, and he prefers to augment his own skills with freelancers for specific functions. "We can pick and choose from the best, because southern California is the seat of media creation. There are more good guys here than anyplace else."

But Banks says technology is making location less important. "I'm delivering a good 75% of what I do by FTP as an AIFF or WAV. And, we're getting most of the stuff we work with as QuickTime. So, I don't have to wait for FedEx tomorrow morning; I can keep working. We can work on an almost seamless basis with people anywhere. Instant delivery of changes in the video or the music!"

Even though Banks built his reputation as a master synth orchestrator, he's working less with synthesizers and more with real musicians. "Attached to the Red Room (Banks' own studio at Ear To Ear's suite), I have a very large tracking room where I can comfortably sit a brass section or get a big drum sound. And even though I'm in the synth thing big time, I'm using more live instruments, more orchestras, and more live rhythm sections. I don't care how good you are, nothing sounds as good or is as fast as live players. And it's good business. I can do five times the volume of music and have far less stress by using synths for what they do well, and using live musicians for the rest. I even bought a permanent drum set, all set up on a rolling platform so we can put it anywhere in the studio. It paid for itself in the first five sessions."

"So I'm seeing a move back to live players. It's about the quality of the music. And you get to hear all the good jokes." He laughs. "I spent decades sitting

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in a studio by myself. It's great to work with real players!"

CHICAGO

Butch Stewart, president, Joy Art Music

It might look like a long jump from garage bands to the helm of one of the Windy City's best-established music houses. But Butch Stewart makes it look easy. He attributes a large part of his success to a serious but relaxed attitude about his work that's reflected in the company's name. "We look for joy in the art of music," he says. "I remember when I came up with the name, and realized it was kind of a meter for me — a daily reminder that if I wasn't having fun, then I wasn't doing it. It helps me remember to make the whole process enjoyable, for myself and for the client."

"I got started through Charles Stepney, who ended up producing the Earth Wind & Fire stuff," he recalls. "A relative of mine had just starting doing vocal sessions for him, and he was doing a lot of commercial music for Burrell Advertising, but was getting busy doing the record stuff and needed a hand. So my band at the time recorded a demo (after hours in my mother's beauty shop) with about six tunes, and I got in to see him. He listened, nodded, and sent me on my way. That evening, he called me and said that he wanted to use three of the tunes on a Ramsey Lewis record he was working on."

Through working for Burrell, Stewart eventually wound up at Imagineers, a Chicago music house where he worked until they sacked him in 1978. But the very day he was let go, Tom Burrell called to ask if Butch had ever considered starting his own music house. Joy Art Music was born the very next day. It wasn't long before Stewart was producing music for the big campaigns. "Our first really big spot was for Coca-Cola in 1979, a spot called 'Street Song,'" he says. "Five guys doo-wopping on a New York stoop. After that ran, you heard doo-wop vocals on everything for a while."

And while Joy Art's initial success was based on producing music in urban styles, Stewart's musical vision has expanded far beyond that niche. "If we had stuck just to that style, we'd be gone by now. The one thing that has kept us alive has been the ability to do a bit of everything — rock, pop, alternative, and orchestral, in addition to the street kinds of styles."

Stewart says the Chicago market is different than other major production centers. "New York and L.A. have theater and movies, Broadway. But here in Chicago, people lean on advertising pretty heavily." Joy Art and Chicago houses like them represent prime gigs for Chicago musicians, so the best the city has to offer is always knocking on their doors. But even with the cream of the city's players available, Stewart has taken the time to develop and bring along the guys who helped him record that beauty shop demo. "Some of the core guys I work with even now, the rhythm section, are the guys from my old bands. Their ears are so amazing that the usual studio chops were really secondary. I was known for taking the jingle out of the jingle thing. Back in '78, jingle music was still pretty 'jingley.' But when we came along, there was this element of real music. These guys put a feel into it that was uncommon at the time."

Another uncommon approach at Joy Art is Stewart's attitude toward the competitive environment. Asked about the increased pressure from agencies that other producers have described, his answer is surprising. "We're not seeing that kind of pressure. I think our competitors are giving more for nothing...now, I'll always do everything I can do for a client, and you'll always go out of your way for clients who are treating you right. But we're not going to see them abuse the relationship. Maybe somebody thinks they can take advantage because music's at the lower end of the chain, and we're starving musicians, we'll do anything — I don't like taking that position. I just try to train the client as we're working with them. So that they're not asking for unneeded work, so they're not asking for a pile of demos in a shoot-out. I try to educate them that their time is better spent working with one house. I try to get involved with the agency and bring them into the process."

His stance seems to be working. Joy Art keeps four composers working with almost no marketing campaign. "We don't have a heavy-duty campaign, we don't even have a rep out there anymore, not the last few years. You have the big ups and the big down, but word-of-mouth and just doing a dang good job every time is what has carried us through the years." ■

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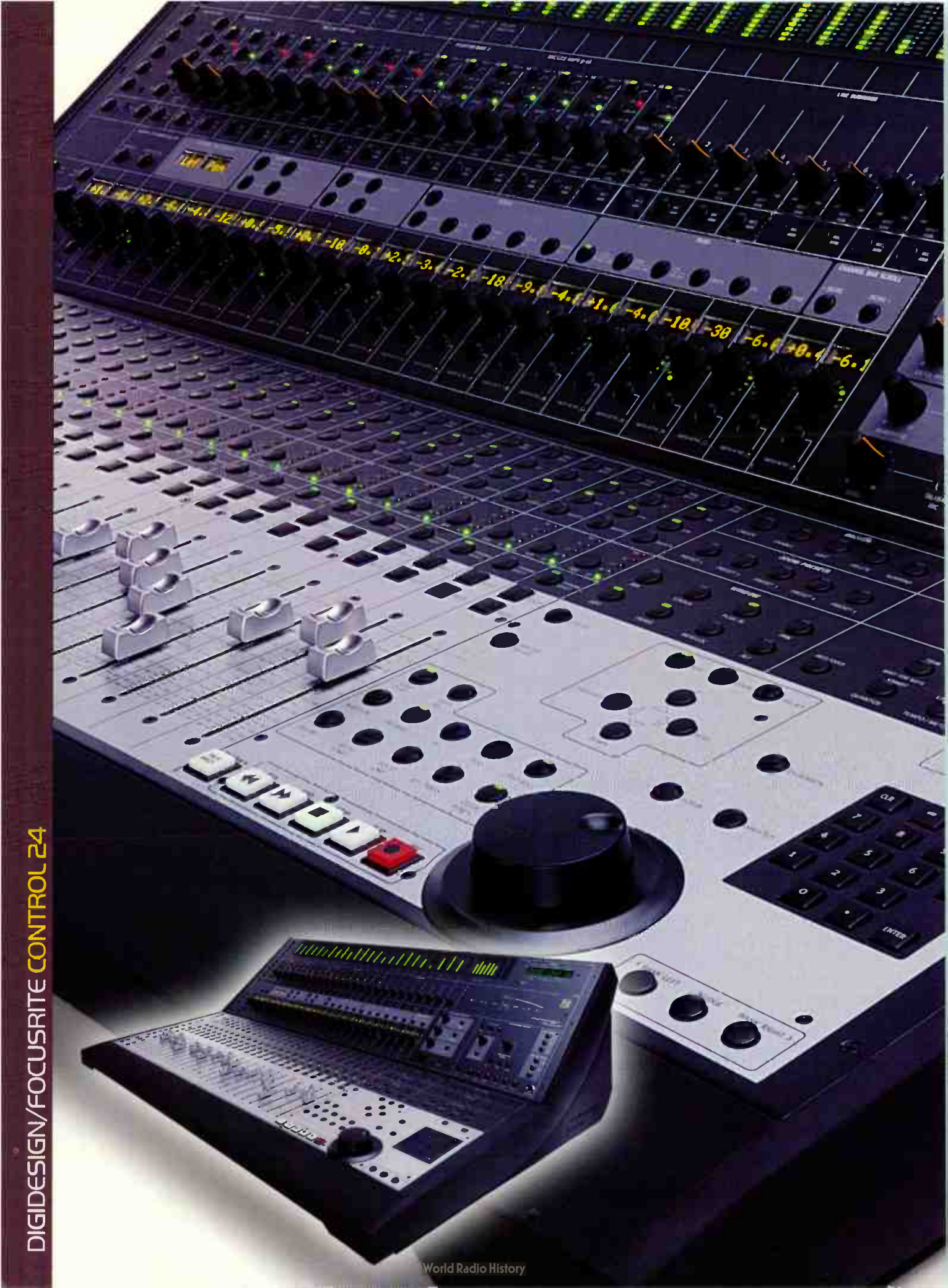

World Radio History

By Mitch Gallagher

DIGIDESIGN/FOCUSRITE

Control 24 Pro Tools/ TDM Control Surface

I came to a realization the other day: It's been almost ten years since I mixed a piece of music in real time using the faders on a console. Sure, I've used consoles in various studios for tracking, and I've fooled with MIDI fader controllers, but I haven't performed a mix using real faders in quite some time. Why? Virtually all of the mixing I've done in recent memory has been in computer-based applications, using a mouse (actually, a trackball in my case).

In truth, I find I really don't miss them that much at all — aside from the twinge I get whenever I'm in a studio with a nice console. So when Digidesign arranged to send me their new Control 24 control surface for Pro Tools, I have to admit that I was probably the "worst-case" reviewer; I didn't think I needed what Control 24 had to offer much at all. And, at first, this turned out to be true; I had to force myself to consciously not use the computer keyboard and trackball, and to instead use Control 24 as much as possible. Since then, my opinion has changed; Control 24 has made me see Pro Tools in a whole new light, I've returned to the land of real-time mixing, and I'll be darned if I'm going to willingly send this thing back when the review period is over. (Hopefully my long-suffering friends at Visa/MasterCard will support me in that decision.) The fact that Control 24 offers a variety of extras beyond just control surface functions is a decided bonus that increases its allure.

Control 24 is the first product of Digidesign and Focusrite's recent joint efforts. The unit is large and solid enough to make you feel like you're sitting in front of a real console — a feeling much helped by the fact that Control 24 rises an imposing 12 inches above whatever table or surface it's placed on. While its height makes it look good, it also forced me to raise my two computer monitors and the center channel speaker in my 5.1 monitoring rig up higher than I prefer. On the plus side, the steeper angle of Control 24's back section keeps all the controls easily within arm's reach.

Control 24 comprises several sections: channel strips with moving faders for controlling audio and MIDI tracks, a collection of buttons for accessing various Pro Tools editing and grouping functions, 16 mic/line preamps, a built-in line mixer, and a control room monitor section. It's important to note that Control 24 doesn't pass any digital audio from Pro Tools, nor does the unit contain any analog-to-digital or digital-to-analog converters — you're still going to need interfaces for your Pro Tools system. Instead, the preamps, mixer, and monitor section accept

MANUFACTURER: Digidesign, 3401-A Hillview Ave., Palo Alto, 94304. Tel: 650-842-7900. Web: www.digidesign.com.

SUMMARY: Control 24 makes working with Pro Tools a hands-on experience. The "bonus" control room monitor section, mic preamps, and submixer make it a bang-for-the-buck winner.

STRENGTHS: 1,024-step motorized faders. Comprehensive mixdown control. 16 mic-line preamps. Built-in stereo submixer. Control room monitor section with external source control, talkback, and cue monitor features. Many dedicated buttons. Ability to control plug-ins and sends from rotary knobs or faders. Integral metering. Works as well with MIDI tracks as it does with audio tracks. LCRS and 5.1 surround support.

WEAKNESSES: End-panel/armrest finish is easily marred. Jog/shuttle wheel is of limited use. Four-character channel scribble strips are too cryptic for some operations. DB25 breakout connectors require purchase of breakout snakes. Output buss order on Control 24 meters may not match fixed output buss order in Pro Tools software.

SYSTEM REQUIREMENTS: Pro Tools 24 hardware or later, Pro Tools 5.1 software or later, Apple Macintosh 9500/9600 or qualified G3/G4, Mac OS 9.04 or later, Ethernet connection in host computer.

PRICE: $7,995

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Get hands-on with your Pro Tools system

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and control analog audio that can be routed to and from Pro Tools interfaces.

Control 24 requires Pro Tools 5.1 or higher software. It operates via Ethernet; the manual says that it will work on a network through an Ethernet hub, although it's preferable to have it connected straight to the Pro Tools host computer. Installation is simple, just connect the Ethernet cable. When you install Pro Tools 5.1 or higher, the latest revision of the Control 24's operating system is automatically downloaded to the unit. Interestingly, I had one of the very first Control 24 units, and the version of 5.1 shipped with it already included an OS update.

The control surface offers 24 faders/channels, but, using bank select buttons, you can "shift" the faders so that you can access as many tracks as you need, up to the Pro Tools maximums: 128 audio tracks, 128 MIDI tracks, 64 aux inputs, and 64 master faders. If you hide a track in Pro Tools, it will also be hidden in Control 24.

Buttons are provided for what would normally be computer keyboard control features, for example, keyboard modifiers such as Shift, Control, and Opt/Alt keys, as well as dedicated Enter, Undo (redo when used in conjunction with shift/ctrl buttons), and Save buttons. There are also buttons for selecting Pro Tools Edit Functions (Cut, Copy, Paste, etc.), Edit Mode (Shuffle, Slip, Spot, and Grid), and the various Edit Tools (Trim, Grabber, Pencil, etc.). Hitting the Edit Tool buttons multiple times cycles through the different tool varieties (e.g., the three types of Trim tools).

Five Zoom Preset buttons are provided, as are dedicated buttons for track grouping and ungrouping and editing groups. Window buttons allow you to open and close Pro Tools' main windows: Mix, Edit, Status, Transport, Memory Locations, as well as plug-in windows. A Pan button currently allows you to close channel output windows (a new Pro Tools feature in v5.1); in version 5.1.1, Digidesign says it will also open a selected channel's output window. Navigate and Zoom buttons in conjunction with up/down, left/right arrows allow you to get around from track to track and zoom in and out without leaving Control 24.

A few functions aren't implemented in this version of the Control 24 operating system, such as a "plug-in safe" button, switches for selecting different metering modes, ten "function" keys, and a few others. Despite this, the Control 24 doesn't feel unfinished. It's solid, stable, and offers complete Pro Tools support as it is right now.

INS AND OUTS

Mic level inputs	16 XLR
Line level inputs	16 1/4-inch TRS
DI inputs	two unbalanced 1/4-inch
Preamp outs	two DB25, each carrying eight balanced channels
Submixer inputs	two DB25, each carrying eight balanced channels
Submixer outputs	two balanced 1/4-inch
External sources inputs	DB25, supports three stereo or one 5.1 source
Inputs from Pro Tools	DB25, supports three balanced stereo sources
Speakers out	DB25, supports 5.1 control room output plus "Alt" stereo output
External talkback mic input	XLR
Listen mic input	XLR
Aux inputs	two balanced 1/4-inch, routed through a volume control to aux outputs, intended to be used as cue mix control from Pro Tools
Aux outputs	two balanced 1/4-inch, intended for cue mix output or third set of monitors
Slate output	balanced 1/4-inch
Headphone output (front panel)	1/4-inch TRS
Footswitch	two unbalanced 1/4-inch, can control play/stop, punch in/out, or talkback mic

CHANNEL STRIPS AND METERING

The first feature that catches your eye on each channel is likely to be the silver-colored faders. These are touch-sensitive, meaning you'll need to put the flesh of your finger on them. They won't respond if you try to use your fingernails, a pencil, or other non-flesh item to move them. The faders have a resolution of 10-bits or 1,024 steps. They feel good and are relatively quiet when automated; not quite as nice as those on a Pro Control or high-end console, but as good or better than those in similarly priced digital mixers. For tweaky work, I found them a bit touchy: Initially the fader value had a tendency to change by a 0.1 dB or so when I released the fader. After a bit of practice in lifting my finger straight up and off the fader cap, this situation improved.

For each channel there are solo, mute, channel select, automation mode, and record arm buttons, as well as buttons for calling up any EQ or dynamics plug-ins that might be instantiated and for accessing inserts and sends. At the top of each channel strip is a rotary data encoder (that's a "knob" to you and me) and soft button. The knob defaults to stereo pan for the channel, but changes to control other things such as surround panning and divergence, plug-in parameters, send levels, channel input and output assignments, and more, depending on what you're doing with Control 24. The soft switch is used to control plug-in switch parameters, among other things.

Each channel has a four-character LED "scribble strip" that displays the channel name, parameter values, and other information. Unfortunately, for some settings, such as input and output assignments, four isn't enough. In the future, the eight-character

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"channel bar" (above the scribble strips) will be used to display some of these settings. It would be nice if these strips were placed more in the center of the channel strip, rather than at the top. As they are, it's easy to get lost and grab the wrong fader. The scribble strips are also used by Control 24 to display various status messages, and to let you know when Pro Tools needs your attention onscreen.

Above the channel scribble strips are controls for assigning inputs and outputs and plug-ins to channels, accessing sends, controlling surround panning, and for scrolling the scribble strips if there are too many parameters to be displayed in the 24 available strips.

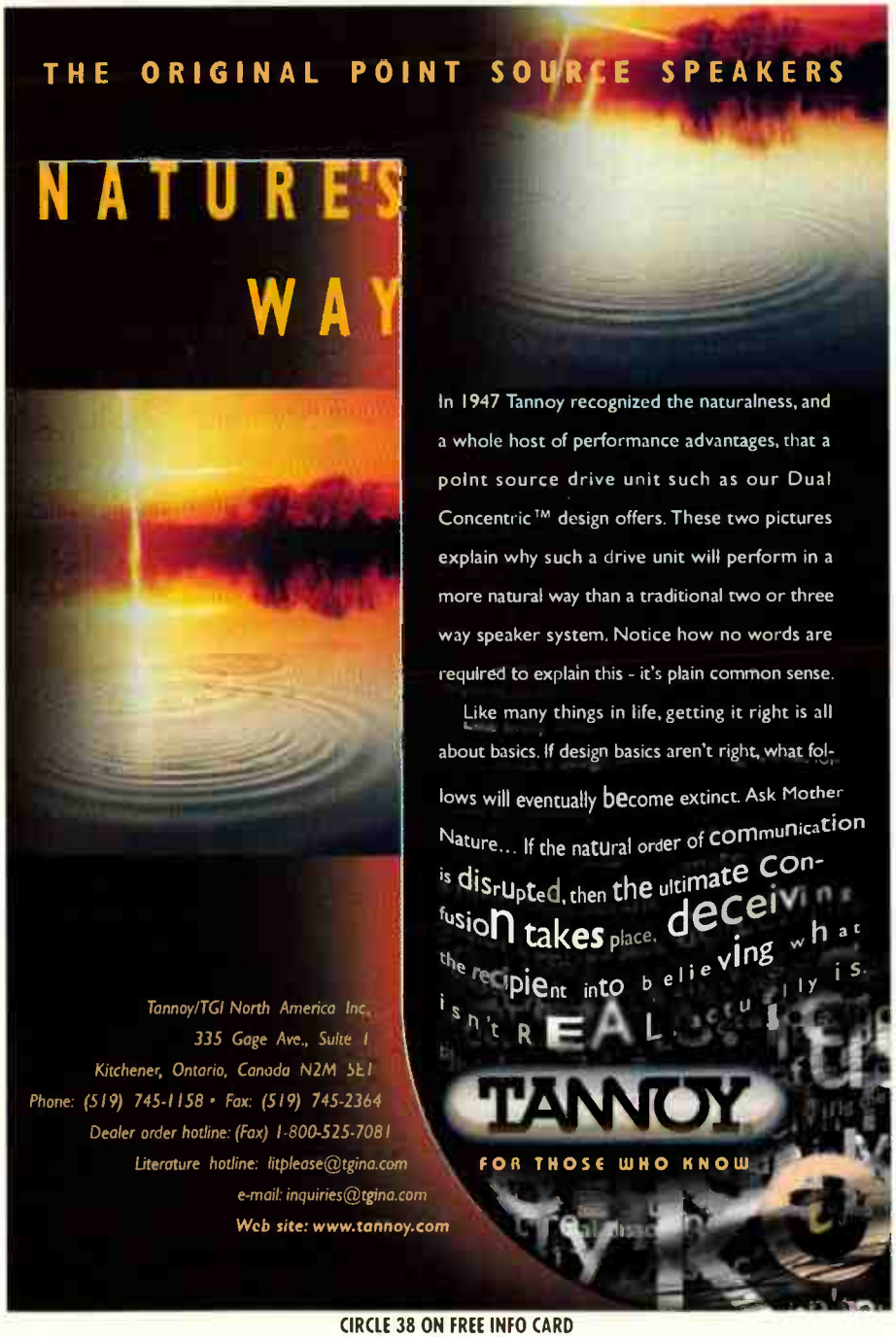
At the very top of the Control 24 are stereo 14-segment level meters for each channel, with peak indicators. You can switch these meters to either pre- or post-fader operation. To the right of the channel meters are six output meters, which mirror the first six outputs on whatever Pro Tools audio interface is used; this allows you to meter up to 5.1 surround output from Pro Tools. But there's a weird twist here: In Pro Tools 5.1 you can assign channel output mapping; for example, I prefer my surround outputs arranged L, R, C, LFE, Ls, Rs on outputs 1-6 of my 888 interface. This output mapping is reflected in Control 24's output meters — as you'd expect. However, in the Pro Tools software, the multi-channel output metering is fixed — regardless of I/O mapping — to L, C, R, Ls, Rs, LFE. So the order of the metered channels ends up different in the software than it does in the hardware. More than a little annoying if you're going back and forth from software to hardware.

In addition to metering, you're given plenty of feedback as to the status of all things Control 24. Virtually every switch either lights up when selected or has status LEDs associated with it.

MIC/LINE AMPS

Control 24 features 16 built-in microphone/line level preamps. Channels 1 and 2 also include instrument-level DI inputs. Phantom power is provided, which is switchable in banks of eight channels — unfortunately the switches are mounted on the back panel, a problem if you mount the unit into console furniture. The Control 24 has XLR and balanced TRS input jacks for each preamp, but the outputs are on two DB25 connectors necessitating a breakout snake. Included on the front panel is a switch for selecting between mic level, +4 line level, and either DI (on channels 1 and 2) or –10 level input. There's also a switchable 75 Hz, 12 dB/octave highpass filter on each channel.

The DI input quality is fine; what I would classify as a somewhat "generic" passive DI. I wouldn't choose it given the option of using my normal Radial Engineering JDI or Little Labs PCP Distro — it's somewhat "drier" sounding than either of those — but as extra DI options, the two in the Control 24 are fine.



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"I found myself pulling it out for all sorts of material — not just vocals but strings, drums, sampled Wurly, you name it. Mic Modeler never ceased to amaze me."
> JOHN KROGH, *Keyboard Magazine*

"[My engineer Alan Meyerson] had experimented with the plug-in on the new Ridley Scott film *Gladiator* for composer Hans Zimmer, running the entire orchestra through Mic Modeler. For me, he was using the Mic Modeler for enhancing string samples.

All I can say is that the difference was profound and wonderful. Mic Modeler is becoming one of my favorite plug-ins to make everything sound more vibrant and interesting."
> JEFF RONA, Film Composer, Media Ventures

"the Microphone Modeler does what Antares claims: it provides a cabinet of extraordinarily solid sounding virtual mics."
> ERIK HAWKINS, *Electronic Musician Magazine*

"Mic Modeler can be a great way to bring in a new color to work with... The cool thing about this plug-in is that the tonality changes with the strength of the signal, so it's like a dynamic EQ of sorts, which is definitely a bonus for hard disk recording, where things can tend to sound flat and one-dimensional."
> BILL GOULD, Producer/Engineer

"I turned an acoustic guitar recorded with a Fishman pick-up into a AKG C12 miked thing of beauty. Wow! ...Are you sure there's no little guys with mics inside there? Pretty amazing. Pretty amazing."
> TED PERLMAN, Producer/Arranger for MTV, Chicago, Kaci, The Manhattans

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"Playing with the Proximity and Tube Saturation controls and adding room ambiance with Waves TrueVerb plug-in transformed a cheesy, flat, direct recording into a stunning live sound."
> ERIK HAWKINS, *Electronic Musician Magazine*

"this plug-in is an invaluable tool for just about any musician, engineer, or producer who records with computers."
> JOHN KROGH, *Keyboard Magazine*

"Microphone Modeler is a great tool for DAW-based personal studios with limited mic resources. It sounds great and is perfect for everything from mixing to tracking. Microphone Modeler definitely gets my vote as one of the most innovative plug-ins this year."
> ERIK HAWKINS, *Electronic Musician Magazine*

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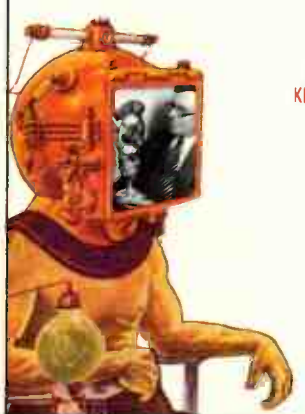

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CIRCLE 03 ON FREE INFO CARD

Like the DI, I would characterize the preamps as being "neutral" sounding — I don't hear much personality from them — which can be a good thing. Their detail is fine, they have good dynamics, and are nicely sensitive. I tested them using a Neumann KM184, an Audio-Technica AT4050, a Shure KSM44, and a BLUE Kiwi; in all cases BLUE's Kiwi quad mic cable was used. The highpass filter was overly aggressive regardless of the mic or source I was testing; I would use it only under extreme circumstances, or with a source that was well above the range of its effects.

I found the preamps to be good, solid performers. I wouldn't hesitate to put them to work in my studio. Even if you have high-end outboard preamps to work with, having 16 extra channels in the Control 24 can only be seen as a cool bonus — most engineers can easily put extra preamps to work.

SUBMIXER

In addition to mic/line preamps, Control 24 has a built-in 16-input (arranged as eight stereo channels) stereo line-level mixer. Its inputs are accessed on two DB25 connectors, while outputs are on a pair of balanced 1/4-inch connectors. For controlling this mixer, the front panel has eight input gain controls as well as a master output level control.

CONTROL ROOM FEATURES

Control 24 has built-in facilities for handling a variety of control room monitoring needs; switching between audio sources and different sets of monitors, controlling cue mixes, and more can be done in stereo or surround. In addition, there's a built in talkback mic, or alternatively support for an external talkbalk mic (with phantom power), as well as a listenback mic. You can use either the front-panel switch located next to the transport controls or one of the footswitch inputs to control talkbalk on/off. Engaging talkback dims the monitor outputs by 20 dB and the Aux outs by 12 dB.

The control room monitor section is excellent, with support for stereo, LCRS (four-channel), and 5.1 monitor formats. In addition to six outputs for the main monitors, there's also a stereo "Alt" monitor output with separate volume control. Mute All, Dim (20 dB) and Mono switches affect both sets of monitors. Six switches are provided for either muting or soloing the speaker outs — a handy feature for surround work.

The front-panel headphone jack has its own volume control and on/off switch. Plugging into the headphone jack doesn't mute the monitors automatically, but the global Mute All switch takes care of this. While the built-in headphone amp is clean, it wasn't overly powerful when driving my AKG K240 phones. For high-volume applications, you'll need an external headphone amp or lower impedance headphones.

The Control 24 supports six stereo or two 5.1 source inputs on two DB25 breakout connections. If you're working in stereo, this is a decent number. But for surround, I would have liked to have more external inputs. As it is, with six outs from my 888 interface and six from my reference DVD player, the Control 24 is maxed out.

When working in stereo, you can choose "Single Source" mode, which lets you hear one source at input a time, or "Multi-Source" mode, where more than one source input can be playing at once. This is useful if you're combining external sources, such as submixed synths with outputs from Pro Tools. In one case, I was recording vocals into Pro Tools while monitoring background music that was on CD (don't ask why); Multi-Source mode made this easy.

Stereo aux inputs are provided for running a cue mix from a Pro Tools interface out through Control 24. This circuit has it's own volume knob, and you can also choose to route the control room monitor output signal out through the aux (cue) jacks.

IN USE

After years of mixing in software, the habits acquired from working that way — such as automatic use of keyboard equivalents for menu commands — meant that I really had to make a concerted effort to keep my focus on Control 24. The effort paid off, though, and in a very short time I became comfortable with the control surface and found it annoying when I had to jump to the computer keyboard and trackball. Fortunately, Control 24 can access many Pro Tools functions, especially those relating to mixing. You can't quite give up using a computer keyboard/mouse completely, although once the session is created and configured, most recording, mixing, automation, and plug-in tasks can be handled from Control 24.

Editing is more hit and miss; the big problem being selecting MIDI and audio data on tracks. You can do this on the fly while audio plays using the In and Out buttons to drop in and out, or you can do it by selecting the area between two memory locations. Alternatively, you can use the Jog/Shuttle wheel to make selections. However, I rarely found any of these to be a reasonable alternative to simply reaching for the computer's trackball. But if you do choose to use the scrub wheel to make a selection, there's a big problem: When you disengage scrub mode, the area of the selection changes very slightly. If you've selected a region that runs right up to the left edge of a transient using the scrub wheel, then leave scrub mode in order to, say, delete the selected area, the right end of the selection falls back to the left slightly. Digidesign says this will be fixed in version 5.1.1.

Once a region is selected, dedicated buttons allow you to cut, copy, paste, delete, separate, capture, duplicate, and repeat it. You can also select between Pro Tools' Trim, Select, Grab, Smart, and Pencil edit tools, although why you'd do this from Control 24 when you're going to have to switch over

▶ continued on page 118

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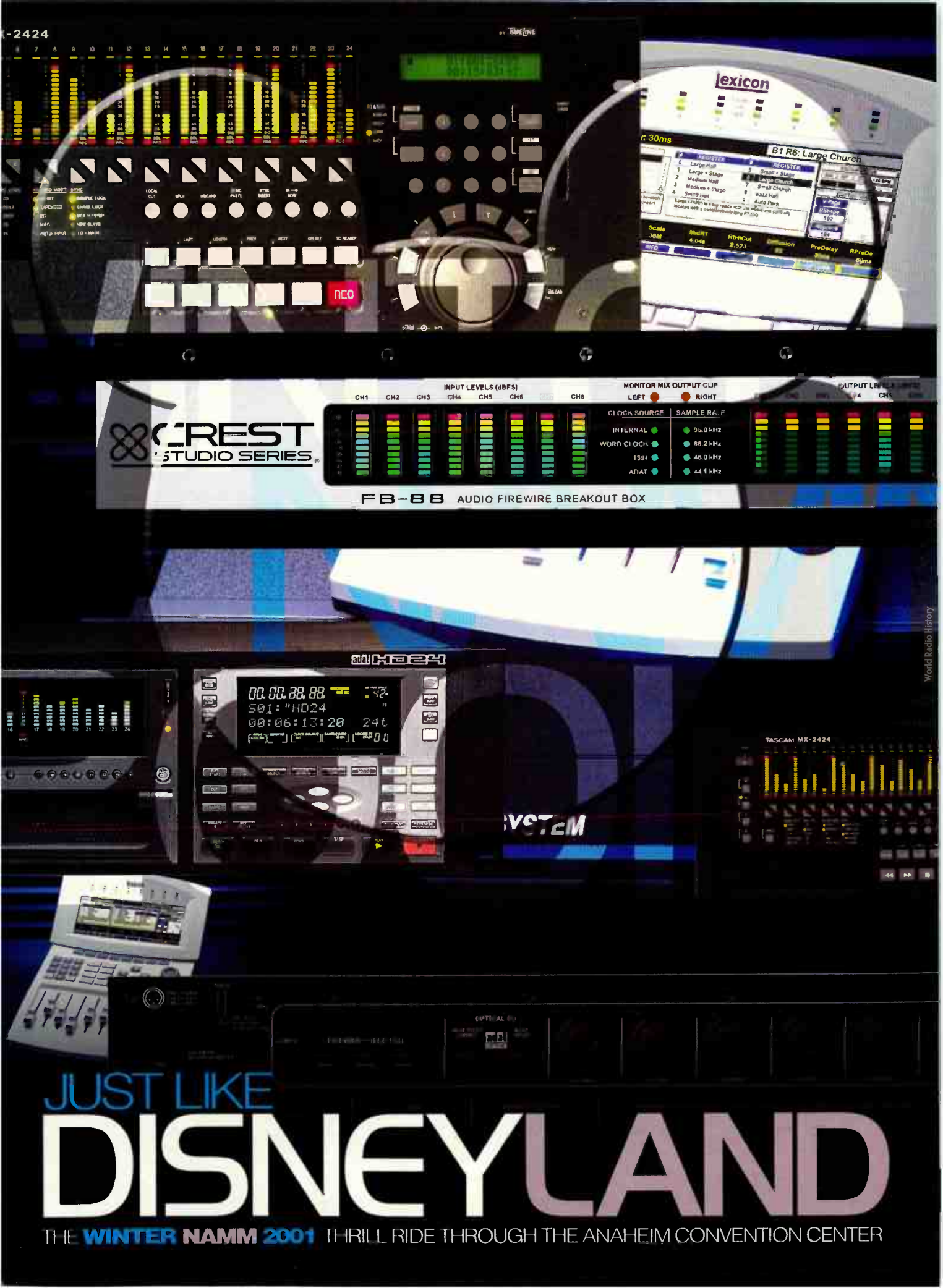
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THE WINTER NAMM 2001 THRILL RIDE THROUGH THE ANAHEIM CONVENTION CENTER

By Mitch Gallagher, Steve La Cerra, And Howard Massey

WINTER NAMM is always the biggest show for music industry product introductions, and the 2001 installment was no different — in addition to tons of new guitars, basses, drums, horns, and virtually anything else that could be strummed, plucked, blown, slapped, tapped, hit, spanked, or cajoled into making sound, manufacturers displayed an endless array new software and pro audio and sound reinforcement hardware. Join us as EQ walks the aisles in search of all that was new and cool.

DAWS AND HARD DISK RECORDERS

If you could patent the number "24" and collect a royalty from the music industry every time it's used, you'd have made a fortune from the NAMM show announcements. The TASCAM MX-2424 and Mackie HDR24 are both shipping, joining the iZ Technology RADAR 24 and 48, so there was little surprise that everyone and his cousin is jumping on the 24-bit, 24-track bandwagon. Perhaps the biggest news in that department came from **Alesis,** with the announcement of their **HD24** rackmount hard disk recorder, which offers full ADAT sync capability (allowing it to instantly integrate with existing ADAT systems and be controlled by a BRC), future 96k support, and a projected list price of only $1,999.

Other hot new 24-bit 96 kHz digital audio workstations include the **Akai DPS24,** which offers motorized faders, a USB port, and built-in time stretching, pitch shifting, and BPM matching; the **Roland VS-2480,** which also has motorized faders, plus onboard COSM effects, mouse-based drag-and-drop editing and unique "phrase pads" for real-time triggering of samples directly from disk; and the **Fostex D2424,** a rackmount unit with removable front-panel remote control, built-in ADAT I/O, and an optional DVD-RAM drive. The new **Korg D12** and **D1600** are 12- and 16-track systems, respectively, with both supporting 24-bit audio at a maximum 44.1 kHz sample rate. The D1600 provides a touchscreen interface (similar to the Triton and Trinity synths), and both models offer a built-in drum machine.

Also on display was **E-mu's** new **PARIS Pro System,** which includes a 16-channel control surface, expansion chassis, PCI card, and cross-platform version 3.0 Mac/Windows software that adds features such as OMF File import/export, integrated MIDI, and a dedicated waveform editor. —HM

Alesis HD24

MICROPHONES

Applied Microphone Technology introduced a series of instrument-specific microphones including the **S25B** for acoustic bass, and the **S18C** for cello. Both mics are miniature condensers with cardioid patterns, and can be powered with 12 to 52 volts DC phantom power. **Audio-Technica** is now making available on an individual basis their "Kick/Tom" mic and "Snare/Tom" mic initially offered only as part of the KP-DRUMS KitPak.

The **Audix** booth was buzzing with the release of the **SCX25,** a "lollipop" condenser microphone with a proprietary suspension system that negates the need for an external shock mount for isolation. **DPA Microphones** showed several miniature microphones for applications where stealth mic technique is required. The **4060, 4061,** and **4062** are all pre-polarized condenser mics with a diminutive 5.4-mm element specifically designed to deal with humidity, sweat, wind, and popping.

Earthworks announced the **SR68,** a hypercardioid condenser microphone designed for stage use. The SR68 provides high off-axis rejection, and clean uncolored response. **Nady** featured the DM series of drum/percussion/instrument mics comprising the **DM70** (snare drum, toms), **DM80** (kick drum), **CM85** (cymbals), and **CM55** (clip-on) microphones. **StudioProjects** released several new microphones, including

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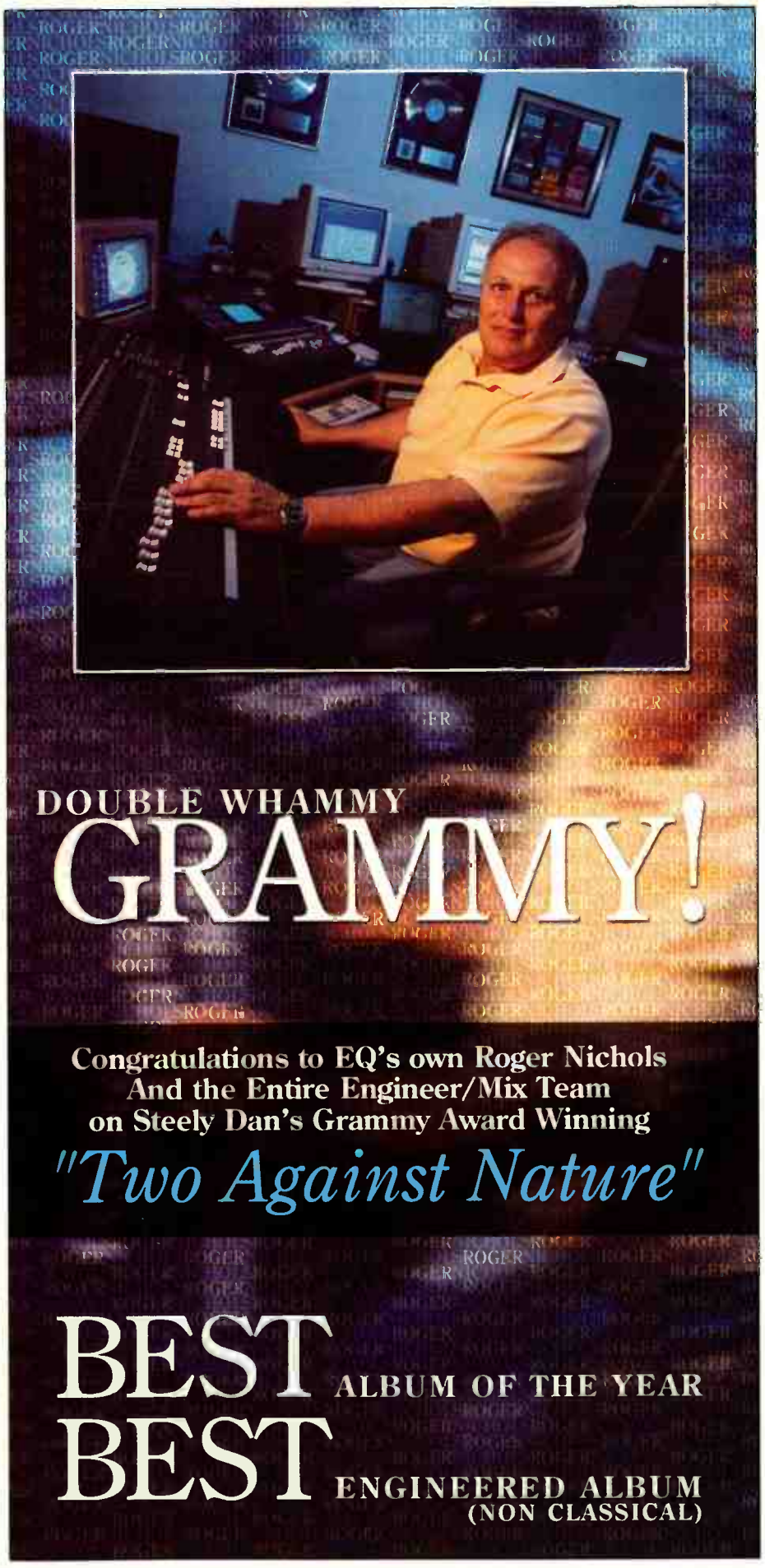

the **C1**, **C3**, and **T3** studio condenser microphones. All are large-diaphragm studio mics; the C1 and T3 (tube) are general-purpose mics, while the C3 is tailored for vocal applications.

Okay, it's not a microphone, but **Radial Engineering** debuted the **JD7** Injector Guitar Signal Distribution and Routing System. This rackmount unit is a signal distribution system for guitar that allows as many as seven different amplifiers to be connected at the same time. —SLC

MICROPHONE PREAMPS

Applied Research and Technology (ART) rolled out a bunch of new mic pre's including the **Tube Preamp System** with Variable Valve Voicing, the **DI/O Preamp System** (also with Variable Valve Voicing plus a choice of analog or digital output), and the **Digital MPA,** a dual-channel mic pre based with AES/EBU, S/PDIF, TOSLINK and ADAT digital outputs.

In addition to microphones, **StudioProjects** took the wraps off their **VT1** mic pre. The VT1 is a discrete design with a tube in the audio path, and has a selectable impedance control for 50 or 200 ohm input loads. **Trident•MTA** announced a very cool mic pre system, the **iX-one.** This rackmount unit provides 16 independent mic pre's from the Signature Series and is intended as an analog front end for digital audio workstations. And, following up on their Precision 8 microphone preamp, **TRUE** has released the **P2** Analog Mic Preamp featuring two channels of analog mic pre. —SLC

MIXERS AND CONTROL SURFACES

Although there were several new live sound consoles unveiled at NAMM, we only came across one studio-oriented mixer, the **Panasonic DA7**

Audio Technica Kick/Tom Mic

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Roland VS-2480

Highlights of the new model include version 2.5 software, shortcut control features, enhanced visuals, and navigational controls; all in all, more than 70 new or improved features.

In contrast to mixers, there were lots of new control surfaces for DAWs on display, headed up by **Digidesign's Control 24.** See the review in this issue for more details. **Steinberg** were demoing their new **Houston** control surface for Nuendo and Cubase VST production systems, which provides a large LCD display, transport controls, a jog/scrub wheel, a numeric keypad, and nine touch-sensitive motorized faders. **Midiman** had a prototype of their new user-programmable **Surface One** under glass (see the First Look in this issue). **C-Mexx Software** were showing their **MIR** (MIDI Interactive Remote), a handheld controller that includes a small LCD, five buttons (up/down, increment/decrement, and select), plus three rotary knobs (one of which can act as an analog potentiometer).

Mixed Logic Studio Electronics showed their new **M242,** which sports 24 motorized faders, 53 knobs, and 155 switches, and an array of features. Templates are available for all common audio software applications.

Last but not least, **Emagic and Mackie** made a joint announcement of a series of hardware controllers for use with Logic Audio software. The first such product, slated to ship in mid-2001, will be an entry-level modular design called **Logic Control,** which in its basic configuration will offer two XDR mic pre-amps, eight motorized touch sensitive faders, a touch sensitive master fader, eight mutes and solos, eight rotary encoders, a data wheel, and transport controls. —HM

MONITORS

All of the new studio monitor news came from the **Alesis** camp with their announcement of the **M1 Active mkII.** These biamped monitors feature a 2 kHz crossover point, new 6.5-inch low-frequency driver, an improved one-inch high-frequency driver, a 75-watt woofer amp and 25-watt tweeter

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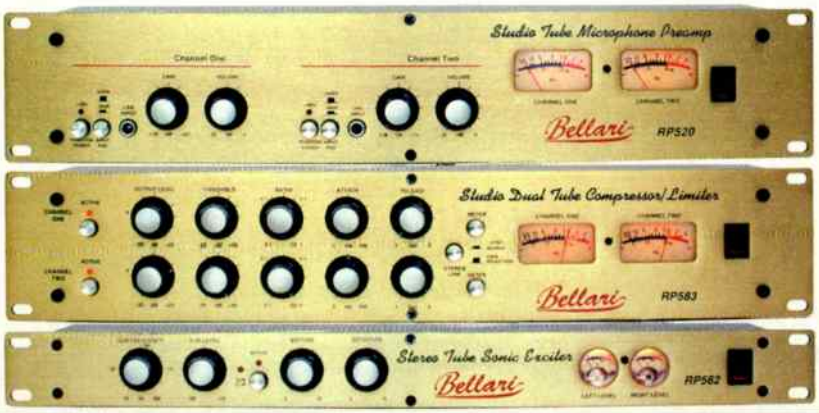
gain. Bellari, Oh oh!



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The PPM 808S Professional Powered Mixer has: *8 mic preamps • 6 mono line inputs • 2 stereo line inputs • True stereo graphic equalizer on mains; graphic equalizer on monitor output • 300+300W into 8 ohms • 450+450W into 4 ohms • 600+600W into 2 ohms • stereo or mono output*

All five PPM mixer models include: *The best mic preamps of any powered mixer • EMAC™ 32-bit digital effects with dual parameter controls and EFX Wide circuit • 9-band ultra-low distortion graphic equalizers on main & monitor • 75Hz low cut filters • Dual FR Series™ high-current power amplifiers • Channel trims with way-cool level-set LEDs • External EFX loop • EFX footswitch jack • Soft-knee compressor • Power amp routing switch • Channel inserts on mono channels • Smooth, musical Mackie 3-band EQ on every channel (80HZ, 2.5kHz, 12kHz) • Separate monitor send control • Rugged composite–molded case*

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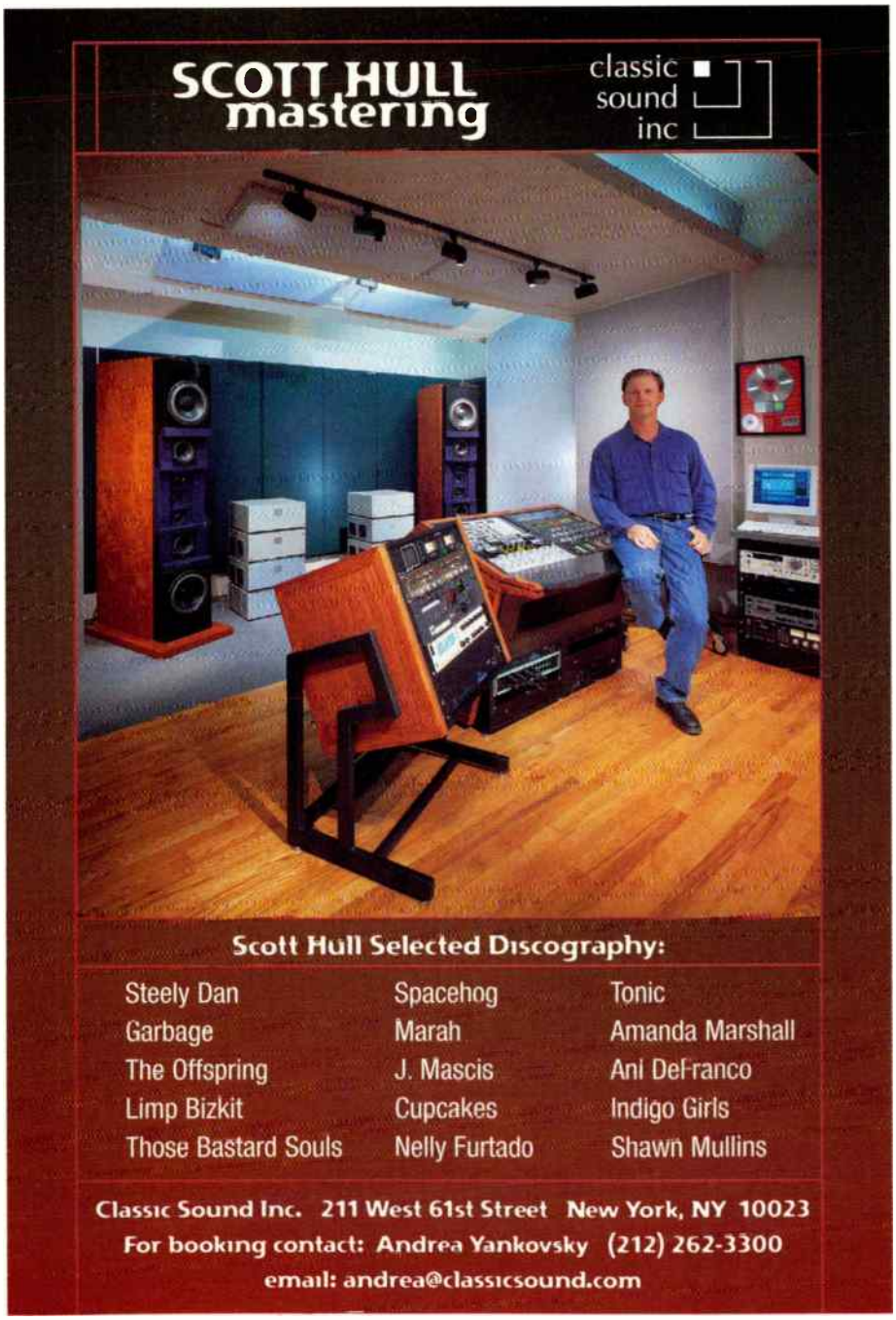
amp, shielding, and a new cabinet design.

Also new from Alesis was the **ProLinear 820** DSP Studio Monitor, a bi-amplified, eight-inch two-way design featuring an internal DSP module providing four-band parametric EQ for customizing speaker response, and correcting for anomalies in the acoustic environment. —MG



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AUDIO INTERFACES AND CONVERTERS

There are lots of computers and DAWs out there, each of which demands a means for getting audio in and out, so it's no surprise that there were variety of new audio interfaces and cards being shown at NAMM. Leading the pack was **Crest,** who were showing the **FB-88,** a single rack-space 8 x 8 audio interface that connects to Mac and Windows computers via FireWire — no PCI or PCMCIA card required. Features include support for sampling rates up to 96 kHz, 24-bit converters, LED bargraph metering, and ADAT and S/PDIF I/O. Not to be outdone, **MOTU** announced their new FireWire interface — the **828** — which also includes ADAT and S/PDIF I/O, as well as dual mic preamps and an ADAT sync input.

On the PCI card front, **CreamWare** unveiled the **Luna II,** which adds stereo analog S/PDIF I/O and 24-bit 96 k support, along with Ultra Low Latency Interface (ULLI) technology, that is said to allow audio driver latencies to be adjusted down to as low as 1 ms. **Emagic** showed **EMI 2I6,** a USB multichannel audio interface that delivers latency-free hardware monitoring and six discrete 24-bit analog outputs.

There were also a host of new audio converters, including the

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Fostex AC2496 eight-channel analog to ADAT and S/PDIF converter; **Steinberg's Nuendo 8 I/O 96k,** an eight-channel A/D and D/A converter with ADAT and TDIF interfaces; the **M-Audio AudioSport QuadPC** (a 4 x 4 USB I/O box) and **Delta TDIF** (a 24-bit 48 kHz PCI card that provides bidirectional TDIF-to-S/PDIF conversion); and four new products from **Lucid**: the **AESx4** and **CLKx6,** which distribute AES and S/PDIF audio to four or six parallel outputs respectively; the **SPDIFx7,** which feeds S/PDIF stereo audio to four S/PDIF and two TOSLINK optical outputs, plus one AES output; and the **GENx6,** which can distribute or generate sync information, routing Word Clock or Superclock to six BNC outputs. *—HM*

SIGNAL PROCESSORS

Undoubtedly, one of the most fascinating new signal processing products to come down the pike in a long time is the **TC-Helicon VoiceCraft** expansion card for the VoicePrism. This uses advanced physical modeling algorithms to add inflection artifacts such as breath, rasp, and growl, as well as "intelligent" vibrato (with controllable rate and depth) to any vocal signal. The next logical step in this age of instant gratification — scary is it may be — is likely to be full imposition of a vocal "voiceprint." It may not be too much longer before you'll be able to instantly sound just like anyone, from Paul McCartney to Frank Sinatra to Fred Durst (!).

With the increased interest in surround sound, a multi-channel processor or two is probably in your future. Leading the charge is **Alesis,** with their **CLX-440** compressor/limiter/expander and **PEQ-450** five-band parametric EQ. Both provide four discrete channels of processing, which can be configured in dual-stereo mode if desired. Also new from Alesis was the lowcost and dead-easy-to-use **Ineko**

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stereo tabletop processor, loaded with dozens of "over-the-top" presets likely to appeal to DJs and those looking for extreme effects. At the other end of the price scale was the **Manley Elop II** limiter, which includes the original opto circuitry and adds a switchable highpass filter and FET-based brick-wall limiting. And speaking of second-generation models, **HHB** followed up on their success with the Fat Man with the release of **Fat Man II,** a single-channel tube preamp/compressor offering 15 basic presets optimized for vocals, keyboards, electric and acoustic guitars, bass, and drums. Also new from HHB was the **TL Audio VP-1** tube processor, which features no less than seven tube stages for pre-amping, dynamics processing, and equalization; there are even options for word clock input and digital outputs. In addition, **Lexicon** announced the release of version 2 software for their **960L** digital effects system; new features include additional presets and configurations as well as support for 16 channels of I/O and a second reverb card (effectively doubling the DSP horsepower), mappable I/O, global mix control, dual LARC support, and enhanced metering. —HM

STANDALONE SOFTWARE

Jaws were dropping at the **Celemony Software** booth, where

Lexicon 960L version 2

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JUST LIKE LAND

Melodyne was being demoed to astonished onlookers. Offering an unparalleled degree of seemingly artifact-free pitch shifting and time stretching, the program actually performs its magic in real-time (following an initial non-realtime offline waveform analysis). Once you've tweaked the audio signal to perfection, the data can then be saved in MIDI format, allowing your synths to play along in perfect synchronization.

The crowds were also flocking to the **MOTU** booth to catch demos of **Digital Performer 3,** a powerhouse upgrade which includes surround support, an integrated MIDI and audio sequence editor, and 15 new effects and plug-ins. Not to be outdone, **Cakewalk** debuted their new flagship digital multitrack recording software, called **SONAR.** Said to offer virtually unlimited MIDI and audio tracks, it provides support for DXi (Direct X Instruments) software synth and DirectX 8 audio plug-ins, as well as the newest multiprocessor PCs and dual-monitor displays. **Emagic** were demoing **Logic Audio 4.7,** which provides improved hierarchichal organization, improved VST support, and eight-channel surround mixing capabilities.

Other new software products included **Ableton Live,** a live-performance oriented audio sequencer with a thoroughly cool-looking (and totally intuitive) user interface; **Cycling '74 radiaL,** a loop-based composition and performance tool that features ultra-cool cockpit-style circular "loop gauges" and extensive MIDI control support, not to mention multi-channel audio I/O; **Propellerhead Recycle! 2.0,** which now works with stereo files and provides realtime preview of most settings; **BIAS Deck LE,** a limited-feature eight-track version with support for most ASIO-compatible audio hardware; and **Sibelius** version 1.4, which includes a suite of new plug-ins for adding chord symbols, text, or sol-fa notation. —HM

PLUG-INS

Software plug-in processors continue to be a hot area of development. **Antares** offered **AutoTune 3,** which includes phase-coherent stereo pitch correction, extended bass detection and correction range, 96 kHz compatibility, MIDI control, a new user interface, and faster pitch correction and detection.

BIAS Vbox is a control environment for VST plug-ins. Vbox can combine and mix real-time VST plug-ins, either as a plug-in or as a standalone processor for live FX processing or sound design.

Bomb Factory announced 14 plug-ins for MOTU's 32-bit floating point MAS format. The plug-ins feature side-chain inputs (where applicable) and fully automatable knobs and switches.

Prosoniq is releasing **Orange Vocoder** for Real Time AudioSuite in Pro Tools. Digidesign will be the exclusive distributor of the Orange Vocoder. Prosoniq announced they will phase out their VST development activities to focus on the RTAS and TDM formats.

GRM Tools Volume 2 (VST) contains Reson (128 resonant filters), Doppler (simulates the effect of a sound moving towards or away from you), Freeze (creates up to 32 loops within a user-captured three-second sample), and Delay (up to 128 variable delays). All time-relevant parameters can be adjusted in musical units.

Lots of buzz at the show on this one: **AudioEase's Altiverb** (distributed by MOTU), is an acoustics processor for Digital Performer that offers realistic one-, two- and four-channel sampled acoustics of virtually any acoustic environment. The plug-in provides mono-to-mono, mono-to-stereo, stereo-to-stereo, mono-to-quad, and stereo-to-quad effects, making it ideal for surround reverb and ambience applications.

Waves has provided the **Renaissance Vox Processor** (TDM or

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World Radio History

TC PowerCore

native) with a very simple interface — only two controls. The processor uses a compressor, gate, and precision limiter with automatic gain staging for clip-free maximization of vocals. Waves has also ported the DSP code from their L2-Ultramaximizer hardware into the **L2-Ultramaximizer** plug-in for Pro Tools|24 MIX systems. All processing is performed with 48-bit double-precision resolution.

No fewer than three companies announced proprietary DSP cards to supercharge native processing. **Universal Audio** made their entry into digital hardware with the new **UAD-1** DSP card. Utilizing a single proprietary high-speed DSP processor, the card allows the user to instantiate multiple instances of native plug-ins, unencumbered by the limitations of the host processor.

In a similar vein, TC unveiled **TC PowerCore,** a DSP card that's designed to hotrod VST plug-ins such as the company's own TC Tools, with third-party support expected shortly. The TC PowerCore is said to provide roughly the power of four Mac G4 processors on a single card. Last but not least, the **Waves Y56K** YDGAI card adds multiple processing algorithms to the Yamaha AW4416 workstation, including L1 Ultramaximizer, Renaissance EQ/Compressor, TrueVerb, SuperTap, and DeEsser. Full automation through the console is supported, as is lightpipe I/O. —MG

SYNTHS AND SAMPLERS

Emagic's new **EVP88** is a plug-in instrument for use with the Logic Audio series of programs. EVP88 produces sounds from electric pianos such as the Fender Rhodes Mark I and II suitcase and Stage series, Wurlitzer 200A Electric Piano, and the Hohner Electra Piano.

Named for its inventor Stephen

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SOUND REINFORCEMENT

There were literally tons of new sound reinforcement gear at NAMM: **ART** announced the **HQ-15** (dual-15-band) and **HQ-31** (single-channel, 1/3-octave) equalizers, both of which incorporate ART's Feedback Detection Circuitry for fast identification of offending frequencies. Hot off the line from **Altair** was the **Electra,** a large-format, modular console designed for sound reinforcement and theater.

Audio-Technica expanded their **7000 Series** UHF Wireless System to include additional frequencies in the 600 MHz band for users in areas with crowded RF bands.

Behringer stepped into the live sound speaker market with the **Ultrawave B300,** an active, two-way speaker system with a 15-inch woofer, 1.25-inch compression driver, internal EQ, and built-in mic pre. Behringer also displayed their Eurolive Series, a line of five professional loudspeakers.

Brand new from Community Loudspeakers is the **XLT500** Series incorporating the company's proprietary IntelliSense Protection Circuitry and Power-Meter LED display. IntelliSense allows the XLT500 cabinets (which include single- and double-15 cabinets, a 4x15 sub and the **502** and **505** floor wedges) to automatically attenuate speaker levels to a safe operating range when the cabinets are overdriven.

Crest Audio introduced the **XR-20,** a compact rackmount mixer designed to provide features typically found only on larger, more expensive units such as modular construction, switched 48-volt phantom power per channel, and 18 dB-per-octave highpass filters on the mono input channels.

Future Sonics announced that they'll manufacture a personal earphone to be packaged with the popular Sennheiser evolution wireless 300 IEM system. Both companies will eventually sell the units as stand-alone products. The **Mackie SRS1500** Subwoofer contains a 15-inch long-throw woofer and utilizes a Mackie FR Series 600 watt High Current Amplifier to provide bass response down to 40 Hz at a peak output level of 127 dB.

Nady Systems, Inc. took the wraps off the **UHF-10 Series** of diversity wireless, an affordable UHF system with two receivers (the UHF-10 and URR-10) plus the UH-10 Handheld and UB-10 Body Transmitters. **Peavey Electronics** has expanded their RQ Series of mixers with the addition of the **RQ 4324** and **RQ 4332** 24- and 32-channel, four-bus mixers for churches and club installations.

Phonic rolled out a number of mixers designed for live sound use including the MM-Series compact mixers comprising the **MM1002** 10-channel, **MM1202** 12-channel, **MM1705** (five mic ins plus three stereo line ins), and the **MM1805X** which features onboard digital effects and patchable seven-band stereo EQ. **Radial Engineering** announced the **Stage Flea** 8- and 12-channel sub-snakes for stage purposes.

Sennheiser released five new accessories for their popular evolution wireless systems: the **ASP 1** Antenna Splitter, the **AC 1** Antenna Combiner, **AB 1** Antenna Booster, **AM 1** Adapter, and the **A 1031-U** Wideband Omnidirectional Antenna. A unique product entry came from **Shure**: the **AuxPander** is an auxiliary send expander intended for touring musicians and sound engineers that turns any mixer into an eight-bus console.

Soundcraft launched the Spirit M Series of compact mixers. The Spirit **M4, M8** and **M12** provide four, eight, and twelve mono inputs respectively. Each includes four stereo inputs, four stereo returns, 100-mm faders, and S/PDIF digital output. **Yamaha's MS400** is a portable, high-performance powered loudspeaker with 400 watts of built-in power.

Yorkville Sound's MicroMix M8 Powered Mini Mixer eight-channel stereo mixing board could be the most compact powered mixer we've seen. Four of the inputs accommodate mic or line signals with three-band EQ, while two stereo inputs accept line level signals on RCA input pairs with high and low band EQ.

—Steve La Cerra

Kay, the **Korg KARMA** (Kay Algorithmic Realtime Music Architecture) generates phrases and patterns in real time — not just notes, but MIDI control data as well. KARMA architecture allows the various algorithms to be re-configured and varied as you play them.

The **CreamWare Vectron** plug-in synth for the Pulsar/SCOPE platform recreates the Sequential Circuits Prophet VS — it even includes the original factory wavetables.

Software samplers had a strong presence at NAMM: **Native Instruments' Battery** is a sampler specifically intended for the unique demands of percussion programming and performance. **Emagic** introduced TDM- and VST-compatible **ESX-24** versions, which run in Logic Audio and VST-compatible applications respectively. In other VST and TDM sampler news, **Steinberg** was previewing their upcoming **Halion** software sampler, and Digidesign previewed their **Soft SampleCell,** a software-only version of the venerable SampleCell hardware sample-playback card.

Korg KARMA

Roland brought out their new RS-Series of 64-Voice Synthesizers featuring the 88-note weighted keyboard **RS-9** and 61-note **RS-5.** Both units incorporate 32 MB of waveform memory derived from XV-Series synths and SR-JV80-Series Wave Expansion Boards, plus new waveforms, and six knobs (four assignable) for real-time control over cutoff, envelopes, etc. **Yamaha's S03** is the latest arrival and most compact member of the company's S series of synthesizers. The S03 is 16-part multitimbral, and features 64-note polyphony, and offers more than 700 voices. A built-in serial interface allows the S03 to be directly connected to a Mac or PC. —SLC

▶ continued on page 120

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World Radio History

GUS Dudgeon

World Radio History

GROUND breaker

BY HOWARD MASSEY

Decca Records in the late '60s was an exciting place to be. The label had a closet full of hit acts, including the Rolling Stones, the Animals, the Zombies, the Small Faces, John Mayall, Marianne Faithful, and Tom Jones. The young engineer who manned the board in Decca's in-house studio for many of those artists was Gus Dudgeon, who later went on to produce a string of hit albums for an up-and-coming singer/songwriter named Elton John, including 1973's tour de force Goodbye Yellow Brick Road.

Dudgeon's lush orchestral style was also the perfect complement to what may have been the first "concept" pop song — David Bowie's "Space Oddity." No wonder that when regular Bowie producer Tony Visconti turned the song down as being "second-rate Simon and Garfunkel," Dudgeon was brought in to realize Bowie's vision on tape, resulting in yet another smash hit record. After parting with Elton John in the late '70s, Dudgeon maintained an active career, crafting hits for XTC, Chris Rea, Stephen Bishop, and John Miles. Today he continues to work with young bands from his base in England. Not bad for someone who describes himself as a non-musician with limited technical skills!

EQ: The piano sound on the Elton John records you produced was very distinctive. How did you go about crafting that?

Gus Dudgeon: It's very simple, really. You stand and listen to somebody playing a piano and you go, "Right, that's how a piano sounds to my ears. Now how do I get that natural piano sound to appear on tape?" I was always scurrying around trying to find out a way of doing it, and the first thing I realized with a piano was, if you mic it too closely, you get a very unbalanced sound. So, I was always looking to get the piano lid open, but it's very rare that you're in a situation where you can have that kind of separation, because if you've got a drummer thrashing away, he's going to be picking up all over the piano. Therefore, I developed this bizarre upside-down piano technique for quite a number of Elton's records, from *Honky Chateau* onward — I had these boxes built that were basically upside down, empty piano frames, which sat on top of the piano, thereby screening it off. The microphones went through a hole in the side.

So this was a piano frame that was the same size as the top of the lid?

If you can imagine a piano frame with nothing in it other than a certain amount of padding, and a light so that the man who is going to tune it didn't have to take the thing off — the front would come off and he could reach in. Up until that point, all I was doing was recording pianos in the normal way, trying to get maximum separation.

Your work on "Space Oddity" was groundbreaking. Did the production ideas originate with you or with Bowie?

The demo was pretty sparse, actually. Bowie played a stylophone, did a few harmonies, did the countdown before the rocket takes off; there might be a bass on it. I did a lot of planning on that record. I invented a bizarre wall chart where I used different colored pencils to represent instruments so I could write a line like a graph. Then, if I were talking to [arranger] Paul Buckmaster, I could say, "Look I've come up with this line for cellos and it goes like this," and I'd look at this wall chart and sing it to him. He'd say, "Hang on a minute, let me scribble that down," and then he'd ask, "Well, what about if it went to this note here?" Basically we were chucking ideas backwards and forwards, singing them to each other.

GUS DUDGEON ON RECORDING CLASSIC TRACKS WITH ELTON JOHN AND DAVID BOWIE

World Radio History

Was the string arrangement conceived beforehand or did you build on Bowie's basic track?

All I can remember is that it was all done very quickly — I think we did the whole thing in a day. I'd worked out to the absolute nth degree exactly how I wanted that record to sound and discussed it with Paul, then Paul went off and wrote the charts. I recorded the backing track during the daytime and then I think he must have come in in the evening, or maybe the following day to do the orchestration, and then we mixed it. It was all done in no time.

Did you love the song instantly?

Oh, yeah. Don't forget, I'd already worked with Bowie as an engineer. I did all his early stuff, including his whole first album. I loved the fact that, as far as he was concerned, rules were there to be broken.

Did Elton have the same kind of sense of artistic freedom, or was he a little bit more formulaic in terms of the "Elton John sound"?

Oh, no, Elton was up for whatever. If I said to him, "This song would be great with an orchestra," he'd just go, "fine." The most amazing thing about Elton — apparently he's not that way nowadays — was that, as soon as he'd finish doing what he had to do, he was off. He never hung around for any overdubs, be they strings, backing vocals, whatever.

Was he there for the mixing sessions?

No, he never came to a mix. He'd come right at the end and listen to it. It wasn't that he wasn't interested — don't get the wrong impression. It was just that, for some reason, he trusted us right from the word go.

Where do you stand on the analog versus digital issue?

I got into digital the minute it happened — it was a blessing. When I was working at Decca, analog tape was such a dodgy medium. I can remember situations where we'd be doing a take with a 20-piece orchestra and suddenly there would be a dropout or something weird would happen, and you'd have to stop them and do another take. It was a very unstable medium. And I always hated hiss. Then when digital came along I thought, "Yes please, this is what I've always wanted."

Having said that, I totally understand why people love analog, and I must admit that quite frequently after I've recorded an album, I'll dump the whole thing onto analog before mixing it. And, I always run a DAT and a half-inch analog tape when I mix. I almost always use the analog tape for mastering.

A lot of music today is being constructed after the fact in postproduction. Are you big on editing?

Sure, I use Pro Tools — who wouldn't? But I don't use it as the main tool. I use it when I have to because I'm in a situation where it's the only way around a problem. If a bunch of backing vocalists come in and they're going to sing four choruses, in an ideal world, I'll still have them sing all four choruses, rather than record one and move it around. Because then the choruses are different; the balance doesn't stay the same, the blend doesn't stay the same.

Do you have any favorite consoles?

I did some sessions recently on a Soundcraft desk and was suprised how good it sounded. But what was interesting was that the engineer turned to me and said, "You're the only person that's come in here and gone for a natural sound. Everybody else comes in and they want to roll off all the bottom and they want to squeeze out all the middle and make it really edgy and bright and horrible." I like to go for the maximum sound from the minimum number of instruments.

How do you accomplish that? Is it in the arrangement?

Yes, a lot of it is the arrangement. The key can also affect things enormously. If you transpose up a tone, the bass may not sound as good, so perhaps I'll persuade the bass player to use a different bass, or change the EQ completely to make up the missing frequencies. Or maybe ask him if he's got a five-string bass so he can fill in the bottom end that's gone missing because he's moved up higher on the instrument.

Key, of course, will have the greatest impact on the vocal.

At the end of the day, you've really got to take a lot of regard for the range of the song. I know an awful lot of vocalists who've decided they're doing it in the key that they think is right, and they're really pushing themselves to the very edge. If they can't get the bloody notes, you spend ages trying to drop in over and over — it's just hell. So I try to make a point of not going through that kind of agony, and say to them, "Do you honestly think that the people listening to the song could care less what key it's in?" Put it in a key that's correct for your voice. Of course you get caught sometimes because you get a song that's got a large range. Then you have to say, "Well, it's going to be a strain to hit those top notes, but at least the bottom notes are going to be okay," or vice-versa. You just have to steer for the safest key and cross your fingers.

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Do you do a lot of signal processing during recording?

When I'm constructing a track, I don't bank on doing things later. I try to have a really good mix with a really good sound as near as dammit to the finished sound on everything. That way, when you get to the mixing stage, you don't have to process tons of stuff to get it to sound good. I like to commit and say, "This is the sound I want."

I can't believe how many people listen to things in solo. Engineers do that all the time. They say, "What do you think of this bass drum sound?" My answer, invariably, is "Let's hear it with everything else." That's the only time you can tell how it sounds — when it's in with whatever else it's got to work with.

In what order do you usually bring faders up?

I always start with the bass and drums. Until the bass and drums sound dynamite from beginning to end, there's no point in putting anything else in because you're only going to wonder what's going on when you start to put your fifteenth track in. You'll think, "Hmm, the snare doesn't sound very good anymore; it sounded great before I put this other stuff in." It's because you probably haven't taken the snare sounds or individual sounds as far as you could have. I think the bass and drums are crucial; they have to work as a unit.

Are there any specific steps you take to meld the two together?

I think the biggest mistake a lot of people make is, because they don't decide on what sound they want at the time of recording, they wait until it's too late. And, because they wait 'til it's too late, they may not be able to make up the missing frequencies. If you've got a really good bass and drum sound on tape, you can sit down, push up the faders with no EQ, no echo, nothing at all — and it should immediately sound very good because you've already done the work. However, you can make a decision on an EQ at an early point in the recording that turns out to be incorrect because the other instruments have subsequently filled the same frequency slots.

There's always a slot; when you're doing a mix there are slots that appear where you can crank something just enough to help it through so it still makes its point but isn't blowing your head off and hasn't gotten lost. It's all about trying to find that subtle point.

To me, a mix is like a cake — it's a question of layers. There's no point in having cherry and strawberry next to each other because they'll become "cherryberry" — or "strawcherry." What you need is another layer of pastry in between the strawberries and the cherries so you can appreciate them as individual flavors.

Once you've got the rhythm section sorted out, what comes in next?

If there were a piano involved, the piano would definitely be next, because it fills an enormous spectrum of sound. And then the guitars are going to have to fit around the piano. That can be tricky, because if they're playing in a similar area in the harmonic structure, it can be hard to get them to come through without buggering the piano up, or vice-versa. Sometimes I've recorded a piano in stereo and actually used it in mono on the final mix

▶ continued on page 86

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DECONSTRUCTING THE NIGEL OLSSON DRUM SOUND

Longtime Elton John drummer Nigel Olsson is currently collaborating with fellow sidemen Davey Johnstone, Guy Babylon, and Bob Birch on a new album being recorded in the various bandmember's project studios. EQ spoke with Olsson about how he creates his distinctive drum sound.

EQ: What's the secret of the "Nigel Olsson drum sound"?

Nigel Olsson: The Nigel Olsson drum sound is very low tuning of the drums. I tune as low as the drumheads will go without flapping around. We use close and ambient mics — we love to use big, huge recording rooms so we can get a couple of stereo mics as far away from the drums as possible. That's basically what my sound is all about — that split-second delay you get from the ambient mics, mixed in with close-miking. The bigger the room, the better the sound, and the better I play, actually.

Are you a Shure SM57 fan on snare drums?

A '57 is still the way to go. [Laughs.]

What do you do to get ringing out of the drums?

When I put the heads on, I'll stand on them to stretch them a little bit, tweak them up tight and then lower them back down. We found in the early days that if you had metal rims, the way I tuned the drums there would be rattles and there would be all sorts of things happening which would drive Gus [Dudgeon] absolutely nuts! Using wood rims in the studio cuts down on all the rattling. Nowadays there's stuff you can get — special washers and all that — that will eliminate the rattle.

Do you ever tune your drums to the key of the song?

No, I stay with a fixed tuning — just what sounds good for that particular drum.

When you go into the studio, do you bring lots of different drums with you?

I usually take the basic drum kit, which is a 22-inch kick drum, a couple of different snares — that's the only thing I ever play around with, usually one thick and one thin, not exactly a piccolo snare, but a thinner one, and maybe a metal one. Cymbals are always basically the same.

Does your kick drum have the front skin on or off?

Usually on, but we do have a microphone inside; there's a hole cut in the skin.

Is the kick drum always close-miked or have you experimented with ambient miking of the kick?

Gus and I have experimented, but we found that having the mic inside the drum works the best.

Do you keep the tom under-skins on?

Normally I keep the bottom skin on the toms and over-mic it. ■

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because it's occupying an area that the guitars are in. If I've got the guitars spread and the piano spread as well, sometimes they're fighting each other, so the simplest thing is to make the piano less panned and all of a sudden the guitars are there.

But if I'm having trouble with a mix, I'm probably using too much EQ. What I would do in that case is either take the EQ off and start again, or if you think, "I really like this sound, I want to get this sound through," what you do is ease the EQ back bit by bit and turn the level up. Basically, if you use too much EQ, you're trying to force something through a slot that's too small. Let's face it, you could have the most fabulous sound in the world, but are you going to get that sound to work with the track? Very often it won't, so you compromise. You say, "Okay, maybe I'm pushing it too hard, I'm EQing it too much. What I should be doing instead is backing the EQ off and turning the volume up."

What kind of tricks have you come up with for getting a lead vocal to sit correctly in a dense backing track?

Well, that can be tough. The classic case is that you've got this rocking track and it sounds brilliant and everything is roaring away, and you put the vocal in and all of a sudden the snare seems to have completely lost it. That means that you're going to have to be very cautious about where your vocal level is and then make an adjustment to the snare level.

> "I LIKE TO GO FOR THE MAXIMUM SOUND FROM THE MINIMUM NUMBER OF INSTRUMENTS."

Maybe you need to compress the vocal or limit it harder. Maybe you need to use a different kind of echo or a different sort of reverb. Or maybe you should dry the thing up completely and take all the effects off and have a listen to that.

I find the quickest way to decide whether something is loud enough is to run the mix and just turn the signal on and off. If you turn it on and you can hear it, but it's not smack, bang in your eye, it's probably roughly where it should be. If you're running a track where you've got an acoustic guitar and there's all sorts of electrics, you know damn well that you're not going to hear every piece of that acoustic guitar part, and you're not going to hear everything the electrics are doing either — there has to be some compromise. And if it sounds like you've got both sets of guitars too loud, just turn one set off and see what you're left with. Probably if you turn the electrics off you'll suddenly think those acoustics are ridiculously loud, or vice-versa; turn the acoustics off and the electrics are blasting. Actually what it means is, they're all too loud! The best thing to do is to take the bloody fader out and start again. Creep it up until you think that's probably where it should be and then try switching it on and off.

Howard Massey's latest book, *Behind The Glass*, is a collection of interviews with record producers, now available from Backbeat (Miller-Freeman) Books.

CIRCLE 53 ON FREE INFO CARD

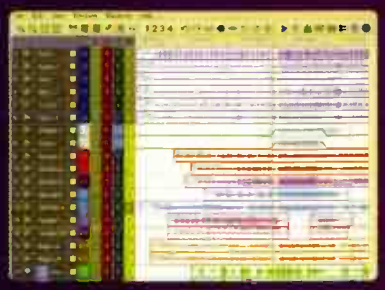
MX-2424 Profile:
Rudi Ekstein of Foxfire Recording

Rudi Ekstein may not be a household name. But his studio, Foxfire Recording, has been thriving for over ten years, with over 40 hours of bookings every week. And the new cornerstone of Foxfire is the TASCAM **MX-2424 24-Track 24-Bit Hard Disk Recorder.**

When you can have any recording system you want, why pick the MX-2424? "After looking at other hard disk multitracks, I chose the MX-2424 based upon its incredible versatility," says Rudi. "First and foremost, the MX has fantastic sound quality that is comparable to anything I've ever heard. The ability to use 24 channels of analog and digital I/O simultaneously was another big reason for my decision. Plus, the ability to edit from the front panel, to easily set locate points and to use the auto-punch and scrub features have helped make sessions run smoother and quicker."

With audio file format and disk drive compatibility with your favorite DAW systems on Mac® and PC, easy interfacing with popular analog and digital gear and all the advantages of our world-class hard disk engine, it's easy to see why thousands of musicians, project studios and professional facilities like Foxfire have chosen the MX-2424 for their main recording system. For the complete MX-2424 story, see www.tascam.com or visit your TASCAM retailer. You never know...the next MX-2424 profile could be yours.

MX-2424 24-TRACK 24-BIT HARD DISK RECORDER/EDITOR



The new MX View graphic user interface software, available soon for all MX-2424 owners. Includes powerful waveform editing and much more.

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CIRCLE 14 ON FREE INFO CARD

IN REVIEW TOC

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World Radio History

By Howard Massey • hmassey@uemedia.com

Aardvark AardSync II and Sync DA

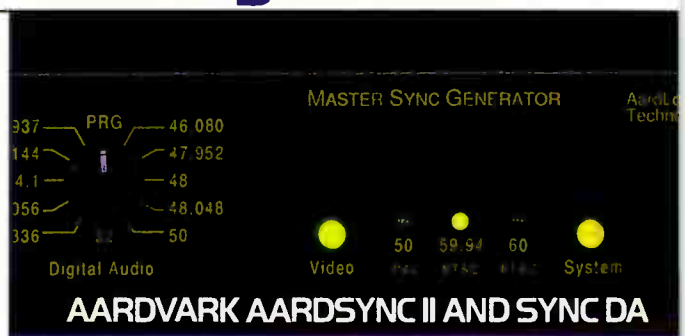
Ultra-stable clock source and a means to distribute it to your gear

Truth in advertising: what a concept. The ads for Aardvark's AardSync II master sync generator simply state that it makes Pro Tools sound better, and that's completely true, but it's also only half the story. Fact of the matter is that adding an AardSync II to your studio will probably make everything digital sound better, especially if you're using a digital console.

If there's one thing that I've learned during the last few years of working with digital audio gear, it's that you can't overestimate the importance of clocking — that is, synchronizing all your gear to a single source. Lack of clocking will, of course, result in pops and clicks in your signal — a complete no-no in anybody's book. But using a less-than-stable clock will also result in compromised audio, though it may not be anything you immediately hear. Until, that is, you hear the same audio played with an ultra-stable ultra-low jitter clock in charge.

Back in 1996, I upgraded my analog console to a Yamaha 02R and quickly discovered that the quality of the audio signal was better when using my Alesis BRC as word clock master instead of the 02R itself; the sound had slightly more definition and a somewhat wider stereo image. Last year, I swapped out the 02R for a Sony DMX-R100 and used its word clock output to synchronize the BRC and all the other digital gear in my rack. There was a distinct improvement in fidelity — the same CDs, DATs, ADATs, and Pro Tools files that I had played previously through my 02R (and through the same monitors) now had new life to them — new clarity and depth — but it was hard to determine whether that was due to the improved second-generation converters in the R100 or its low-jitter clock signal.

But hooking up the AardSync II to my rig — using it as sole master to drive everything in my room, including the R100 — immediately took things to a whole new level. CDs I had heard a thousand times (James Taylor's Hourglass, for example, which I rate as one of the finest recordings of all time) revealed new detail I had never heard before, with a significantly broader stereo soundstage and a tightened low end — an audible improvement over sonic quality that



AARDVARK AARDSYNC II AND SYNC DA

MANUFACTURER: Aardvark, 202 E. Washington #306, Ann Arbor, MI 48104. Tel: 734-665-8899. Web: www.aardvark-pro.com.

SUMMARY: Even in an audio-only studio, if you're using a lot of digital gear — especially if you have a digital console — the AardSync II will almost certainly make everything sound significantly better; it's a must-have if you're doing postproduction work. If you've got a lot of devices with word clock (or Superclock) inputs, the Sync DA allows them to all lock to the same source.

STRENGTHS: AardSync II improves audio quality of virtually all digital gear. Easy to use and hook up. Full complement of front-panel indicator lights. AardSync II provides ultra-low jitter. Support for all common pull-up and pull-down rates — can even be factory-programmed to any non-standard rate. AardSync II can act as system master or slave to all standard video sources (blackburst, PAL/SECAM, NTSC color, or b/w). AardSync II provides dual AES/EBU outputs. Sync DA can derive word clock from AES/EBU input and also provides an AES/EBU throughput.

WEAKNESSES: Wall-wart power adapters with flimsy cabling.

PRICE: AardSync II, $1,795; Sync DA, $845.

EQ FREE LIT. #: 105

World Radio History

was already extremely good. Ditto for various Pro Tools songs that I had slaved over for hours on end — I began hearing a new dimension to the tracks, actually making it easier for me to equalize them and carve out frequency niches. So to say that adding an AardSync II can actually even improve your mixes is not an understatement. And, although the brief but informative manual states that using a video house sync or blackburst generator input yields the most stable clock of all, I found that doing so (using a Leitch SPG-130N) didn't appreciably improve the audio quality — impressive testimony to the stability of the AardSync II's internal crystal. (Aardvark tells us, "The AardSync is actually far superior to most common video black generators, and it is only when locking to the best, most expensive generators that the AardSync will be improved.")

On its face, the box itself is quite unassuming. A single-space half-rack chassis houses a single rotary knob on the front, which allows you to select the sample rate; options include 44.1 and 48 kHz, plus all standard pull-up and pull-down video rates, as well as an optional factory-programmed non-standard rate between 32 and 50 kHz. In earlier units, double-speed sample rates (88.2 and 96 kHz) were an option, in current units 2x word clock support is standard. There are five LEDs used to indicate the presence of video input and lock if a video generator (such as house sync or a blackburst box) is used as master. The rear panel hosts a BNC video input, dual AES/EBU outputs (on standard XLR jacks), three BNC word clock outputs, and a "256" Digidesign Superclock output (for use with Pro Tools interfaces), also on a BNC connector. Moving an internal jumper allows you to optionally configure the Superclock output to standard word clock, or to configure one of the three word clock outputs to a second Superclock.

That's it, and it's pretty much everything you need, unless you have more than four pieces of digital gear to sync up, in which case you can simply add the Aardvark Sync DA. This little box — also a single-space half-rack — can not only distribute a single word clock input to six devices (including one or two that require Superclock), it can also derive word clock and Superclock from an incoming AES/EBU signal.

The front panel of the Sync DA actually presents more information than that of the AardSync II, using a series of seven LEDs to show the precise current sample rate. There are dedicated LEDs for the standard rates, with additional "plus" and "minus" LEDs to show pull-ups and pull-downs of 0.1% and 4%. Additional LEDs indicate whether a word clock or AES/EBU input is being used as master.

The rear panel houses BNC word clock and XLR AES/EBU inputs (only one can be used at a time; if both are connected, the Sync DA will default to the AES/EBU input, provided a signal is present), a handy XLR AES/EBU throughput (which mirrors the signal being input), and six BNC outputs. Two of these can be used to carry either standard word clock or Digidesign Superclock signal, while the other four carry word clock only (the factory default setting is for five word clock outputs and one Superclock output). It's worth noting that, due to jitter considerations, Superclock can only be derived from an incoming AES/EBU signal; using a standard word clock input will make this feature inoperative.

LOCKED UP

There's really no reason at all — other than budgetary — not to avail yourself of an AardSync II. It will almost certainly make all the digital audio gear in your studio sound better (not to mention immediately making any audio-only room postproduction-capable). The combination of an AardSync II and Sync DA is killer for larger rigs — you can use all the outputs from both devices simultaneously, allowing you to interconnect up to ten devices (including up to four separate Pro Tools interfaces). Can you say "no-brainer"?

Howard Massey heads up On The Right Wavelength, an audio consulting company, as well as Workaday World Productions, a full-featured project studio. His latest book, *Behind The Glass* (Backbeat Books), is a collection of interviews with record producers.

CIRCLE 40 ON FREE INFO CARD

CIRCLE 11 ON FREE INFO CARD

By Rob McGaughey • soundsauna@earthlink.net

ART Tube MP Studio and DI/O

ART warms your inputs up with tubes

Tubes are all the rage these days as engineers seek big, warm, dynamic recordings. To that end, tubes are common in amplifiers, compressor/limiters, mics, as well as in mic preamps — witness the Tube MP Studio that's on review here — but ART has definitely put a new twist on things by including a variable tube stage in the other box we're looking at, the DI/O analog-to-digital converter.

TUBE MP STUDIO

The Tube MP Studio is a single channel, tube-based microphone preamplifier/direct box/limiter in a box that's only slightly larger than the average direct box. At first glance you'll notice an analog VU meter that measures the output level and amount of gain reduction. The green power LED serves double duty, turning red when clipping occurs or when the limiter is triggered. Also featured on the Tube MP Studio are switches for 48-volt phantom power and phase reverse. The Tube MP Studio handles line input signals up to +22 dBu and provides up to 60 dB of gain.

I first used the Tube MP Studio with an Audio-Technica AT4047 microphone while recording a female vocalist. I let the tube warm up, then plugged in the microphone. I quickly got a good level and started recording. I found that setting levels was particularly easy with the analog VU meter and clip LED. The metering was superior to what you get on any of the entry-level mixing consoles I've seen, and frankly better than I would expect to find at this price point. For the sake of comparison I recorded the same vocallst with the same microphone using the mic preamps in a Mackie console. I preferred the track recorded with the Tube MP Studio as I found it warmer and more musical than the Mackie. The Tube MP Studio seemed to smooth out some harshness in the upper midrange frequencies.

I next recorded a male vocalist with the AT4047 through both the Tube MP Studio and the Mackie. I also preferred the Tube MP Studio in this application; the most prominent difference was in bass frequencies. I repeated this on acoustic guitar and some miscellaneous percussion instruments, and I preferred the Mackie preamps. Yet the Tube MP Studio was preferable when miking an electric guitar amp and on brass instruments. There weren't any applications where it was totally inappropriate, but as expected, I liked it better on some signals than on others.

Throughout my tests, I experimented with the built-in limiter and have to say I didn't like it. When it was triggered the sound was abruptly affected, and in an unmusical way. Also of note is that when the limiter is triggered, the VU meter automatically switches to measure gain reduction applied by the limiter. I found this annoying and would prefer to be able to manually choose what the meters are reading.

ART TUBE MP STUDIO & DI/O

MANUFACTURER: Applied Research and Technology, 215 Tremont St., Rochester, NY 14608. Tel: 716-436-2720. Web: www.artproaudio.com.

TUBE MP STUDIO

SUMMARY: Affordable tube microphone preamp with built-in limiter

STRENGTHS: Good sound quality. Can act as instrument DI. Analog VU-style metering. Flexible I/O. Balanced and unbalanced outputs. Affordable.

WEAKNESSES: Wall-wart power supply. Limiter isn't subtle. VU meter switches automatically to measure gain reduction when OPL is active.

PRICE: $159

DI/O

SUMMARY: An A/D/A converter with tubes? Don't knock it until you've tried it — it works!

STRENGTHS: Flexible. Supports all standard sample rates. Tube circuitry can be bypassed or dialed in as required. Very good sound quality. Easy to use. Inexpensive.

WEAKNESSES: No balanced inputs or outputs. Minimal metering.

PRICE: $249

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CIRCLE 45 ON FREE INFO CARD

I also used the Tube MP Studio as a direct box on bass guitar, electric guitar, and the transducer on my Guild acoustic guitar. I found it to be an excellent direct box, particularly when recording direct to digital.

The Tube MP Studio is a very good direct box for electric bass guitar and acoustic guitar, offering a nice warm sound that will work well in many applications. As a microphone preamp, it sounds good and offers a different coloration than the preamps in many consoles. The limiter isn't very useful in combination with the microphone preamp but it works fine when the Tube MP Studio is used as a direct box.

DI/O

The DI/O is a two-channel, 24-bit A/D converter with adjustable tube warmth combined with a two-channel 24-bit D/A converter. The unit internally offers 44.1, 48, 88.2, and 96 kHz sampling rates or it will synchronize to any external sample rate from 22 kHz to 100 kHz. The DI/O has S/PDIF digital I/O and front-panel LED's to note input level and sample rate. Also on the front panel are two rotary knobs, one for setting the input gain and the other for dialing in the amount of tube "warmth" desired. The input gain ranges from 0 dB (at this setting the DI/O can handle input signals up to +20dBu) to 20 dB of gain. The Tube Warmth knob ranges from Clean, with virtually no tube effect, to Warm, where the tube effect is fairly pronounced. The back of the box has four unbalanced 1/4-inch connectors for the two analog inputs and outputs, a pair of RCA connectors for the S/PDIF digital input and output, and a connector for the external wall-wart power supply.

I connected the DI/O to the S/PDIF I/O on my 16-bit Digidesign 888I/O interface and compared both the A/D and D/A converters. The sonic difference between the two units was negligible much of the time, but occasionally I felt the DI/O was better. The same comparison with a Panasonic SV3700 DAT machine showed the DI/O to be significantly better. The DI/O's sound was more "alive," and offered better definition.

To test the Tube Warmth section of the DI/O, I plugged my Kurzweil K2500S into the analog inputs and began called up sounds. I experimented with various Tube Warmth settings on the different patches

and found the ability to dial in the intensity of the effect was very cool. The tube made a significant improvement on many sounds, especially synth leads and bass patches. When listening to CDs through the DI/O, the effect I preferred was more subtle, adding a little warmth and depth to the sound without noticeable coloration or distortion.

Initially I had some reservations about the DI/O; what do I need with an A/D-D/A converter with a tube in it? But I ended up impressed with the box. The converters are solid and offer a significant upgrade to those found in soundcards, DAT machines, and older gear. DI/O has many applications from improving the quality of digital recordings to warming/fattening up synth sounds. Now that I've had it in my rig for a while, I don't want to let it go! ■

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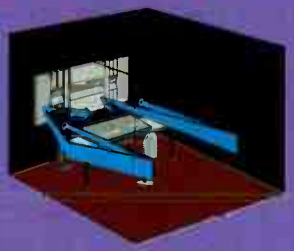

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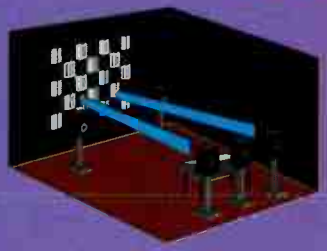

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World Radio History

By Craig Anderton • anderton@musicplayer.com

CreamWare PowerSampler PCI Sampler Card

Computer-based "sampler on a card"

Under the hood, samplers are basically computers. So, not surprisingly, programs designed to put a sampler into your computer have existed since the Commodore-64. This approach offers a large screen monitor, expandable RAM, mouse and keyboard interface, hard disk storage, and the like. However, a virtual sampler can tax a computer's resources, leading to problems such as latency and dropouts — especially when also trying to use power-hungry apps such as Cubase, Logic Audio, etc.

CreamWare's PowerSampler takes an end run around hardware issues by putting a sampler's hardware core — three Analog Devices SHARC DSP chips — on a Mac/PC-compatible PCI card. This minimizes CPU loading, and gives very low latency when used with low-latency drivers. However, as all samples are loaded into the computer's RAM, power users will definitely want 256 MB or more.

The PowerSampler package includes the card, two DIN to MIDI adapters, CD-ROM with drivers and STS-3000 sampler software, printed quick start manual, and a readable, well-organized main manual in PDF format. Those familiar with Akai samplers will feel right at home with the interface, as well as the ability to import S1000 and S3000 programs (the STS-3000 also imports Sound Fonts).

INSTALLATION

I couldn't get the application to work properly until software rev 2.04A, apparently because the driver didn't like PowerSampler co-existing with certain other sound cards. The latest rev fixed the problem. The printed manual installation section is marred by several small discrepancies, such as instructing you to click on "Continue" when the dialog box says "Next," and, more seriously, telling you to install the PowerSampler driver when you actually want the CreamWare DSP Board driver. I just went with the defaults regardless of what the manual said, and everything worked fine.

Where the manual excels is at providing detailed information on PC optimization, using PowerSampler with various programs, troubleshooting, and system tweaks for certain graphics cards. This is a welcome change from the usual "In case of difficulty, consult the manuals for your other products and don't bother us."

PowerSampler can load upon boot-up, so that its card can serve as your system's sound card.

CREAMWARE POWERSAMPLER

MANUFACTURER: CreamWare Audio Solutions, 6879 Russel Ave., Burnaby, B.C., V5J 4R8, Canada. Web: **www.creamware.com**.

SUMMARY: Put a cost-effective sampler in your computer, without loading down the CPU

STRENGTHS: Places virtually no load on the host CPU. Supports 24/96 as well as other standard sample rates. Familiar, Akai-like architecture. Very low latency. Easy sampling. Integrates well with programs such as Cubase. Analog and S/PDIF I/O.

WEAKNESSES: Can't stream large samples from hard drive. 32 voices **max** (64 with second card). Sample editor limited to forward looping. Accepts only one user-specifiable MIDI controller.

SYSTEM REQUIREMENTS: ***WINDOWS:*** Pentium II 300 MHz, 64 MB RAM, 8 MB AGP graphics card (PCI acceptable), Windows 95/98. ***MAC:*** G3 300 MHz, 128 MB RAM, 8 MB AGP graphics card (PCI acceptable). OS 8.6 or higher.

TEST CONDITIONS: Q Performance Systems computer with 850 MHz overclocked Celeron A, 256 MB RAM, and W98SE.

COPY PROTECTION: Serial number entry

PRICE: $598

EQ FREE LIT. #: 107

FIGURE 1: The main PowerSampler windows.

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Todd Studios/Signet Sound, Los Angeles, CA

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Model 1036A

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PROGRAM PARAMETERS

STS-3000 uses the standard Matrix Modulation approach to editing, where modulation inputs have drop-down menus for selecting modulation outputs. There are typically three modulation inputs per editable parameter, each with a variable value. Modulation options, some of which affect the entire program and some of which can control individual key groups, include:

- Mod wheel
- Instantaneous mod wheel value (i.e., the value when the note is played; sweeping does not change the value)
- Pitch bend
- Instantaneous pitch wheel value
- External MIDI controller (only one allowed)
- Instantaneous external MIDI controller value
- Pressure
- Velocity
- Note number
- LFO 1
- LFO 2
- ADSR envelope
- 4-stage rate/level envelope

Freely modulatable parameters include:

- Program Level
- Program Pan
- Lowpass resonant filter frequency
- LFO depth, speed, delay
- Oscillator Pitch

Some other parameters have fixed modulation assignments (e.g., some envelope stage rates can be tied to velocity).

Opening the program brings up a master toolbar (Figure 1), from where you select the main program windows. Creating multis is easy: drag Akai-compatible programs from the File window into the Multi window. On the sample level, the program also recognizes AIFF and WAV files.

The interface has a clean, no-nonsense look. There are some unconventional aspects, such as only being able to minimize the Toolbar and main program window, and the inclusion of "on top" buttons so you can make sure a particular window is always on top. Sometimes window management is a bit awkward — when you want to get at parameters, you need to shuffle various windows around — but no more so than, for example, typical sequencers. I guess it's finally time for a dual-screen monitor setup (which PowerSampler reportedly supports, although I couldn't test this with my system).

PowerSampler is compatible with ASIO, EASI, DirectSound, WAVE, tripleDAT, and GigaSampler (for using the card with GigaSampler), although enabling the drivers for more advanced protocols reduces polyphony by a few voices. PowerSampler can act as either a word clock master or slave; you can also increase latency if your system is choking, or decrease it if you're not using a lot of voices. My system was able to achieve latencies in the 3-4 ms range — excellent.

INPUTS AND OUTPUTS

- Unbalanced 1/4-inch stereo phone jack in
- Unbalanced 1/4-inch stereo phone jack out
- S/PDIF I/O on stereo mini-jack
- MIDI in (DIN connector, adapter included)
- MIDI out (DIN connector, adapter included; not used by the STS-3000, but available for access by other programs)
- S/TDM Scope bus connector
- S-Link connector for CreamWare 8-in/8-out breakout box

The A/D converter is 24/96, with a spec'ed dynamic range of 98 dB. The D/A is 128X oversampling, with a claimed dynamic range of 105 dB

THE MIXER

Part of PowerSampler is a 24-channel software mixer. It routes all audio to and from the sampler (stereo outs and/or the six individual outs available to zones and programs), but also works independently of the sampler, should you need to connect audio inputs and outputs to, for example, an ASIO-compatible program. Each channel has two aux sends, one for an integrated chorus and one for stereo delay (with cross-feedback and damping). The mixer does not accept plug-ins, but you can route the PowerSampler to a program such as Cubase or Logic, and use plug-ins

▶ continued on page 133

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FIRST WE LISTEN

CIRCLE 86 ON FREE INFO CARD

World Radio History

By DJ Russ Reign • rmikowski@uemedia.com

The Logical Company U-Master Standalone CD Duplicator

CD duplication made easy

Logical has addressed the demand for a flexible standalone duplicator with the release of its U-Master (short for Universal Mastering System) system. U-Master is a self-contained unit, but you can also connect it to your computer through a standard SCSI connection.

Available in configurations housing four to sixty-four drives, U-Master can grow with your needs. The unit supports drives from Plextor and Yamaha, with Teac compatibility just over the horizon. I recently had an opportunity to test a U-Master eight-drawer Plextor 12/4/32 (12x CD-Recordable, 4x CD-Rewritable, and 32x CD read). The U-Master is a hard drive-based system, shipping with a 20 gigabyte internal drive.

The U-Master automatically detects the type of media in use and adjusts the laser power to achieve the highest quality duplicates possible. Menu options are viewed on a four-row display, navigated with select, escape, start, stop, and up/down buttons. A complete and understandable manual, in addition to a handy quick reference card, helps you quickly become familiar with functions.

Updating the U-Master's software couldn't be easier. Simply download the latest revision (currently version 1.2). Burn the upgrade to CD, follow a few quick setup menu options, and insert the CD into the source drawer. Thirty seconds later the new software will be up and running. Even with rebooting the system, the whole process still takes less than a minute.

So what do these one-minute software spruce ups translate to? For starters, version 1.2 has a shadowing feature that catches a "data verified" copy of your Red Book CDs on the internal hard drive. Once the copy is stored, it can then be used as the master for burning CDs. Also in version 1.2 is the archive and restore function. This allows a user to burn a check-sum digital copy of a hard disk file onto a CD for archival purposes. What better way to save your masters or create reference copies? Another handy feature is the HD Odometer, which keeps track of the number of CD copies burned from a particular partition on the hard drive.

During my trial of the U-Master system, I performed duplication tests on a variety of different media.

LOGICAL CO. U-MASTER

MANUFACTURER: The Logical Company, 75 Gateway Blvd., Cottage Grove, OR 97424. Tel: 541-942-3610. Web: **www.u-master.com.**

SUMMARY: Expandable standalone or computer-based CD duplicator.

STRENGTHS: Numerous CD images can exist on hard drive simultaneously. Compatible with multiple manufacturer's drives. Regularly updated software available on the web.

WEAKNESSES: Display window somewhat difficult to read. A bit noisy. Expensive.

PRICE: $5,995

EQ FREE LIT. #: 108

I copied audio from a standard music CD to Fuji CD-R, Memorex CD-R, TDK CD-R, and TDK-CD-RW (even though CD-RW media isn't officially supported by U-Master). Next I copied a computer program to one of the unit's internal hard drive partitions. From here I burned the program to Memorex and TDK CD-Rs. (You can also copy data from CD to CD.) Finally I duplicated a data CD (archived JPEG images to be exact). In this case, the destination CD was a Mitsui CD-R. In all cases, the finished product was fine.

You can extract specific music tracks from various CDs to create a "playlist" on the U-Master hard drive. The playlist can then be duplicated by using the "Copy HD to CD" command. This function is useful for archiving and creating custom mixed music CDs. I found it slightly annoying that you can't copy individual tracks directly to CD without first going to the U-Master's hard drive. It would be convenient if the unit had the ability to extract tracks from a source CD and burn them straight to destination CDs.

Complaints? There are few: I'd like to see a larger, more readable display window, and I wish the system operated more quietly. But when it comes to functionality, Logical has presented us with a real winner. U-Master is a system that can grow with your needs, and Logical has shown they're committed to supporting the system with regular software updates. This product should be a welcome addition to any studio or small mastering house. ■

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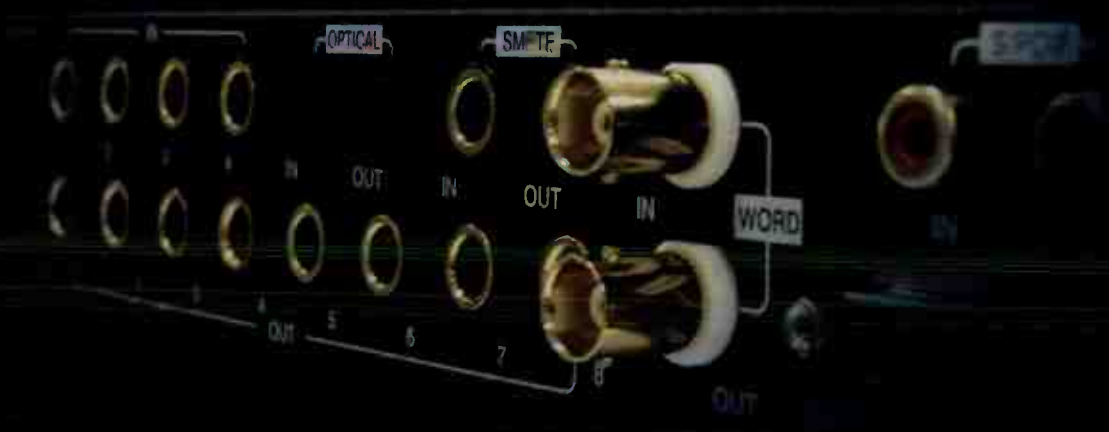
ALTER YOUR EGO.



Our WaMi Rack 24 is a machine of many faces. Interfaces, that is. Where else can you find a box that acts as a professional audio interface, a MIDI interface, a SMPTE interface, and a Word Clock Sync? Not to mention the fact that it has preamps on all four balanced inputs - all at a cost that won't break your bank account? So go ahead. Alter your ego. Then alter your creativity.

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CIRCLE 18 ON FREE INFO CARD

World Radio History

By Martin Goodman • mgoodman@uemedia.com

Kurzweil PC2R Synthesizer Module

Kurzweil's latest offers great sounds in an easy-to-use package

For those looking for an easy-to-use, "plug-and-play" synth module, Kurzweil's latest offering, the PC2R, offers a load of good factory sounds consisting of pianos, organs, brass, strings, voices, basses, drum kits, and much more.

The PC2R is organized into six modes. There are three main performance modes: Internal Voices Mode, KB3 Mode, and MIDI Setups Mode. Each of the performance modes has its own editor, where you can make changes to individual programs and setups. There's also an (FX) Effects edit mode, MIDI Receive Mode, and Global Mode.

The PC2R uses an external power supply; I would have preferred an internal power supply. There are balanced 1/4-inch audio outputs on the rear panel as well as a headphone jack located on the front panel. Plugging into the headphone jack doesn't mute the other audio outputs.

As a bonus, the PC2R has a S/PDIF coaxial digital output with up to 24-bit word length for interfacing with digital recorders and mixers.

One of the main features of the PC2R is that it includes Kurzweil's proprietary KB3 organ modeling mode, which provides realistic organ sounds. Instead of using sample playback, KB3 programs use oscillators to emulate the tonewheels of the classic Hammond B-3 organ. The oscillators run constantly while the program is in use; this eats up 44 of the PC2R's 64 available voices of polyphony. (Polyphony can be expanded to 128 voices with an optional card; the unit also has waveform expansion slots.)

The KB3 programs have nine adjustable drawbar settings with harmonic wavelengths ranging from 1-16 feet. You can change the drawbar settings using the drawbar control knobs and the drawbar toggle button. When the drawbar toggle is green, the knobs labeled A-D represent drawbars 1-4, which correspond to the four longest (lowest pitched) harmonics. When the drawbar toggle is amber, knobs A-D represent drawbars 5-8, or the higher-pitched harmonics. When the drawbar toggle is red, knob A represents the highest-pitched harmonic, and knobs B-D control other KB3 parameters.

Aside from the KB3 programs, there are some very usable programs in the Internal Voices, some drawn from Kurzweil's K2000/2500/2600 family of instruments. The piano sound that I found to be most realistic, "Nice Touch Grand," uses triple-strike stereo samples. I also enjoyed "Tack Piano" in Bank 0.

In the brass realm, my favorite would be "Williams Brass," and in strings, "Lyrical Strings" and "Phantom Strings" did the trick for me. The vocal patches impressed me, from the doowop of "Doo Stacc. Doop" and "Scatman" to the chant-like "Cathedral Vox."

Among other favorite sounds were "Slo Wood Flute," which had a realistic "chiff"; "Vocalicios," a breathy vocal-type sound; "Give Me the Finger," a phat bass preset; and "U Say Tomita" is a responsive analog synth sound. Suffice it to say that the PC2R contains a wide variety of great factory sounds, many of them very playable and inspiring.

In the final analysis, for anyone looking for a synth module that's easy to navigate and program, and that comes out of the box with realistic, playable collection of sounds, the PC2R is definitely worth checking out. ■

KURZWEIL PC2R

MANUFACTURER: Kurzweil Music Systems, 9501 Lakewood Dr., SW, Suite D, Lakewood, WA 98422. Tel: 253-589-3200. Web: www.kurzweilmusicsystems.com.

SUMMARY: A great-sounding, flexible synth module suitable for stage use or for studio production.

STRENGTHS: Variety of good-sounding, usable factory presets. KB3 organ mode. Digital output. Expandable.

WEAKNESSES: External power supply. Digital out is 48 kHz only.

PRICE: $1,295

EQ FREE LIT. #: 109

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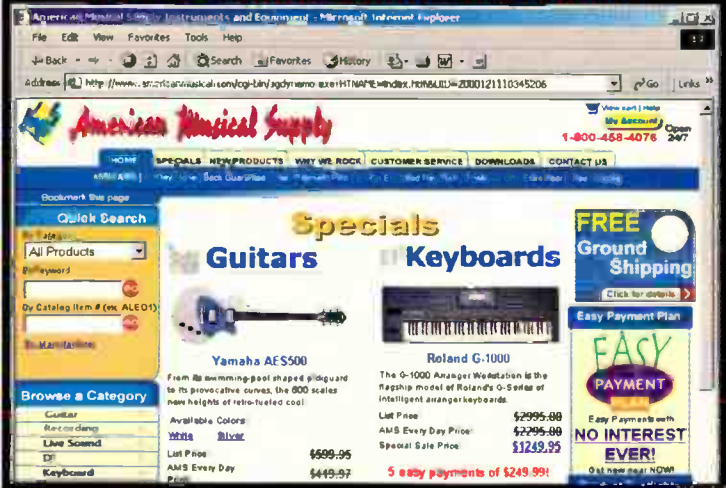

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CIRCLE 87 ON FREE INFO CARD

By Craig Anderton • anderton@musicplayer.com

Yamaha DG-Stomp Digital Guitar Preamp with Effects

Authentic amplifier tones in a stompbox-style direct-recording package

Yamaha's DG-80 amp (reviewed in the June 1999 issue) delivered great tone, although it never really got a lot of hype. Now they've taken the guts of the sound, and shrunk it into a compact floor box — with excellent results.

"Always available" effects include compression, reverb, and speaker simulator. You can also choose a modulation group effect (chorus, flanger, phaser, rotary speaker, or tremolo) and either straight delay or "tape echo." Effects controls appear to be minimal, but if you hold down the button for one of the mod effects, its two controls adjust two additional parameters — smart.

Eight parameters can be MIDI-controlled, and the optional expression pedal can tie to one of the parameters controlled by front-panel knobs. When used for volume, the pedal can be pre-preamp, post-preamp, or post-reverb. These parameters can be unique to each patch, or the external controllers can be set globally. While the MIDI implementation doesn't allow you to control all parameters simultaneously via MIDI, you don't really need to, as every parameter can be accessed via a knob. This is a solid, well-built box. It's all-metal, and heavy enough so it won't slide around when you tap on the four footswitches. The footswitch apron angles up to a plane even with the top of the knobs, making it almost impossible for missteps to do any knob damage. The most accessed knobs are relatively large, well-spaced, retro-style pointer knobs. Seven effects parameter knobs and the master output, which you would presumably use less often, are smaller and placed more closely together.

A three-digit LED display shows group, bank, and patch number, as selected by two up/down buttons. There are also fifteen very clever LED/switches whose LEDs give feedback on effects selection; but press on them, and you can initiate effects. Four footswitch LEDs round out the top panel.

YAMAHA DG-STOMP

MANUFACTURER: Yamaha Corporation Of America, P.O. Box 6600, Buena Park, CA, 90622. Tel: 714-522-9011. Web: www.yamaha.com.

SUMMARY: Excellent tone, compact package, sturdy construction — it took a while for Yamaha to produce their answer to the Pod, but the wait was worth it.

STRENGTHS: Fine, rich tonal quality with good-sounding effects. Easy to use. Digital output. All-metal, sturdy case. Versatile MIDI and expression pedal implementation.

WEAKNESSES: Goofy patch numbering scheme. Digital out at 48 kHz only. Limited number of amp models.

PRICE: $499

EQ FREE LIT #: 110

The rear panel has several 1/4-inch phone jacks: input (with hi/lo level switch), stereo outs (use just one for mono), headphones, expression pedal, and RCA/coaxial S/PDIF digital out.

We're here because EQ readers want to know how the DG Stomp stacks up as a direct-recording box, and the answer is: superbly. The sound quality is rich — not at all thin or unnatural. Although there aren't a lot of amp options (two leads, two crunch, two clean, and two drive), they're all on the money. The effects, while somewhat limited, are positive additions to the sound. You'll think twice before using your big-bucks rack-mount gear in place of the onboard options, because the DG Stomp processing has a quality that works well with guitar. In particular, the flanger does "through zero" flanging for a truly accurate tape flanger effect, and the reverbs are overachievers for this type of box.

The only thing that bugs me is the patch numbering scheme. Patches are numbered in ten

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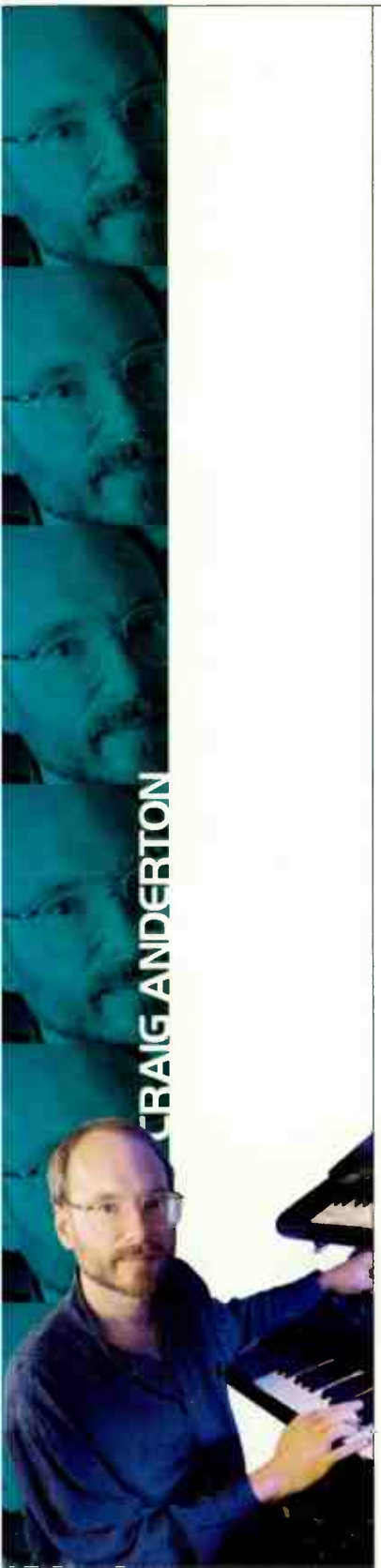

The Winter 2001 NAMM (National Association of Music Merchants) show commandeered the Anaheim Convention Center for four days, and as usual, provided an opportunity to get a glimpse at the music industry's future. Last issue, First Look tuned in to some of the happening trends in pro audio; this column will take a more musical tack, and check out not just what was at the show, but how it will affect us.

LOOP-BASED MUSIC

The loop-based music world is expanding, and moving to the stage. Ableton's "Live" software has optimized the loop music concept for live performance. You load samples into a grid, store snapshots, mix sounds in and out, and more...but the killer feature is that Live records everything you do. When you finish your performance, hit a key and you see a screen that contains all your tracks, ready for editing. This is a program that obliterates the line between live improvisation and studio editing.

Cycling '74 introduced radiaL for the Mac, another loop-based composition and performance tool. Based on the Max/MSP graphical programming environment, radiaL supports multiple performance devices (control surfaces, MIDI, keyboard, mouse, step sequencers, and real-time modulation generators), and lets users add their own modules or modify existing ones.

Loop-based techniques are also going mainstream. Cakewalk's Sonar is a MIDI sequencer and digital audio recording system, but it doesn't just fold in Acid's style of "on the fly" loop/pitch stretching — it also allows for loop construction and time-slicing technology (see below). It can host DXi (DirectX Instrument) plug-ins, so you can sequence virtual instruments within the computer. They've also picked up the popular groove generator program FruityLoops for distribution; Cakewalk has clearly embraced the loop music concept, but uses it to supplement — not replace — their existing product line.

And loop music isn't limited to software. Yamaha's SR7000 has its sights set on the MPC-type Groovebox market. It does the Acid trick of stretching and compressing on the fly, has a great complement of sounds, and features a straightforward operating system. But Yamaha also had the Electribe-like AN200 and DX200 Desktop Control Synthesizers, which bring loop music to the masses in low-cost packaging.

The loop music trend has some major implications. First, consider that there's more attention paid to performance. With Napster, the rudderless state of record companies, and so on, live performance is the hope of the future for bands — not just because of possible income, but because concerts are great places to sell CDs. Second, loop music legitimizes the DJ "way of thinking," which is a more collage-oriented approach to making music. Finally, it opens up music-making to a much wider audience. However, a comforting thought for "real" musicians is that just because someone can make loop-oriented music doesn't mean that they'll be good at it — but they might more easily appreciate those who are.

Loop music also further legitimizes the project studio. You don't need a huge console or great mic cabinet to, essentially, be an arranger of music. But you do need a smokin' computer, a good selection of sample CDs, software, soundcards, and if you really want a competitive advantage, enough musicianship to be able to make your own loops and overdubs using more traditional tools.

TIME-SLICING TECHNOLOGY

Many consider Sonic Foundry's Acid to be the program that brought time-stretching to the masses, but even before that was Propellerhead Software's ReCycle. This groundbreaking piece of software sliced digital audio into pieces, assigned them to MIDI notes, and allowed playing each slice individually. Speed up, slow down, it didn't matter — you could get tempo changes without pitch changes, which was the Holy Grail of loop musicians back in the '90s. (Major props to Acid, though, for applying this concept to non-MIDI controlled digital audio, and throwing in on-the-fly pitch shifting). This led to a new file format, REX, which is also mirrored in

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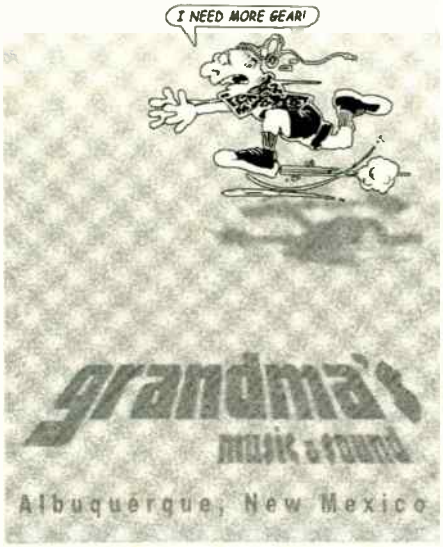

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Mixman's TRK format.

Now time-slicing technology is everywhere, starting with ReCycle 2.0, (which can finally process stereo, not just mono loops), and Reason, which includes a REX file player. Yamaha's SR7000, Cakewalk Sonar, BitHeadz' Phrazer, you name it — pretty much anything that can shift audio loop tempos in real time owes a debt to ReCycle.

SOFTWARE MIDI STUDIOS

Speaking of Propellerheads, their Reason software studio is officially out, and it's killer (see last issue's review). But Reason isn't the only game in town, even if it is the most complete. iSynth (Mac only), from France's MES and distributed in the U.S. by Cycling 74, is sort of like Reason with training wheels. For $79, you get a drum machine, synths, bass, sequencer, and other tools that let you create pretty cool techno grooves. Also from France, Arturia's mid-level Storm puts a groove-oriented studio inside your computer. It's a very clever, and addictive, program.

What's interesting about this family of software (aside from its bias toward loop music) is that it follows the MIDI studio paradigm, coupled with a bit of that TR-808/TB-303 vibe, as opposed to audio recording. But gone are MIDI patch cords, and more importantly, latency. These programs also cross the line from consumer to pro software: although a pro would naturally get more out of them than casual musicians, their ease of use and high fun factor allow satisfying experiences for novices.

If you want more flexibility than these "canned" studios allow, welcome to the world of VST (and now, DXi) instruments. A cross-platform standard pioneered by Steinberg, VST instruments let you create a "virtual MIDI studio" of sound generators. The DXi (DirectX Instruments) plug-in open standard, developed by Cakewalk for the Windows platform, specifies low-latency soft synths that can be played live using a MIDI controller, or used as MIDI sound modules during sequence playback. DXi is specifically designed to work stably within multithreaded Windows applications. Support for this standard has already been voiced by over a dozen manufacturers (including heavy hitters such as Native Instruments, BitHeadz, and Roland). Normally I'm not a big fan of new "standards," but DXi looks promising.

What does this all mean? I'm using hardware synths and signal processors for fewer and fewer applications; software does the job just fine. The one main exception is creating loops, where hardware gives me something different compared to "what everyone else has." And there are times when the only way to get the needed musical result is to play the parts on regular instruments. But software instruments have opened up many new perspectives, and the degree of cost-effectivenss is astonishing.

HUMAN INTERFACES

Makers of computer-based systems have gotten the message: We want to *play* these devices, not program them. Steinberg showed their Houston controller, which not surprisingly, is an ideal match for Cubase. Emagic announced an agreement with Mackie, who will start making control surfaces for Logic. An ambitious controller from Mixed Logic Studio Electronics offers twenty-four 100-mm touch-sensitive motorized faders, along with audio-style rotary encoders and switches. It includes templates for popular recording software that try to emulate the "analog console" experience as much as possible.

Doepfer's Regelwerk is a 24-channel MIDI fader box with built-in pattern sequencer. While more general-purpose than boxes

▶ continued on page 118

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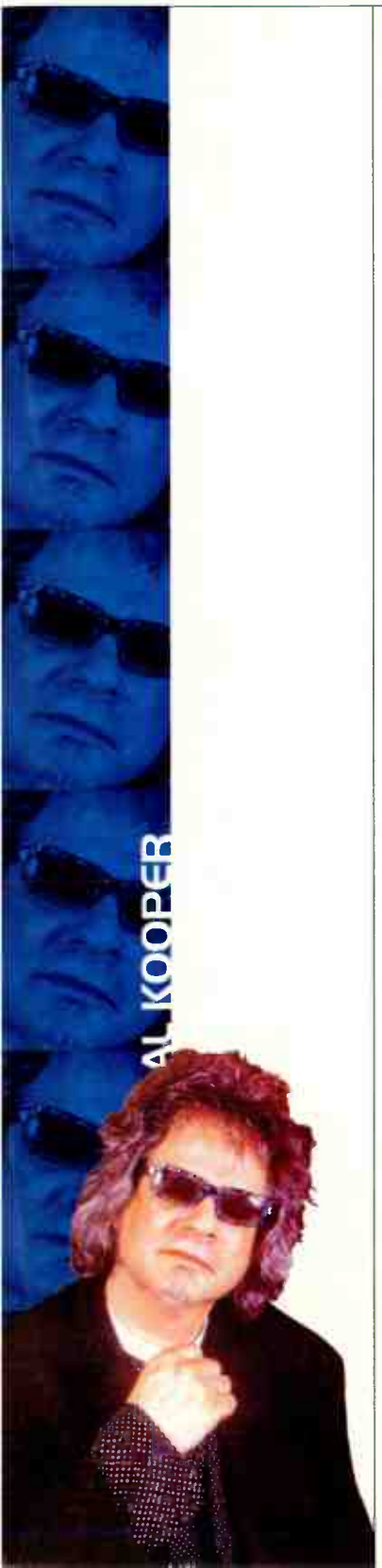
Gonna make the trek to audio tape's funeral? Prepare yourself for a hard drive!

The Inevitable Death of Tape



My DA-88 transport took a nosedive last week, right in the middle of some deadline work. Over the past four years I've carved out a few relationships with some local music stores in the Boston area, and I called around to search out a loaner or a renter. I got the same answers everywhere I called: *We're not stocking many multitrack digital tape recorders nowadays;* ergo, *no renters or loaners.* I found a rental about a half-hour out of town, but my sick player had to go all the way to California, and three weeks later, it has not yet returned. My tech suggested making the inevitable switch to hard drive, and listed its many advantages, especially in the short- and long-term reliability departments. If my DA-88 has a hefty price tag on it for the repairs or if it's unfixable, I'll really have no choice. It'll certainly be the end of an amazing era for me that began in 1957. I started recording with tape on my thirteenth birthday. My parents, in their infinite wisdom, bought me a Webcor glorious self-contained reel-to-reel tape recorder. *It was life-changing.* I recorded everything! My records, the TV, the radio, parties, and any event I could lug it along to. I only wish I still had those "Irish" and "Shamrock" brand boxes with that great time capsule stuff on them, but they inevitably disappeared over the years.

The other day I lugged home my order of 100 blank CD-Rs and accompanying jewel boxes. When I went to put them away, I found I had run out of storage space near my equipment and opened some drawers in the general area. They were filled with used-but-reusable audiocassette tapes of varying lengths. *There were hundreds of them!* I sucked in a breath, got an empty garbage bag, and filled it with these now-retro items, saving about 40 — just in case. Now I had room for the new supplies. I realized there was *more* tape dying around me.

> "I SAY STICK WITH TAPE UNTIL YOU HAVE NO CHOICE. IN THE MEANTIME, GO OUT THERE AND RESEARCH THE SYSTEM THAT'S GONNA FLATTER YOUR WORK HABITS."

WEBLINK

Have a question or comment for Al Kooper? Visit him online at the *EQ* Boards, www.eqmag.com.

I guess we're at a crossroads here. Somehow I can't see my idols, George Massenburg, Lee Hershberg, and Alan Sides exclusively recording multitrack to hard drive, but they must be feeling similar feelings to what I'm experiencing. The various vendors of said hard drives are making it easy for us with seductive 24-track pricing, removable cassette-type technology, and great sound. It's truly hard to resist. Somehow though, I can't see my extinct Mac IIci with its half-a-gig hard drive running Digital Performer, or digesting Pro Tools or MOTU's digital gear. (I have a G4 in my home office.) Pro Tools was in on the ground floor, and probably has the lion's share of the market now, but it's very pricey and has a high learning curve. You don't just buy it and try it. Takes a little time, upgrading of the system and rethinking.

I say stick with tape until you have no choice. In the meantime, go out there and research the system that's gonna flatter your work habits. Some may have to go no further than the pages of this magazine, but I'm a touchy-feely kinda guy. I wanna check out the systems face-to-face and see if they will speed up my sessions, not bog them down with constant manual referrals.

As Arthur C. Clarke pointed out all those years ago, it's 2001. Behold the monoliths! The apes are bandying about heavy reels of two-inch tape instead of clubs. Hey! There goes one waaaaaay up in the air — and it's turning into...a hard drive! Kubrick lives! Hopefully now with eyes wide open.... ■

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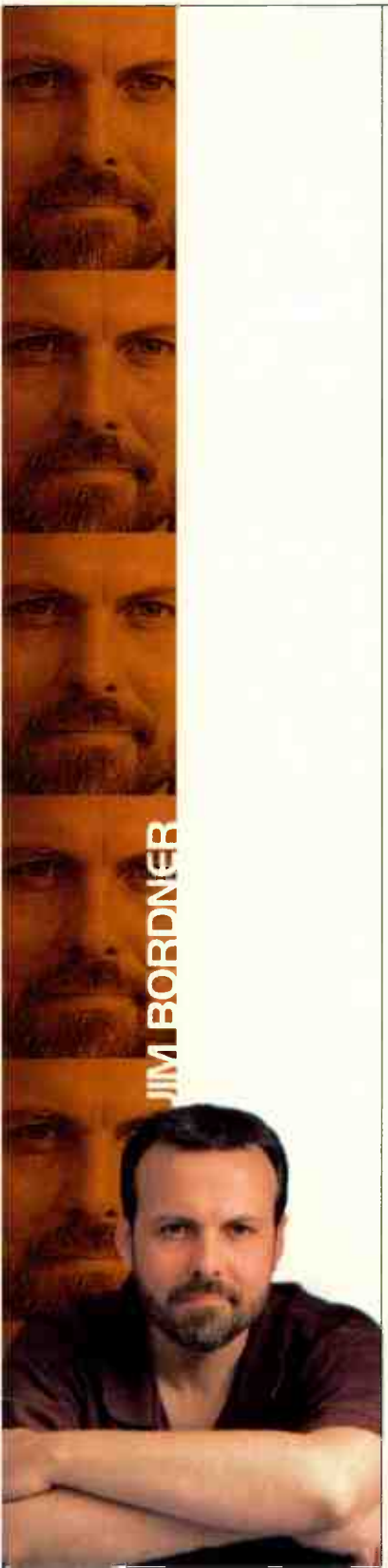

March, already? Jeez Louise, that means it's time to get started on the 2000 tax returns and tax planning for next year. Oy, not again. Couldn't we set this up so we only paid every other year or something?

Before anybody gets the impression that I'm basically a bean counter with a DAT machine who just loves squeezing every last bit of sweet, juicy goodness out of a ripe nickel, let me go on record: I, in fact, hate doing my taxes. I could let my accountant do them for me, but I don't hate doing them quite as much as I hate paying someone hundreds of dollars for something I can do myself. If I had lots of employees and a complicated amortization schedule, it would make sense to have a professional prep them. But, for a sole proprietor with only two people signed up for the group health insurance, there's no reason I can't boot up a fresh copy of TurboTax and dig in myself.

That said, I think there are some other good reasons for my fellow Warriors to do their own taxes. You get an up-close and personal look at how you spent your money last year. A couple of days of going over receipts and invoices brings your business into very sharp focus, and helps you make better decisions for next year. I like seeing the raw numbers while I think about next year's budgets and goals.

I know several self-employed people who trust an accountant with their returns, spending $500 or $700 or more every year. They do it because they think their accountant will save the money on their tax bill, and because they're afraid they'll miss a great deduction. There's not a thing wrong with that approach. But I think you can actually do a better job yourself, because you know your business best and can probably claim deductions that your accountant might overlook. As you're going through the shoebox of receipts, keep these things in mind.

THE LITTLE STUFF. It can be easy to let the small expenditures slide. But they can add up in a big way. Are you writing off your postage? (Only 34 cents a pop, I know, but it can add up to hundreds of dollars over the course of a year.) Your business-related long distance? What about your on-line service or the hosting for your web site? How many of your cell phone calls are business-related? Dues for professional organizations, your subscription to EQ, books and CDs you bought as reference material all count, too. (You don't think I bought that copy of the Ohio State Marching Band album for my listening pleasure, do you?) Take a look at the little things and watch them add up.

INTEREST. Of course you're deducting interest paid to banks on business-related loans or lines of credit. But here's another source. Instead of making mail order or on-line purchases on your household credit card, get a dedicated credit card for your business and never buy anything with it that's not business-related. At year's end, any interest you paid on the card can be deducted. (Better yet, pay it off and keep a zero balance: credit card debt is the worst thing in the world, worse than plague and pestilence).

CONTRIBUTIONS TO CHARITY. It's not only a good thing to do, it can be a real tax saver. For example, we owned a couple of computers that got caught in the riptide of progress and were made obsolete for audio work before we got around to selling them. They're still perfectly good machines, but we can't use them anymore. Rather than sell them at a significant loss, we donated them to the local Boys and Girls Club, and wrote the maximum allowable value off as a charitable contribution.

SECTION 179 DEDUCTION. Designed to encourage business investment among folks like us, Section 179 of the tax code provides us with a wonderful benefit: small businesses can deduct the entire purchase price of any capital expenditure up to a certain amount (it gets raised a bit every year — this year it's up to $20,000). That means you can buy $20,000 worth of gear and

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Get the real scoop on everything deductive at www.irs.gov.

write it all off this year, no depreciation tables required. Buy it and take it straight off your bottom line. If you spend more than the limit, you can carry the excess over to the following year. So if you spend $30,000 on gear this year, you'll have a 10,000 deduction waiting for you next year even if you don't spend a dime.

Oh, it's a beautiful thing. But keep this in mind — the standard depreciation tables are still working in the background. If you sell the item before it's fully depreciated (three to five years, usually, depending on the IRS guidelines for the type of equipment, you'll be expected to pay taxes on the recaptured value (hey, you can't eat your cake and write it off too).

VEHICLE DEDUCTIONS. If you travel by car, you know how fast your mileage can add up. But you say, "Hey, I work at home...my mileage is pretty low." Look into using the alternate "total expenses" method of figuring your vehicle expenses. If you lease a vehicle and use it exclusively for business travel, you can deduct your lease payment, gas and oil, maintenance, even car washes. (Even if you don't use it exclusively for business, you can write off a portion of those expenses equal to the percentage of business use.) For example, we own a compact sedan that gets used for virtually all family use. But we also lease a nice mid-sized car suitable for taking clients to lunch and so forth. Our business use on the leased car is around 90%, and so I rack up a significant deduction even though my mileage is low, and get to drive a nice car to boot.

As you're doing your taxes this year, look for some ways you can reduce your tax burden next year. And don't forget to write off the cost of your tax preparation software on next year's return. The little things can really add up.

Jim Bordner makes music, records audio, and studies the twisted anthropology of studio customers at Gravity Music.

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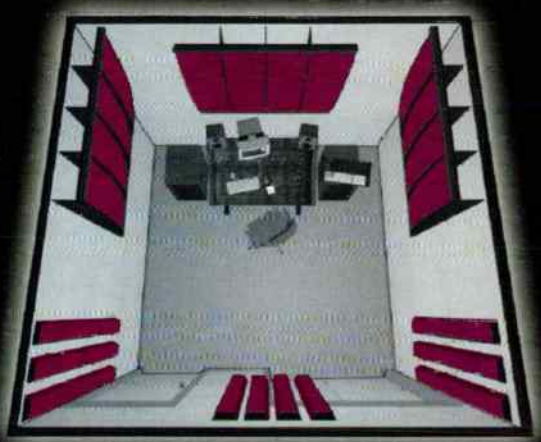

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Apple soars back into the high-end computer game with blazing fast, innovative new G4's

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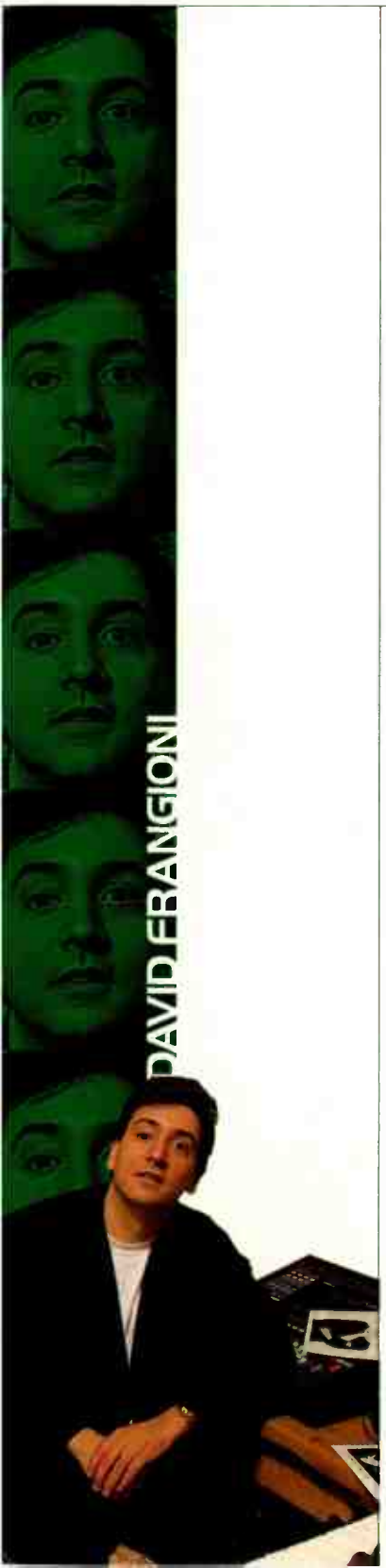

One of the most exciting aspects of technology is the speed at which it moves. When I first started writing this month's column, the subject matter was "Apple Computer and OMS — Near-Death Experience or the After-Life?" Let's face it; Apple released one new G4 in the year 2000. Granted, it was a unique step forward being that it had two G4/500 processors in it. However, things were moving too darn slow. Flagship multimedia products by Apple, such as Final Cut Pro version 2.0, were promised long ago, but they're still lingering in a techno black hole. OMS was purchased by Gibson from Opcode (this month's "where are they now") a couple of years ago and since then, has been mostly dormant. Hopefully (maybe even wishfully) it will resurface with new life or at least be integrated into OS X (literally or figuratively). As they say, that was then (one month ago) and this is now.

This month's column is focused on the great news that Steve Jobs announced at the January Macworld Conference in San Francisco: five new models of G4 desktop computers and two new G4 PowerBooks! We'll cover the desktops for now.

First, let's discuss what makes these new machines so special. The five models are G4's running at 733 MHz, 667 MHz, 533 MHz, and 466 MHz single-processor configurations, and a dual processor 533 MHz Power Mac G4 (the latter only being available from the Apple Store). Each model has four PCI slots instead of the three that all recent (blue and white Macs onward) contained. In addition, there's an AGP slot loaded with either an ATI RAGE 128 Pro graphics card (with 16 MB of SDRAM graphics memory) or NVIDIA GeForce2 MX graphics card (with 32 MB of SDRAM). The system bus is now 133 MHz, which, by the way, means that new RAM is required for these G4's (all previous G4's had a 100 MHz system bus). As before, there are two 400 Mbps FireWire ports and two USB ports (12 Mbps each). The PCI bus remains at 64-bit, 33 MHz, however this should not be an issue since the system bus will relieve some of the bandwidth constraints previously encountered when running several PCI cards at full throttle. In fact, let me digress for a moment and shed some additional light on the PCI bus questions regarding the new G4's — there have been a lot of questions concerning PCI bus and system bus speed/capabilities. Here's an example from my Studio Tech Forum at EQmag.com:

"I read somewhere that although the new G4's have a 133 MHz bus speed, Apple has left the PCI bus at 33 MHz. Is this true, and if so, how will it affect the performance?"

—Simon

I answered: "You're correct. The system bus is at 133 MHz on the new G4's. This will increase performance across the entire CPU as well as alleviate potential bottlenecks. As for the PCI slots, there are four slots, which are 64-bit, 33 MHz. The 64-bit data path opens up more bandwidth than previous, non-AGP G4's (32-bit paths). The PCI graphics version of the G4 (Yikes logic board) had a 66 MHz PCI (32-bit) slot for the graphics card only. This should not be a problem as the new G4's, in all, are actually faster than the previous versions of the Apple G4."

Let's be clear that these new machines are very, very fast. In fact, the best is yet to come. The 667's and 733's (which are slated to ship in March, 2001) will have a new on-chip, Level 2 cache (running at the same speed as the CPU) and a 1 MB, backside Level 3 cache (running at 222 MHz with the 667 and 244 MHz with the 733). Previews of these machines have brought gasps from Mac crowds worldwide. Apple claims speed increases of more than 50% over a 1.5 GHz Pentium 4. This is all good news for those of us who depend on and use the Mac for music and multimedia. But wait, it gets even better.

All five new models will include a CD-RW drive built-in. Finally, Apple has seen the light: These new drives will include an Apple software program called "iTunes" that allows users to create CDs from MP3 files. It's

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Want to talk about computers and studio technology? Participate in David Frangioni's Studio Tech forum at www.eqmag.com. One thing is for sure, there's always something new to discuss!

even accelerated for the Velocity Engine so that it runs faster than most CD burning programs. The latest word is that Roxio's Toast and Jam programs will support these new drives as well, so that pros can burn CD's without the need for an external drive.

SUPER DRIVE

The most innovative development of all was on the high-end G4/733. This machine (for now) is the only G4 to have a built-in SuperDrive. This new drive (developed by Pioneer) is a combination CD-RW and DVD-R. That's right, you read it correctly: A DVD-R — built-in! (Until this announcement, DVD-R drives alone sold for over $5,000.) When used with a suitable software front-end, the SuperDrive allows the burning of real DVDs. You can even encode the surround audio with AC3 for 5.1 soundtracks. In your home, in your studio — wherever. Anyone involved in multimedia will want one of these machines for that reason alone.

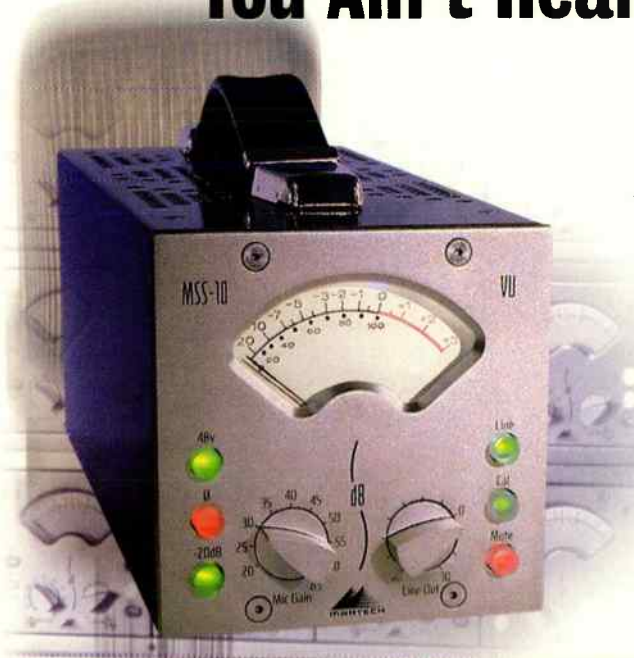
Think about the workflow potential. First, you mix the music onto six channels of AIFF audio (from whatever DAW you choose). Then, you import the audio into DVD Studio Pro (or whatever program that you choose as your authoring software). The audio is encoded into AC3. Any desired video is digitized and edited with Final Cut Pro (or whatever video software that you choose). DVD Studio Pro will then marry the captured, edited video with the AC3 file and burn the DVD. Once written (twice shy — sorry, I couldn't resist) the disc can be played (theoretically) in any DVD player. For the first time, multi-channel mixes (with or without video) can be auditioned in traditional listening environments. We used to go to our car to listen to stereo mixes. Now, we can go to our home theaters and hear our surround mixes before we commit. Affordable and fantastic (especially after DVD-R discs fall below $20.00 — currently they sell for approximately $37 each).

Apple has done it again. Just when we thought that they were out of the game, they've risen to the occasion with progressive, innovative computers and technology. Hopefully, they'll continue to prosper so that the Mac music people of the world will have a stable, healthy platform on which to base our livelihood.

OS X IS COMING

In other Apple news, OS X is scheduled to release on March 24. This will potentially mark the most significant system software upgrade in the history of Apple computer. There are going to be a lot of compatibility issues and updating for sure. Watch this column and the Studio Tech web forum for late-breaking details. For now, Mac users can breathe a sigh of joy as the new G4 models begin to trickle out and appear in studios. ■

You Ain't Heard Nothin' Yet



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The brave new world of online music distribution rights, part II

Songwriters, Are You Listening? (Part II)

This month we'll continue our look at how music performance collection societies are dealing with licensing online music content. Please refer to last month's *EQ* or go to www.eqmag.com for Part I of this discussion.

BMI

Broadcast Music, Inc. (BMI, www.bmi.com) is the #2, "We Try Harder" member on the music performance collection society totem pole. Let's see what they have to say about online publishing.

A useful site search feature can be found at www.bmi.com/search/tree.asp. We search on "royalties" and find www.bmi.com/about/library/brochures/royalty/print.asp, "a convenient, easy-to-read format (for) most of the information you want to know about the method your BMI royalties are calculated and distributed." We learn, among other things, that "BMI operates on a non-profit basis. All available income is distributed, except for a modest reserve." Modesty becomes you, folks.

In a paragraph titled "Payment for Uses in Unmonitored Areas" we learn that BMI collects license fees from, among other places, hotels, restaurants, nightclubs, sports arenas, theme parks, airlines, jukeboxes, and retail stores. The next sentence is interesting. "If the administrative cost involved in collecting the performance data for music used by these licensees is not economically feasible, BMI may choose an appropriate surrogate, such as radio or television performances, for the distribution of the fees." It's the same situation described in our last column. Namely; using radio and TV performance data to decide how much money goes to which songwriter. This presents a big problem. If your music is used anywhere else but radio or TV (hello, Internet!), this payment scheme doesn't work.

Most of the information in this section of the website revolves around radio airplay, not surprising in a company with the word "Broadcast" in the title. BMI wants us to know they have a worldwide presence but dampen our confidence by coyly asking for our help. "Although BMI has an extensive foreign royalty tracking system, we always welcome information from you regarding foreign translations and details regarding foreign sub-publishing agreements." Would this mean a break in the fee if we do the footwork? Unlikely.

The site carefully addresses online music use. We learn that "BMI licenses certain Internet sites and is seeking to license many more." They're on the ball for sure. A caveat quickly follows: "As this is a very new medium...policies still are being established..." True enough and what are they doing about establishing these policies? We read on: "To the extent that music usage information has been submitted to us, we have distributed...royalties for performances of music over the Internet on sites licensed by BMI. For further developments in this area, please contact your local Writer/Publisher Relations office." So, don't delay — call or email them in Atlanta, Los Angeles, Nashville, New York, or London. Contact info on the site can be found at www.bmi.com/about/contact.asp. And, like many artists who have turned to the Internet to help close the gap of not living in big cities, if you don't live near any of those cities, pick one out of a hat and contact 'em anyway! Remember, where consumer relations are concerned, every letter or phone call translates to representing hundreds or even thousands of people. Consider it your call to arms to demand the current establishment deliver fair reporting on (and payments from) use of your music on the Internet.

LET'S PRETEND WE'RE A WEBCASTER

For now let's pretend we're a webcaster and wish to license some BMI songs for use online. We go to the BMI Digital Licensing Center https://dlc.bmi.com/dlcmenu.asp, by clicking on, "I Am A Webcaster" from the main site. We are invited to take advantage of an automated system called (yuck) "Klik Thru."

First we'll take a look at BMI's Music Performance Agreement Fee Calculator at https://dlc.bmi.com/dlcCalculateChoose.asp. We have two choices: the

World Radio History

WEBLINK

www.music-law.com – A very practical Q&A series.
http://lcweb.loc.gov/copyright – For all things government-related to the subject.

"License Fee Calculator," for "commercial entities that generate revenues from the operation of the web site," and the "Corporate Image License Fee Calculator," for music use to "promote your (primarily) off line business." We'll go with the former. Clicking through opens a dialog box asking for our "gross revenue." A-ha. Now we see how it is. Let's say we want songs to play while visitors look over our website (mostly pictures of kids and dogs and nice sunsets out our kitchen window). Let's say we work a day job and make $45k a year. We enter that figure into the box. Next we are asked for annual estimated "page impressions" (defined as: "a transfer request for a single web page"). Let's pretend 1,200. Just friends and family, right? We're next asked for estimated annual "music impressions" (defined as a "Page Impression of a Music Page multiplied by the number of music file titles on that page"). We plug in 300. Why not? It's a nice round number and maybe we like a lot of music. Then again maybe we're bored. Are you bored? Of course you are! Well, buck up little camper, the best is yet to come. The two "impression" criteria are calculated together to form what BMI calls "Music Area Revenues" (MAR). MAR is defined as: "Gross Revenues multiplied by a fraction of the numerator of which is the total number of Music Impressions for the Web Site and the denominator of which is the total number of Page Impressions for the Web Site."

You got that? This must be the *new* New Math. What it appears to be saying is, regardless of whether anyone listens to the music on your page or not, the fact that it's there and available means BMI will charge you money.

We calculate based on our phony facts. Looks like we'll be annually owing BMI a sum total of $1,115.63. Now, how about if we tell the truth (for once) and say our faux website generates no money whatsoever (while keeping the "impressions" info intact). Calculating the numbers this way shows we would owe BMI absolutely nothing. How about if we up the "impressions" figures to the hundreds of thousands? Still zip. Millions? Zero. Billions? Goose egg. This can't be right. They would never allow us to use music for free on a website that received millions of visitors annually. Before we jump for joy and start hurriedly uploading music on our free site we have to ask ourselves: "Does this little BMI website calculator really mean anything?" Or is it a fake "interactive" feature designed to get us hooked so we can be billed later? At the bottom there's a bit saying: "If your estimated annual revenue does not exceed $25,000 you are eligible to use our KLIK THRU License. The above fee calculators apply to the KLIK THRU license." Curiouser and curiouser...let's see what happens when we apply for the (yuck) Klik Thru License.

APPLYING FOR THE "KLIK THRU" LICENSE

So, we're hypothetical webcasters drooling for some mainstream pop to stream. It's the middle of the night and we want it now. We "klik thru." The next page informs us we can "electronically enter into a binding license agreement with BMI" but that we must be legally "authorized to bind the entity [our streaming website] for which the license is sought." The term "binding" is always a swell way to feel good about doing business. Who knows what we're agreeing to? We "klik" and come to a big sign-up page requiring all our pertinent data. We make a bunch of stuff up. Then they ask if our server is in the United States. We pretend it's not and we're instantly dumped from the sign-up process (understandable since BMI only handles U.S. licenses). We go back and do it all again. When we come to the server location dialog box we tell 'em it's in Arkansas. Why not? Next they want to know if we're affiliated with any "FCC-licensed radio stations." We say no. Why go through more dialog boxes than we have to? Then they want to know if our fictitious website is affiliated with a "non-profit educational institution." Again we say no. Another box pops up asking if we plan to "sell downloadable full-length recordings." Definitely not. We're wondering why they didn't put all these questions on one page. Next they want to know if we "plan to generate revenues (*i.e.*, ads, sponsorship, subscription fees, etc.)." We don't. We provide our online services free. Yet another (and kinda ridiculous) question: "Do you intend to operate your web site primarily for the purpose of promoting your company's corporate image?" What corporate image? It's "no" again. Finally we get to the end of the line and what an end it is.

On https://dlc.bmi.com/dlcmenu.asp it's unequivocally stated that a webcaster has "access to music performance licensing 24 hour a day!" as well as being able to "get your web site music performance agreement in minutes!" Now, however, after answering a bunch of questions designed to assist them in learning about the webcaster demographic we're greeted by this sad statement: "A BMI Sales Representative will contact you within the next few days regarding your Internet license agreement." A few *days*? What the hell happened to the "agreement in minutes"? Liars, that's what they are. Of course we lied about our contact info, too, but at least it means our investigation into their services has saved us a possible midnight call from lawyers. We feel like sending them a bill for our time.

It seems pretty safe to say that BMI's website and online music publishing tools are all about BMI's convenience and BMI's time. Thanks for nothing, gang. The FezGuys are very disappointed with you. We're the first to admit that online licensing is a new and crazy concept for an old-guard company, but from what we've seen, no significant progress has been made in the past few years. Plus, the website is rife with typographical errors. You've got a long way to go, dear.

Next month we will dig into the final member of our trio of music performance collection societies, followed by a look at the oddly monopolistic Harry Fox Agency and its parent, the National Music Publishers' Association. Then your FezGuys will examine the major labels' answer to online music publishing represented through its industry strongarm, the Recording Industry Association of America.

The FezGuys welcome critique, agreement, support, and approbation.

POE

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Who do you think you were in past lives?

A less experienced version of myself.

What old saying do you hate the most?

Patience is a virtue.

Do you have any Pet Peeves?

Yes — Popcorn pinchers. Here's the scenario: 6:55 — You're at the concession counter in a movie theater. You ask your companion if they would like anything to eat. Reply: "Oh, no thanks. I couldn't possibly eat another thing. I just finished a huge meal." You look at their face for twitches or any other subtle signs of stress and, upon discovering nothing obvious, you proceed with your order, purchasing a small popcorn and a soda for yourself. Cut to: Interior movie theatre.

7:46 — The lights go out and the first trailer begins when all of a sudden a huge hand reaches over and removes half the contents of your popcorn.

7:48 — The hand reappears, this time taking the entire bag of popcorn and pouring the remainder of its contents into a gaping hole.

7:49 — The hand returns one more time, this time removing your soda from the cupholder on your seat. After guzzling the entire thing, said companion announces, "See, that's why I never order popcorn — it makes me so thirsty."

Who is the most amazing artist you've met?

All the musicians that played on my record. It was an honor to work with all of them.

Have you ever witnessed a miracle?

Yes, but it's a very long story.

What is the biggest mistake of your life?

Staying in a destructive relationship a lot longer than I should have.

Any advice for getting a good start in the music business?

Own as much of yourself and your music as you can afford to. And be as self-sufficient as you can.

How are the kids doing today?

Ask them. You'd be surprised what kids will tell you if you're sincerely interested in who they are.

Have you ever really pissed anyone off?

Yes. ■

INDUSTRY INSIDER

► continued from page 108

optimized for particular programs, it nonetheless confirms the desire for hands-on control. And Midiman announced their intriguing Surface One controller, a user-configurable control surface with virtual channels, buttons, and knobs. The box uses fiber-optic-based, touch-sensitive material for the controllers; because it can read up/down, left/right, and pressure information simultaneously, you can assign multiple messages to different MIDI parameters. Its intended usage isn't limited to controlling computer-based software — Midiman sees it as a way to control lighting, program synths, and so on.

This trend toward human interfaces is most welcome, as it puts some level of fun and interaction into computer-based devices. Take this trend in conjunction with live performance-oriented software, time-stretching routines that you can use in real-time, and hardware boxes that also perform these types of functions, and the handwriting is on the wall: Technology is not immune from the fact that playing music is a lot more satisfying than entering it.

Craig Anderton, Creative Director of MusicPlayer.com, also plays guitar and synthesizer with the Cologne, Germany-based band Rei$$dorf Force.

CONTROL 24

► continued from page 62

to the computer's mouse anyway to use the selected tool isn't clear.

One of the best things about Control 24 is how well it integrates with plug-ins. You can access the five inserts on each channel and assign RTAS and TDM plug-ins or hardware I/O to them; this is a really nice feature, unfortunately, you're limited by Control 24's display capabilities. For example, McDSP's mono Compressor Bank CB3 is displayed as "cmbc b3 m" — somewhat cryptic. Still, as long as you have a good idea of which plug-in you're looking for, this works well. You can also open plug-in windows from Control 24; in fact, its Shift key lets you open multiple plug-in windows simultaneously.

You can access virtually every parameter on any plug-in — even parameter-intensive beasts such as the Access Virus synth plug-in can be completely controlled from Control 24. I immediately fell in love with the ability to tweak plug-ins with real knobs. With simpler plug-ins, you don't even really need to open the plug-in window onscreen — just access the plug-in on Control 24 and tweak away, the parameter values are displayed in the scribble strips as you work. Too cool! You can also choose to flip plug-in parameter control down to the channel faders, a nice option.

Similarly, you can assign sends, set them to pre-/post-fader, mute them, and control their level from Control 24. As with plug-ins, you can flip send level control down to the faders, which is especially nice when creating a cue mix or when recording automation.

Speaking of automation, Control 24 has full support for Pro Tools automation features with dedicated buttons for all functions and modes, including Trim Modes. You can also enable TDM and RTAS plug-in parameters for automating.

Pretty much everything mentioned above applies to MIDI channels and data. Control 24's channel faders control MIDI volume, its knobs control MIDI pan, you can record automation, and you can also select MIDI record modes (Wait for Note, Merge, etc.) and open the Quantize, Tempo/Meter, and Event List windows, and send an All Notes Off command.

CONCLUSIONS

As a control surface, Control 24 definitely has the goods. No, you're not going to be able to completely give up the computer keyboard and mouse, but especially for recording, mixing, automation, and plug-ins, Control 24 offers near-comprehensive control over Pro Tools features.

Beyond control surface functions, Control 24's mic/line preamps, DI's, submixer, and control room/talkback/cue features add up to a near-complete front end for a Pro Tools rig, and tip the bang-for-the-buck scales significantly. Even if the preamps are only worth $300 each (a very conservative estimate), you've got $4,800 worth of preamps built-in — a big chunk of the retail price.

When all is said and done, Control 24 lets you get back to working with audio in real time, and it does it in an elegant, ergonomic way that's well-integrated with Pro Tools. Forget about the keyboard and mouse. If your budget allows, put your hands on a Control 24 and get back to doing mixing the way it was meant to be done: with faders. ■

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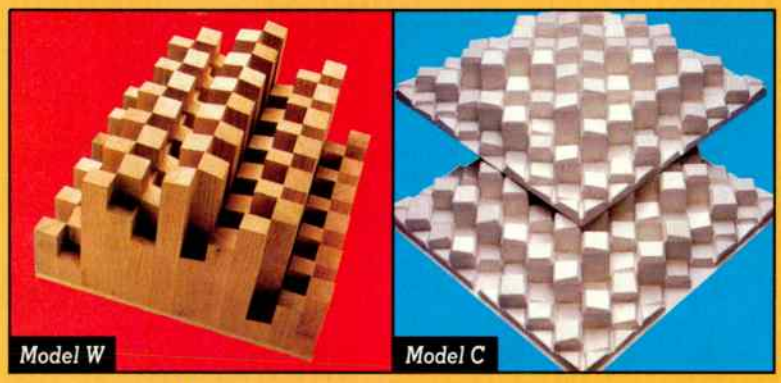

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YAMAHA DG STOMP

▶ continued from page 104

groups (90 factory, 90 user). Each group has three banks, and each bank has three patches. Quick — what patch comes after 133? 211, of course (group one, bank three, patch three is followed by group two, bank one, patch one). However, this falls under the category of petty annoyance rather than painful shortcoming.

I'd also like to see the digital output support 44.1 kHz as opposed to or in addition to 48 kHz. I run my system at 44.1 because that's where the sound is going to end up, and I'm not going to change everything to 48 kHz just to record the DG-Stomp. So I ended up just using the analog outs.

Still, these are fairly minor complaints when weighed against the fact that the DG-Stomp sounds great. It's highly responsive; with a clean setting, latency is slightly over one ms, or close to the theoretical minimum possible for any system that has A/D/A conversion. But what reels you in about this box is that it just sounds really "right." Whoever designed this thing either plays guitar, or really paid attention to someone who does.

Sure, there are some great preamps, and the competition is fierce. But the DG Stomp is a contender. If you're in the market for a direct-recording device, don't overlook this solid little gem.

DISNEYLAND

▶ continued from page 79

ACOUSTIC TREATMENT

Auralex Acoustics had a very interesting product called PlatFoam, a modular floating floor designed to stop floor-born transmission of noise. PlatFoam floats an MDF platform over a structural floor, isolating the instrument or amplifier from the structure (and probably keeping your neighbors happier).

Primacoustic's new line of acoustic treatment includes a series of panels designed to remove wall chatter, resonance and echo from control and studio rooms. Numerous layout options are available. The aesthetic design and interchangeable nature of the different panels lends well to smaller studios, as you can purchase one of the more basic setups for around $400. —SLC ■

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DIGI001 Digital Audio Workstation For Mac And PC

A completely integrated digital recording, mixing and editing environment for the Mac and PC, the DIGI-001 offers a 24-bit multi I/O breakout interface along with Pro Tools LE software— based on Digidesign's world renowned ProTools software. The DIGI-001 interface features 18 simultaneous I/Os made up of 8 analog inputs and outputs— two of the inputs are full featured mic preamps with phantom power and digital I/O including standard S/PDIF as well as an ADAT optical interface that can also be used as a S/PDIF I/O. ProTools LE supports 24 tracks of 16 or 24-bit audio and 128 MIDI tracks and also features RealTime AudioSuite (RTAS) effects plug-ins. For ease of use, MIDI and audio are editable within the same environment and all mixing parameters including effects processing can be fully automated.

FEATURES–

- 18 simultaneous 24-bit ins and outs with support for 44.1 and 48 kHz sample rates
- 20Hz - 22kHz freq. response ± 0.5 dB
- 2 channel, XLR mic/1/4" line inputs with -26 dB pad, 48v phantom power, gain knob, and HP Filter at 60Hz
- 6 ch. line inputs (1/4" TRS balanced/ unbalanced w/ software controlled gain
- +4dB balanced 1/4-inch Main outputs
- Balanced 1/4" monitor outs with front panel gain knob
- 1/4-inch unbalanced line outputs channels 3-8
- Headphone output with independent gain control knob
- 2 channel S/PDIF coaxial digital I/O
- 8 channel ADAT optical I/O can also be used as 2 channel optical S/PDIF

Pro Tools LE

- Supports 24 tracks of 16 or 24-bit audio and 128 sequenced MIDI tracks
- Sample-accurate simultaneous editing of audio & MIDI
- Real-time digital mixing capabilities include recall of all mixing parameters, support for edit and mix groups and complete automation of all volume, panning, mutes and plug-ins
- Route and mix outboard gear in realtime
- MP3 and RealAudio G2 file support (Mac)
- Two plug-in platforms offer quality, low latency effects processing— Real Time AudioSuite (RTAS) is a host based architecture that allows an effect to change real time, automating and recording in real time as the audio plays back. AudioSuite is a file based architecture that processes a new file with the
- Bundled RTAS plug-ins include: T Dynamics II compressor limiter gate and Mod Delay short slap medium modulation capabilities for chorus, flange effects and dither. AudioSuite plug-ins include: Time Compression/Expansion, Pitch Shift, Normalize, Reve

MIDI Functions

- MIDI functions include graph roll display up to 128 MIDI tr like quantization, transpose, split notes, change velocity and change duration
- MIDI data can be edited on the "

TASCAM®

US-428 USB Digital Audio Workstation/ Controller

The US-428 is a 24-bit USB-based audio controller co-designed by TASCAM and Frontier Design Group. The control surface includes plenty of faders, transports and other dedicated controls compatible with the most-used functions in today's DAW applications. The US-428 supports a total of four channels of audio in and two outs simultaneously. The interface plugs right into a USB equipped PC or Mac computer— no opening your computer and no sound card to install. Musicians taking the leap from Portastudios to computer-based DAW programs will feel right at home with the tactile control surface.

FEATURES–

- PC and Mac compatible
- Works with most major DAW programs
- 24 bit D/A and A/D converters
- Bundled with Steinberg's Cubasis VST sequencing software for Windows (MacOS version shipping soon)

I/O–

- Total of four channels of audio in (analog or S/PDIF) and two out simultaneously via USB
- Two XLR mic inputs, two balanced 1/4" TRS inputs, two unbalanced 1/4" inputs (switchable to Hi Z)
- S/PDIF digital I/O
- Two independent MIDI I/O (

Controls–

- Unlimited
- Transport
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your
includes drivers for all of today's hottest audio software and AudioDesk, multitrack
recording and editing software for the Mac.

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- virtual mixing, graphic editing of ramp
- real-time effects plug-ins with 32-bit floating
- processing, crossfades, support for third-party audio
- ins (in the MOTU Audio System and Adobe Premiere
- background processing of file-based operations,
- accurate editing and placement of audio, and more

1296 24-bit/96kHz Interface Features–

- both in and out
- Compatible with existing PCI-324 cards (requires new PCI-324 driver)
- Connect up to 3 1296 interfaces to one PCI-324 card for a total of 36 inputs and outputs or mix and match the 1296 interface with up to three of the other MOTU audio interfaces
- 24-bit 1/4" balanced analog I/Os
- 24-bit internal data for full 24-bit recording via digital inputs
- Standard S/PDIF I/O for digital plus an additional S/PDIF I/O for the
- Sample-accurate synchronization with ADATs via an ADAT SYNC IN and RS422

2408 mkII FEATURES–

1224 FEATURES–

- 24-bit/96kHz audio interface
- Stereo-direct-through 24-bit A/D/A
- simultaneous record and playback of 8 channels of balanced TRS
- outputs
- Stereo AES/EBU digital I/O
- Word clock
- Dynamic range of 116 dB (A-weighted)
- Front panel displays six-segment metering for all inputs and outputs
- Headphone jack with volume knob

EVENT ELECTRONICS

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- USB
- TRS
- 24
- ADAT
- MIDI

Software Control Surface

- DAW
- Mackie

Stand-Alone Digital Mixer

- Dual stereo and two mono Returns
- 4 Sends per channel, assignable pre- or post-fader
- 4 virtual audio channels (EZbus Returns)
- input analog channels, accept up to three independent source signals per channel
- Routing Matrix provides easy to use output routing capabilities
- 32 internal snapshots of all mix and parameters
- function notifies user of errors, such as exceeding an analog input, digital dropouts, or clipping due to excessive EQ
- ADAT Lightpipe provides 8 direct outputs for primary mixer channels — ideal for use as a front end for an ADAT Lightpipe-equipped audio card
- sample-rate support via S/PDIF with high conversion

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CD RECORDING/MASTERING

YAMAHA

CDR-1000 Standalone CD Recorder

The Yamaha CDR1000 is a fully professional standalone CD recorder that's fully compatible with CD-R and CD-RW discs. Features like audio delay (buffering), track numbering and indexing as well as the implementation of Apogee's industry standard UV 22 Super CD Encoding system surpass the expectations of tape based systems and ensures the CDR-1000's place in commercial facilities and project studios.

FEATURES–

- Compatible with CD-R, CD-RW (Audio and Data discs)
- Frequency Response 20 Hz - 20kHz
- Built-in sample rate converter automatically converts 30-50 kHz audio to 44.1kHz
- S/N 97 dB typical (analog recording and playback)
- 97dB dynamic range
- An ideal CD playback deck with the ability to configure a fully digital system without having to change the master/slave clock settings.
- XLR-balanced analog inputs (selectable +4dB/-10dBV) as well as +4dB balanced XLR analog outputs
- XLR-balanced AES/EBU digital input and output as well as coaxial S/PDIF digital input and output
- Stereo headphone output with level control
- Word clock input (BNC) for AES/EBU pass-through
- Incorporates **Apogee UV22 Super CD Encoding** that permits high-quality 16-bit encoding of sources originally recorded at higher bit resolutions
- High-precision recording start feature ensures professional takes without missing a beat.
- Audio delay lets you buffering the input up to 5 sec.s
- Manual and automatic track number increment functions- The threshold level for auto track increment can be set to -96 or to any value between -70 and -30dB, when the input signal goes below the threshold for more than three seconds.
- An index recording function lets you place multiple IDs within a single track.
- Fade In/Fade Out
- Easy to read 16-segment level meters with peak hold function
- Quad-speed finalize capability
- Selectable copy protect functions including Permit (unlimited copy), Once (SCMS compatible) and Protect (no copy).
- A digital cascade output function with multiple machine synchronization capability allows easy duplication
- Includes full-function wireless remote controller that provides access to all main operating features
- A parallel I/O port allows for external control by input and output pulse.
- A foot switch connector is also provided for recording start and stop control using an optional foot switch.

ALESIS

Masterlink ML-9600
High-Resolution Master Disk Recorder

The MasterLink ML-9600 combines stereo hard disk recording, CD burning, DSP, and mastering functions to deliver compact discs in the standard 'Red Book' 16-bit/44.1kHz format, or high resolution 24-bit/96kHz CDs that utilize Alesis' revolutionary CD24 technology. The ML-9600's amazing sonic quality and powerful built-in tools offers a uniquely versatile and affordable solution for everyone from large commercial facilities to project studios and recording musicians.

FEATURES–

- Reads/writes 16-bit 44.1kHz Red Book Audio CDs as well as files in Alesis' CD24 24-bit/96kHz high-resolution mastering— an AIFF compatible file format that can be read by MacOS, Windows and Unix computer platforms.
- 24-bit 128x oversampling A/D/A converters
- Built-in 3.2GB IDE hard drive
- 4x CD burning using standard CD-Rs
- Up to 20-40k Hz frequency response
- 113dB S/N ratio (A-weighted)
- Supports 16-, 20- and 24-bit wordlengths and 44.1, 48, 88.2, 96 kHz sample rates
- Built-in sample rate conversion & noise shaping
- Create and store up to 16 playlists containing as many as 99 tracks

Inputs and Outputs

- **Analog-** XLR-balanced and unbalanced RCA connectors
- **Digital-** AES/EBU (XLR) and coaxial S/PDIF (RCA) I/O
- 1/4" headphone out w/ level control

Editing

- Gain control
- Cropping allows adjusting start and end points.
- Join and Split for combining and separating song sections

DSP Finishing Tools

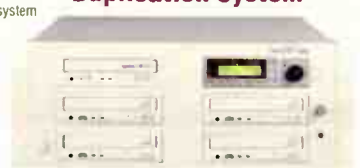
- Equalization, Compression, Normalizing and Peak Limiting

Includes

- Infra red remote control and rackmount brackets

MICROBOARDS Technology, Inc.

StartREC
Digital Audio Editing/ CD Duplication System



The Microboards StartREC is the first digital audio editing system combined with a multidrive CD recordable duplication system for professionals. Audio is recorded to the internal 6.2 GB IDE hard drive using analog or digital inputs. Sample rate conversion is automatic. Tracks can be edited and sequenced using the StartRECs user friendly interface and up to 4 CDs can be recorded simultaneously. StartREC is the ideal solution for studio recording, mastering, post production or any pro audio environment requiring digital audio editing and short run CD-R duplication.

FEATURES–

- 2X, 4X, or 8X recording speeds
- 6.2GB IDE hard drive
- Editing functions include move, divide, combine or delete audio tracks, add or drop any index or sub index, and create track fade in or fade out
- Coaxial S/PDIF and AES/EBU digital input plus optical S/PDIF I/O
- XLR balanced and RCA unbalanced inputs and outputs
- Automatic sample rate conversion from 32 and 48kHz
- Automatic CD format detection feature and user friendly interface provide one touch button operation
- Front panel trim pot and LCD display provide accurate input signal and time lapse metering
- SCMS (Serial Copy Management System) is supported, regardless of the source disc copy protection status

StartREC Models Include: S1200- w/ (2) 8x writers ST3000- w/ (3) 8x writers S1400- w/ (4) 8x writers

DIGITAL MULTI-TRACK RECORDERS

TASCAM®

MX-2424 24-Bit
24-Track Hard Disk Recorder

Co-designed by TASCAM and TimeLine Inc., the MX-2424 is an affordable 24-bit, 24-track hard disk recorder that also has the editing power of a digital audio workstation. A 9GB internal hard drive comes standard as well as a SCSI Wide port that supports external LVD (Low Voltage Drives) hard drives from up to 40 feet away. An optional analog and several digital I/O cards are available so the MX-2424 can be configured to suit your work environment. SMPTE synchronization, Word Clock, MIDI Time Code and MIDI Machine Control are all built in for seamless integration into any studio.

FEATURES–

- Records 24 tracks of 24-bit audio at 44.1 or 48 kHz, or 12 tracks at 88.2 or 96 kHz. Up to 24 tracks can be recorded simultaneously using any combination of digital and analog I/O.
- Supplied 9GB internal drive allows 45 minutes of audio across all 24 tracks
- Wide SCSI port on the back panel allows you to add multiple drives. A front 5-1/2" bay available for installing an additional drive, or an approved DVD-RAM drive for back-up.
- ViewNet MX, a Java-based software suite for Mac and PC offers DAW style editing of audio regions, dedicated system set-up screens that make set-up quicker and easier and track load screens that make virtual track management a snap. Connects to a computer via a standard Ethernet line.
- Can record to Mac (SDII) or PC (.WAV) formatted drives. The Open TL format allows compatible software to recognize virtual tracks without have to load, reposition and trim each digital file.

Transport Controls-

- Jog/scrub wheel
- MIDI In, Out, and Thru for MMC & MTC

Editing-

- Built-in editing capabilities include cut, copy, paste, split and ripple or overwrite
- 100 levels of undo
- Supports destructive loop recording and non-destructive loop recording which continuously records new takes without erasing the previous version.

Build-In Synchronization-

- TBUS protocol can sample accurately lock up to 32 machines together.
- Can generate or chase SMPTE timecode or MTC.
- Word Clock In, Out, and Thru ports

I/O Options-

- Optional analog and digital cards provide 24 channels of I/O each. There is one analog slot and one digital.
- IF-TO24- T/DIF module
- IF-AD24- ADAT Lightpipe module
- IF-AE24- AES/EBU module
- IF- AN24- A-D, D-A I/O module with OB-25 connectors

Software Updates-

- System updates are made available through a front panel Smart Card slot or via computer directly from the TASCAM web site.

EFFECTS PROCESSORS

lexicon

MPX-500
24-Bit Dual Channel Effects Processor

The MPX 500 is a true stereo 24-bit dual-channel processor and like the MPX100 is powered by Lexicon's proprietary Lexichip and offers dual-channel processing. However, the MPX 500 offers even greater control over effects parameters, has digital inputs and outputs as well as a large graphics display.

- 240 presets with classic, true stereo reverb programs as well as Tremolo, Rotary, Chorus, Flange, Pitch, Detune, 5.5 second Delay and Echo
- Balanced analog and S/PDIF digital I/O
- 4 dedicated front panel knobs allow adjustment of effect parameters. Easy Learn mode allows MIDI patching of front panel controls.
- Tempo-controlled delays lock to Tap or MIDI clock

t.c. electronic M-One Dual Effects Processor

The M-One allows two reverbs or other effects to be run simultaneously, without compromising sound quality. The intuitive yet sophisticated interface gives you instant control of all vital parameters and allows you to create awesome effects programs quickly and easily.

- 20 incredible TC effects including, Reverb, Chorus, Tremolo, Pitch, Delay and Dynamics
- Analog-style user interface
- 100 Factory/100 User presets
- Dual-Engine design
- 24 bit A/D-D/A converters
- S/PDIF digital I/O, 44.1-48kHz
- Balanced 1/4" Jacks - Dual I/O
- 24 bit internal processing

ANTARES

AMM-1
MICROPHONE MODELER

Based on the same technology as the Antares Mic Modeler plug-ins for Mac and PC, the Track space AMM-1 transforms the sound of any reasonable quality microphone into any of a variety of high-end mics. Simply select the kind of mic you're using and then select the mic you want to model. Even the filter settings, polar pattern and proximity can be selected for the source and mic model. The ability to track directly through the AMM-1 makes it ideal for project studios, live sound or anywhere you want to have an A-list of classic microphones

- Reproduces all of the subtle characteristics of your favorite microphone including filter settings, polar pattern, proximity as well as windscreen on/off
- Variable tube saturation control
- Over 100 mic models built-in
- XLR-balanced and 1/4" unbalanced analog inputs and outputs as well as AES/EBU digital I/O
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- Download new mic models over MIDI

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MICROPHONES

AKG C2000B Condenser Mic

Includes Free H-100 Shockmount

The C 2000 B is an all-purpose cardioid condenser microphone perfectly suited for both recording and live sound situations. The newly developed small-diaphragm transducer capsule is made using a unique manufacturing process that ensures high sensitivity, lowself noise, and excellent bass response.

FEATURES-
- Cardioid polar pattern
- Switchable bass rolloff filter (6 dB/octave @ 500 Hz) and -10dB pad
- Built-in pop screen reduces unwanted noise
- Rugged construction, elegantly styled die-cast metal housing, and silver-gray finish
- **30 Hz to 20 kHz frequency response**

SHURE KSM44/SL Multipattern Condenser Mic

The KSM44/SL is a multiple pattern dual large diaphragm condenser microphone built without compromise using premium electronic components and gold-plated internal and external connectors. The KSM44/SL is a premium vocal mic and is equally adept for close miking a wide range of acoustic instruments, amplifiers and for ambient room miking.

FEATURES-
- Dual 1-inch,gold-layered, Mylar diaphragms
- Class A, discrete, transformerless preamp
- Cardioid, omni- and bi- directional polar patterns
- Subsonic filter eliminates rumble from mechanical vibration below 17 Hz.
- Integrated 3-stage pop grille and shock mount
- 15 dB pad and 3-position switchable low-frequency filter virtually eliminates unwanted background noise and controls proximity effect
- Includes ShureLock elastic-suspension shock mount and swivel mount, protective pouch and locking aluminum carrying case
- **20 Hz - 20 kHz frequency response**

SIGNAL PROCESSING

HHB Radius 40 Tube Voice Processor

The Radius 40 is a self contained tube processor designed for direct to tape recording in project and professional studio environments. By combining a mic pre amp and line input with a compressor, expander / gate and an equalizer the Radius 40 will also enhance the sound of any source from vocals to bass guitar and keyboards.

FEATURES--
- Four stage tube voice processor with a pre amp, compressor, expander and equalizer
- Balanced XLR mic/ 1/4" line inputs and both XLR and unbalanced jack line outputs
- Input and output gain control
- Bypassable compressor, featuring variable threshold, ratio, gain, attack and release times
- A four band bypassable equalizer section with 12dB boost and cut per band.
- Low Freq band - 60Hz, 120Hz, 250Hz or 500Hz, Low Mid band - 250Hz, 500Hz, 1kHz or 2.2kHz, High Mid band - 1.5kHz, 2.2kHz, 3.6kHz or 5kHz, High Freq band - 2.2kHz, 5kHz, 8kHz or 12kHz
- EQ may be switched before or after the compressor
- Backlit VU meter displays input, output or gain reduction signals
- Stereo link for connecting two Radius 40s
- Stabilized 150V DC power supply

WAVES L2 ULTRAMAXIMIZER Brick Wall Peak Limiter

The L2 is a proprietary brick wall look-ahead peak limiter with IDR (Increased Digital Resolution) dithering technology based on the award-winning L1 software. Featuring 48-bit internal processing and support for 96kHz sampling rates as well as digital and analog I/O with 24-bit A/D and D/A converters means the L2 is ideal for the maximum number of audio applications, from mixing to mastering to concert sound. The L2 Ultramaximizer performs high quality re-quantization to 24, 22, 20, 18, and 16-bits, plus the Waves ARC (Auto Release Control) technology continuously controls the optimal release time for maximizing levels and minimizing audible distortions.

FEATURES-
- 2U rackmount limiter with 48-bit processing significantly increases the average signal level of typical audio signals without introducing audible side effects
- 44.1, 48 kHz, and x2 88.2 and 96 kHz sample rates
- Linked stereo and dual mono operation
- Look ahead technology anticipates peaks before they happen, thereby minimizing the possibility of artifacts
- **ARC (Auto Release Control)** dynamically controls release time allowing a greater amount of limiting and level maximizing without artifacts.
- **IDR (Increased Digital Resolution)** is Waves' proprietary wordlength-reduction (quantization), dither and noise shaping technology which preserves and even increases the resolution of digital signals.
- Quantization- The wordlength of digital signals can be quantized and output to 24, 22, 20, 18 or 16 bit resolution.
- Dedicated bargraph meters for input, output and attenuation with infinite peak hold and peak meter reset
- 24-bit Balanced XLR, and unbalanced RCA analog I/O
- AES/EBU (XLR) and S/PDIF (coaxial) digital I/O

STUDIO MONITORS

YAMAHA MSP10 Biamped 2-way Powered Speaker

The Yamaha MSP-10s are biamplified 2-way studio monitors totalling 180 watts per speaker. The separate amplifier for the 8" low-mid-frequency driver and the 1" tweeter allows the crossover to handle line-level signals, resulting in exceptionally smooth, natural response over the crossover range with an absolute minimum of distortion at all frequencies. The master volume control low and high EQ and low-cut filter allow you to tailor the speakers to any production environment.

FEATURES-
- 40 Hz - 40kHz frequency response (-10dB)
- 120-watt power amplifier for the low/mid driver and a 60-watt power amplifier for the tweeter
- 8" (20-cm) woofer
- 1" (2.5cm) titanium-dome tweeter utilizes a waveguide horn that achieves broad, uniform high-frequency dispersion regardless of listening position
- Balanced XLR inputs for direct compatibility with professional equipment
- Magnetically-shielded enclosures
- Green power on and red clipping LEDs
- Master volume control for each speaker
- 3-position low and high trim switches (0dB, -1.5 dB, -3.0dB @ 50Hz & +1.5dB, 0dB, -1.5dB, @ 10kHz respectively) optimize system response for a wide range of acoustic environments
- A switchable low-cut filter @ 80Hz provides optimum performance when used with a subwoofer system.
- Available in Black (MSP10) and Maple-Sunburst (MSP10M) • **SW10 powered sub-woofer** also available

Hafler M-5 Passive 2-Way Studio Monitors

The Hafler M5s are lightweight, portable studio monitors with all the qualities of the TRM6 in a more compact, non-amplified package. They are an ideal monitoring solution for broadcast and project studio environments.

FEATURES-
- 70 – 21k Hz frequency response ±3dB
- 20 - 200 watts power handling
- 5.25" polypropylene/rolled nitrile rubber surround 1" silk dome/waveguide tweeter
- 5-way gold plated binding post inputs
- Shielded woofer magnet
- User selectable front panel 3dB tweeter level control
- 4th order Linkwitz-Riley crossover at 3.2kHz, Zobels, tweeter overload protection.
- Dimensions 12.25"H x 6.75"W x 7"D
- Weight 12 lbs. net

VERGENCE M-00 Powered Mini Monitor System

The M-00s are an integrated, self-powered, 2-way acoustic suspension mini monitoring system designed for near/mid-field monitoring. They're portable enough to take anywhere, have balanced and unbalanced inputs with lots of output power (75 watts/ch) and a tough cast metal enclosure.

FEATURES-
- 4.5" treated paper woofer, 1" soft fabric dome tweeter with full magnetic shielding)
- Built-in 75 Watt per channel (continuous) amplification
- 98 - 20k Hz frequency response ±2dB @ 1M
- XLR, TRS & RCA input connectors
- Cast aluminum/zinc alloy body & Glass-filled ABS baffle.
- -10, +4dB input sensitivity & near/mid-field proximity switching
- Power On, Auto-On, Off
- Sensitivity, Power & Standby Display
- Anti-clip circuitry
- 9"h x 5.7"w x 7.3"d / 14 lbs.

STUDIO MONITORS

CROWN AUDIO D-45 & D-75A POWER AMPS

The D-45 and D-75A are ideal power amplifiers for moderate power applications such as recording or broadcast studio near-field monitoring, video suite audio monitoring, a recording/broadcast headphone amp or a small paging system. Crown's AB+B circuitry ensures efficient use of output transistors while incorporating protection against shorted, open, mismatched or low-impedance loads.

FEATURES-
- Standard 1 RU 19" rack mount design
- Load Impedance rated for 4 to 16 ohms in Stereo and 8 to 16 ohms in Bridge-Mono.
- Signal-to-Noise: (Unweighted) 106 dB below full rated power from 20 Hz to 20 kHz.
- Power, channel 1 and 2 controls, dual/mono jumper
- Combination XLR and 1/4" Neutrik inputs per channel.
- Four-terminal barrier block outputs (two per channel) and stereo headphone jack.
- Less than 0.001% Total Harmonic Distortion (THD) from 20 Hz to 400 Hz and increasing linearly to 0.05% at 20 kHz delivering rated power into 8 ohms/channel.
- Standard three-wire grounded AC Line connector
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- D-45: 20 watts into 16 ohms, 25 watts into 8 ohms, 35 watts into 4 ohms and 70 watts into 8 ohms bridged
- D-75A: 25 watts into 16 ohms, 40 watts into 8 ohms, 55 watts into 4 ohms and 110 watts into 8 ohms bridged

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POWERSAMPLER

▶ continued from page 98

within that context. The mixer has what you'd expect — pan, mute, solo, clip indicator, fader, post-fader level meter, stereo link of adjacent channels, and output routing. Mixer settings can be saved as presets.

ARCHITECTURE

If you're familiar with keyboard samplers, you're familiar with PowerSampler.Multis let you place programs in up to 16 MIDI channels for multi-timbral operation. Options accesses the program parameters (modulation, filter, LFOs, etc.), while a Key Group List edits groups, zones (up to four zones, each of which references a sample per keygroup), and samples. Zones accept only mono samples; for stereo, you need to load a stereo sample twice, into two Zones. You then set one's channel assignment to left, and the other to right.

The lowest-level editing option, the Sample Editor, can scroll, zoom, cut, copy, paste, delete, crop (trim), reverse, normalize, remove DC offset, loop (with "loop tuner" view for fine-tuning the splice point), snap to point with the same level and slope as the loop start (effective, but not flawless), and of course it provides the option to sample (record, record at threshold, pre-record to capture transients, etc.). Unfortunately, your only looping option is forward — no crossfade or reverse looping.

Though there aren't a lot of bells and whistles, there are a few twists. The LFOs (triangle, sawtooth, square, and random wave) can modulate notes individually so each follows the rate starting at key-down, or as a group so that they all modulate in sync with each other. LFO1 amplitude, speed, and delay are also modulatable parameters (even by the LFO2) and LFOs can be retriggered. Other cool features include a mono/legato mode (which is aces for guitar synthesizers as the response acts like refreshing on a single string), a tuning page for setting up differently tempered tunings, and program priority for voice-stealing.

I don't know of any product that quite hits this niche, other than the Digidesign SampleCell and SampleCell II. Most software samplers are designed for native operation, instead of having a DSP card for the heavy lifting. Using PowerSampler is very much like using an Akai S3000-series sampler module, except that instead of having to scroll through menus in an LCD and use cursor buttons, you have an expansive, efficient graphic interface. Also, with a sufficiently large hard drive, using a computer makes it easy to load, manage, and organize samples.

I wish the program had a virtual keyboard for clicking on sounds, or let you use the computer keyboard to trigger notes. Sometimes when setting something like loop points, it's inconvenient to shift your focus between the QWERTY keyboard and the synth keyboard controller.

If you already have a good hardware sampler setup, PowerSampler might be redundant. But if you want to upgrade to a high-end sampler, or are compuer-based and just getting into sampling, PowerSampler is a smart solution. The one caveat is that if you need 64 voices instead of just 32, you'll need two cards, which brings the price into the same range as something like a mid-level sampler module. But there's a lot to be said for using a computer as your sampler's front end; and if you use a program such as Cubase where you can integrate this program into your sequencing environment, then PowerSampler hits a home run. ■

World Radio History

ROGER NICHOLS

▶ continued from page 138

FUTURE AUDIO

There is now proof that the way we hear is digital, not analog — well, the eardrum is analog, but when the analog signal reaches the auditory canal, each of the 18,000 cilia is sensitive to a single frequency. When each cilia is excited by its resonant frequency it sends a chain of pulses, the spacing of which is proportional to the level of the exciting frequency. As we learn more about the actual mechanism of perceptual hearing, we're going to be able to produce more auditory illusions than ever before. We will easily be able to place sounds up and down from the plane of the speakers. I can already visualize devices that will stimulate the hearing centers on the digital side of the cilia: The sound of crackling bacon so real you can taste it.

GRAMMY RAMBLING

As I write this column, I'm on my way to the Grammy awards. Steely Dan is nominated for three Grammys, and I'm nominated for two. Just about the time I think about bailing on the music business and becoming a helicopter tour pilot on a South Pacific Island, I get nominated for something. For me it makes all of the extra hours and hard work worth it. Sticking with something for 30 years has its rewards. Trying your best to do a good job has its rewards.

The best part of the Grammys is taking my daughters. "Wow Dad, you are kind of cool after all. What do you do again?" The Grammys are a good excuse to let people know that I actually do own a tuxedo and that drop-dead gorgeous blonde I've been seen with at other Grammys really is my wife. It also feels good to know that your peers think you can still record a great song or mix a good sounding record.

I got to take my mother to the Grammys once before she passed away. I won that year. I was producing John Denver, who was the host that year. John gave my mom and dad a ride to the party in his limo. They didn't stop grinning for months. Life is good. Wow, two paragraphs without a joke or bad pun! I must be slipping.

MASTER CLASS

I'm branching out. I'm working on an instructional DVD about recording and mixing, putting together a web-based recording class, and hosting a master class once every three months in Miami at Audio-One, the Southern Region Pro Tools Training Center. The first two classes were filled up within one week of the announcement. The May classes are filling up fast and all of the attendees had a great time.

The focus on this class is mixing: tips and techniques I've learned over the years and secrets that I've never told anyone. I write the secret down on a piece of paper and make them eat it before reading it. One student said my methods were a little hard to digest. Each participant uses a Pro Tools 24|Mix Plus system in the class. There are Pro Tools experts there to help those who normally use other formats.

FORUMS

For those of you who haven't checked it out yet, a few of us engineers have a forum sponsored by EQ and www.musicplayer.com. "Com" on by and check it out (get it?). For those of you interested in the new Sony DMX-R100 digital console, check out Howard Massey's forum at www.dmxr100forum.com. I can be seen lurking there at times. ■

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MOTU Dream Studio 2

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- **Digital Performer™ 3.0** — award-winning workstation software with MIDI sequencing
- **SAC-2K™** — expandable, touch-sensitive, 8-fader automated control surface for Digital Performer
- **DigiMax™** — 8-channel mic pre-amplifier with 24-bit optical connection to the 2408mkII/computer
- **Bias Peak 2.5 VST™** — award-winning waveform editing software

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PreSonus [audio electronics]

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- **MAS STOR™** — reliable, high-performance SCSI storage and backup for MOTU Audio System based studios

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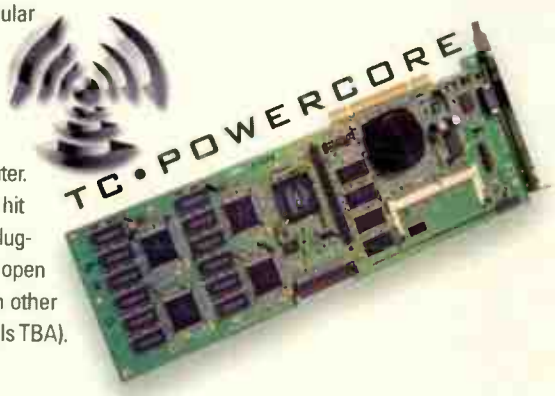
DSP TURBO™ FOR MAS•POWERCORE PLUG-INS — TC•PowerCore™

TC•PowerCore is a major breakthrough for Digital Performer's real-time MAS plug-in environment because it provides DSP-turbocharged plug-in processing. At last, the renowned TC TOOLS/96 studio-quality FX package (included), with TC MEGAVERB, TC Chorus/DELAY and TC EQ^{sat}, can be at your fingertips in Digital Performer, plus other TC | Works plug-ins such as TC MasterX (sold separately). These powerful TC plug-ins appear in DP's mixing board, just like regular native plug-ins, but they run on four powerful 56K DSP chips on the TC•PowerCore PCI card. It's like adding four G4 processors (equal to 2.8 gigahertz of extra processing power!) to your computer. Run 12 studio-quality TC plug-ins with no hit on your CPU power, and run other native plug-ins at the same time! TC•PowerCore is an open platform, so it will also run plug-ins from other respected 3rd party developers, too (details TBA).

TC | WORKS



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There are no original thoughts

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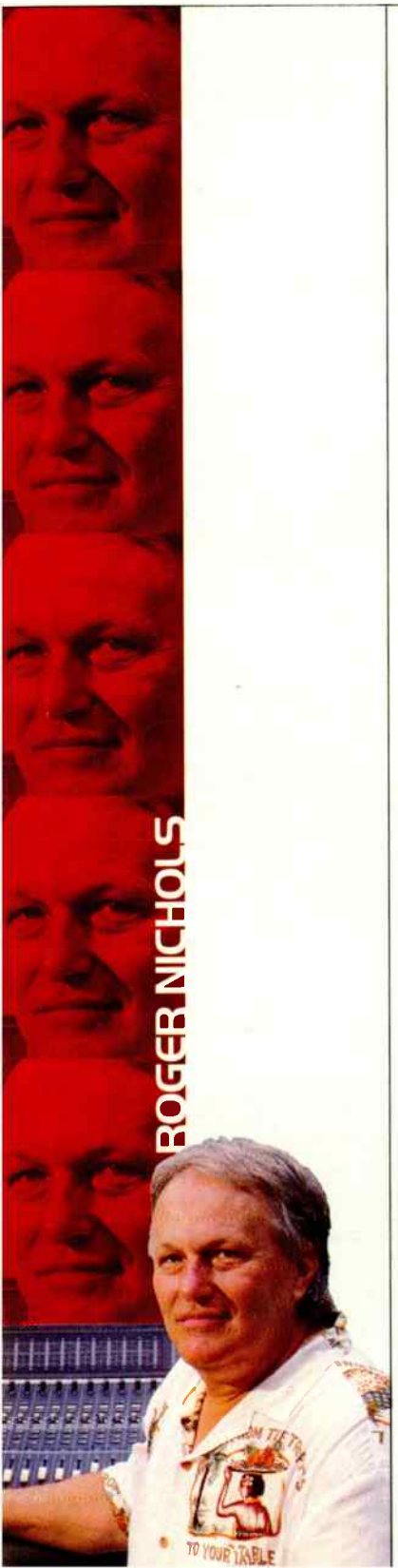

You think I wrote this column based on original thoughts I have had during the last month. I thought I did, too, but if you look closely, every word on this page has been used somewhere else before. Except for antidisestablishmentarianism, every word can probably be found in this very issue. Every note has been played, every thought has been thought, except maybe the thing about the Barbie doll dresses and the chickens, but maybe you should check Dave Frangioni's column for more on that.

Arrangement and perception are the difference. How I arrange the words on this page, or how I arrange the instruments in a mix are all that sets me or you apart from everyone else. How you perceive the balances when mixing is what makes your mix of the same material different from mine.

Perception is the sum of the information received by the senses modified by an emotional feeling. The sensory input triggers an emotional response. With taste, for instance, the emotional response is modified and enhanced by smell. In humans, taste and smell are non-directional, so the two "mono" sensory inputs add the additional information to fill a two-dimensional matrix of information.

The eyes are three-dimensional sensors. From one eye you get two-dimensional information that is augmented by the view from the second eye to produce the three spatial dimensions and the fourth color "dimension" of sight. The ears are three-dimensional sensors, relying on time domain and phase interference information to build a three-dimensional model of our acoustic surroundings. The "fourth" dimension of hearing is frequency or pitch information.

Both the eyes and ears can be fooled, or tricked into seeing or hearing something that's not really there. Movies and television are perfect examples. A movie is a series of still pictures taken of a moving object projected back at the same speed so that the brain interprets the scene as the moving original. If we play it back faster the object appears to move faster. Animated films consist of objects that were never originally moving. Still pictures are drawn and then played back rapidly to simulate motion.

Ears can be fooled, too. With phase manipulation a mono sound can be perceived to be a large three-dimensional object. A drumbeat can be moved in time so that the "feel" of the pattern is different for the listener. The pitch of a note can be changed so that the listener thinks it was performed in tune.

With surround sound, instruments can be placed in a three dimensional soundfield that was completely different from where the instrument was located when it was played originally. When stereo recordings became commercially available in the late '50s it took a while for the artists to figure out how to use the new dimension in a pleasing way. Now we have surround sound that's going through the same growing pains. It's going to take experience with the format before things settle in and are pleasant to listen to more times than not.

> EARS CAN BE FOOLED, TOO. WITH PHASE MANIPULATION A MONO SOUND CAN BE PERCEIVED TO BE A LARGE THREE-DIMENSIONAL OBJECT.

I heard one surround recording of a live concert recently that sounded exactly like the stereo mix, but there was something coming from the rear speakers. I soloed the rear speakers and heard the leakage from the onstage monitors, but I also heard people talking and walking around and opening beer cans. They just placed a couple of mics in the audience on the lawn, fed it to the back speakers and put the stereo mix of the concert in the front speakers. After I knew what was going on, it did feel like I was really at the concert. I could almost smell the stale beer and hot dogs.

▶ continued on page 134

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