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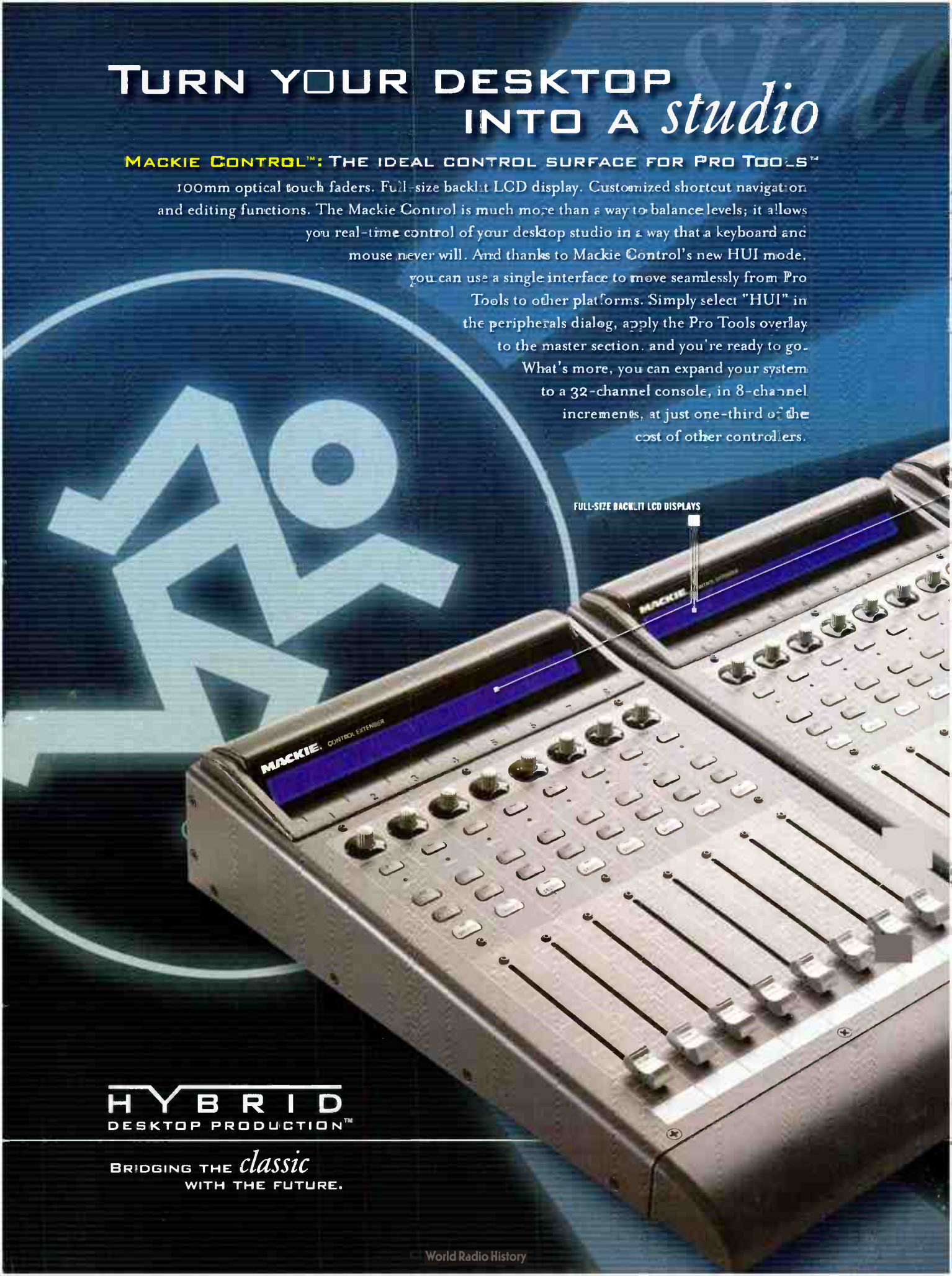

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VOLUME 14 • ISSUE 4

CONTENTS

ON THE COVER:
SNOOP DOGG PHOTO BY BLOCK

EQ (ISSN 1050-7868) is published monthly by United Entertainment Media, Inc., a CMP Information Company, 2800 Campus Drive, San Mateo, CA 94403. Periodicals postage paid at San Mateo, CA and additional mailing offices. POSTMASTER: Send address changes to EQ, P.O. Box 0532, Baldwin, NY 11510-0532. SUBSCRIPTIONS: U.S. $29.95 for 1 yr. (13 issues); CANADA add $10.00 per year for surface; other countries add $15.00 per yr. for surface; all add $30.00 per yr. for airmail. All subscriptions outside the U.S.A. must be pre-paid in U.S. funds by International Money Order, checks draw from a bank located in the USA, Visa, Master Card or American Express. Back issues $5. Printed in the U.S.A.

FEATURES

35 DOGGIE STYLE
Snoop Dogg launches a new album and a new label using his studios.
By Steve La Cerra

45 WINTER NAMM 2003
Take a tour of one of the music industry's most important shows
By Craig Anderton and Mitch Gallagher

63 VINTAGE REBORN!
EQ's guide to vintage re-issue and retro microphones
By Steve La Cerra

DEPARTMENTS

4 EDITORIAL
6 LEGACY
8 FIRST LOOK: BLUE THE BALL
10 FIRST LOOK: MOTU MACHFIVE
12 ROOM WITH A VU: REMOTE RECORDING SERVICES
14 ROOM WITH A VU: ATLANTIS GROUP
105 AD INDEX
120 ACROSS THE BOARD: CRASH COURSE
By Roger Nichols

REVIEWS

78 AUDIO-TECHNICA AT3060
Phantom-powered tube microphone
By Mitch Gallagher

80 LEXICON 960LS
Digital effects system
By Mitch Gallagher

82 DISCRETE DRUMS SERIES TWO
Multi-track drum library
By Mitch Gallagher

86 GRACE LUNATEC V3
Microphone preamp and A/D converter
By Steve La Cerra

88 APOGEE ELECTRONICS MINI-ME
A/D converter with microphone preamp
By Emile Menasché

92 MACKIE CONTROL/BABY HUI
Hardware control surfaces
By Emile Menasché

102 ART DPS
Digital I/O preamp system
By Craig Anderton

104 SONIC FOUNDRY CD ARCHITECT v5.0
Audio CD burning software (Windows)
By Craig Anderton

108 SAMPLE CD REVIEWS
PowerFX Retronica, Zero-G Creative Essentials For Reason, and Q Up Arts Bun E. In A Box
By Craig Anderton

TECHNIQUES

16 SESSION FILE: SHERYL CROW ACCORDION
By Lisa Roy

20 DAW WORLD: DAW MIXING
DAW as mixing tool
By Tal Herzberg

24 SAMPLING: SIMPLIFYING VINTAGE SYNTH SAMPLING
Create a sequence to grab synth samples
By Ray Legnini

26 DIGITAL AUDIO: WHAT'S THE DEAL WITH DITHERING?
It's a dirty job to go from high-res audio to 44/16, but someone's got to do it.
By Craig Anderton

30 DAW: HANDS ON CONTROL WITH CUBASE SX/SL
You don't always need a dedicated controller for hands-on control.
By Craig Anderton

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EDITORIAL

EQ

Vol. 14, No. 4
APRIL 2003

Congratulations To Us

Just when things get darkest — and the illumination seems to be dimming even as I type these words, with war on the horizon, the economy teetering, and general unrest seeming to be sweeping the globe — a ray of light shines through to brighten the day. For me, that ray of light was a nice bit of recognition: I'm happy to report that your favorite recording/pro audio mag (that would be *EQ*, of course) has been named a finalist in this year's Maggie awards. The Maggies are an annual competition spotlighting magazines published west of the Mississippi River; over 1,800 magazines were entered in over 100 categories in the 2002 race. *EQ*'s finalist nod this year came in the "music" category — but that's probably no surprise; we're not talking about pasta recipes in these pages. The winners will be announced April 11 in Los Angeles.

Whether *EQ* ultimately wins or not — and we face decidedly tough (but very friendly) competition from our sister publications *Bass Player*, *Guitar Player*, and *Keyboard*, as well as from *Acoustic Guitar* and *Strings* magazines — we're just happy to have been named to the finals.

If nothing else, this recognition for *EQ* gives me justifiable reason to call your attention to the team that makes the magazine happen every month. While it's my picture you see here every issue, I don't do it alone. There's a well-oiled machine at work here, comprising some amazingly talented and extremely dedicated individuals. We've made some changes since the July 2002 issue — the one that put us in the Maggie running — but the names that graced the masthead to the right of this space that month certainly deserve a generous round of applause. Without the untiring efforts of folks like Anthony Savona, Greg Gennaro, Brian Jackson, Riva Danzig, Scott Aruti, and Ari Rubin, as well as our unmatched editorial staff: Craig Anderton, Steve La Cerra, Lisa Roy, Roger Nichols, Mr. Bonzai, Jim Bordner, David Frangioni, Rich Tozzoli, and many others, *EQ* wouldn't be the success it is today. I counted myself incredibly blessed to have worked with those folks every day, and I'm equally grateful for the outstanding staff I work with now. Rest assured that this recognition only makes us want to work harder to put out a magazine that will be even more useful, inspiring, and satisfying to our readers.

—Mitch Gallagher
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WWW.EQMAG.COM
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Published By
UNITED ENTERTAINMENT MEDIA, Inc.
a CMP Information Company
PRESIDENT/CEO: Tony Keefe
BUSINESS MANAGER: Doug Krainman

PLEASE DIRECT ALL EDITORIAL AND ADVERTISING INQUIRIES TO: eqmagazine@aol.com

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WEB SITES: **www.eqmag.com & www.keyboardmag.com**

Publisher assumes no responsibility for return of unsolicited manuscripts, photos or artwork. *EQ* (ISSN 1050-7868) is published monthly by United Entertainment Media, Inc., a CMP Information company. Reproduction of material appearing in *EQ* is forbidden without written permission. Periodicals postage paid at San Mateo, CA and additional mailing offices. POSTMASTER: Send address changes to EQ, P.O. Box 0532, Baldwin, NY 11510-0532. SUBSCRIPTIONS: U.S. $29.95 for 1 yr.; CANADA add $10 per yr. for surface; other countries add $15 per yr. for surface; All add $30 per yr. for Airmail. All subscriptions outside the U.S. must be pre-paid in U.S. funds-by International Money Order, checks draw from a bank located in the USA Visa, MasterCard or American Express. Back issues $5. All product information is subject to change; publisher assumes no responsibility for such changes. All listed model numbers and product names are manufacturers' registered trademarks. Printed in the U.S.A.

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LEGACY

Remembering Those We've Lost

ED GERMANO

After a long illness, Hit Factory owner Ed Germano passed away at the age of 61 on Thursday, February 6. A producer and entrepreneur, Germano was a major figure in the recording industry, at the helm of one of the largest and most prestigious recording facilities in the world.

Starting a singing career in New York City in 1961 with the stage name of Eddie Jason, Germano joined A&R at RCA Records in 1970, and later got involved in the recording studio business when he became partner in the Record Plant.

Germano purchased The Hit Factory in 1975 from founder/composer Jerry Ragavoy, and it was the success of Stevie Wonder's *Songs in the Key of Life* that put the facility on its road to success. Building on its success over the years, the Hit Factory expanded its studios, and in January 1999, Germano acquired Criteria Studios in Miami. With Ed's son Troy as Hit Factory CEO, they renovated the complex before re-opening it in the spring of 2001 as The Hit Factory/Criteria Studios, bringing the high level of professionalism and style achieved with the New York facility to Miami. "I got to know Eddie Germano in the 1960s — when he was known as Eddie Jason," producer/engineer Phil Ramone remembers. "Both of his kids would be in the control room with me, one on my lap, the other peering intently at her dad at work with the musicians. Eddie always had his ears and eyes open to everyone around him. Musicians adored him. His humor and passion made The Hit Factory a home for the great producers and engineers to try new ideas, to experiment. Eddie created a studio that far outshone what was around him."

Ramone continues, "Along with Janice, Danielle, and Troy, the Germano family has succeeded in putting The Hit Factory in people's minds as a place that bends over backward to maintain first-class sounds. It was never about the money for Eddie. He'd always tell you to put that aside. Eddie Germano, The Hit Factory, and great quality are synonymous with one another. I love you, Eddie. And know you'll always be there guiding us." — *by Janice Brown*

JOE STRUMMER

Joe Strummer, former guitarist and front man for the British punk band the Clash, passed away at his west England home on December 22, 2002.

Born in 1952, Strummer joined co-guitarist Mick Jones, Paul Simonon, and Terry Chimes in the Clash in 1976 after experiencing an epiphany at a Sex Pistols show. He was quoted in *Guitar Player* as saying, "I saw the future — with a snotty handkerchief — right in front of me. They were a tremendous live unit, Steve Jones sounded like 10 guys were playing the guitar, Johnny Rotten had this amazing stage presence, Glen Matlock was as good a bassist as Paul McCartney, and Paul Cook was hammering the drums. There were no smoke and mirrors needed. And from that moment...you couldn't stand around and say, 'I'm not sure.' You were either against the punks or you were with them, and I was with them."

Strummer and the Clash brought new influences to the punk movement, including world music, and took a strong stance on the ills of the world. The band's output included the critically acclaimed *London Calling* (1979), *Sandinista!* (1980), and *Combat Rock* (1984). After the Clash broke up in 1986, Strummer acted in movies, wrote film soundtracks, released two solo albums, and launched a new band, the Mescaleros in 1999. The Clash will be inducted into the Rock 'n' Roll Hall of Fame in March 2003.

Joe Strummer passed away quietly after taking his dogs for a walk. —*Mitch Gallagher*

MAURICE GIBB

Maurice Gibb, the high voice of the harmonizing hitmakers the Bee Gees, died January 12. He was undergoing intestinal surgery at Mount Sinai Medical Centre in Miami when he passed away. In a statement released to the press, the Gibb family said, "It is with great sadness and sorrow that we regretfully announce the passing of Maurice Gibb. His love and enthusiasm and energy for life remain as an inspiration to all of us. We will deeply miss him." At the time of this writing, Gibb's death was being investigated by Barry and Robin Gibb, his surviving brothers. "I still can't come to terms with it," said Robin. "It's like a nightmare that you wake up to every day."

Donations in Maurice's name should be made to the charity of your choice or the Andy Gibb Memorial Foundation c/o Dade Community Foundation, 200 S. Biscayne Blvd., Suite 505, Miami, FL 33131. Condolences can be sent to the family c/o Middle Ear Studio, 1801 Bay Road, Miami Beach, FL 33139. —*Mitch Gallagher*

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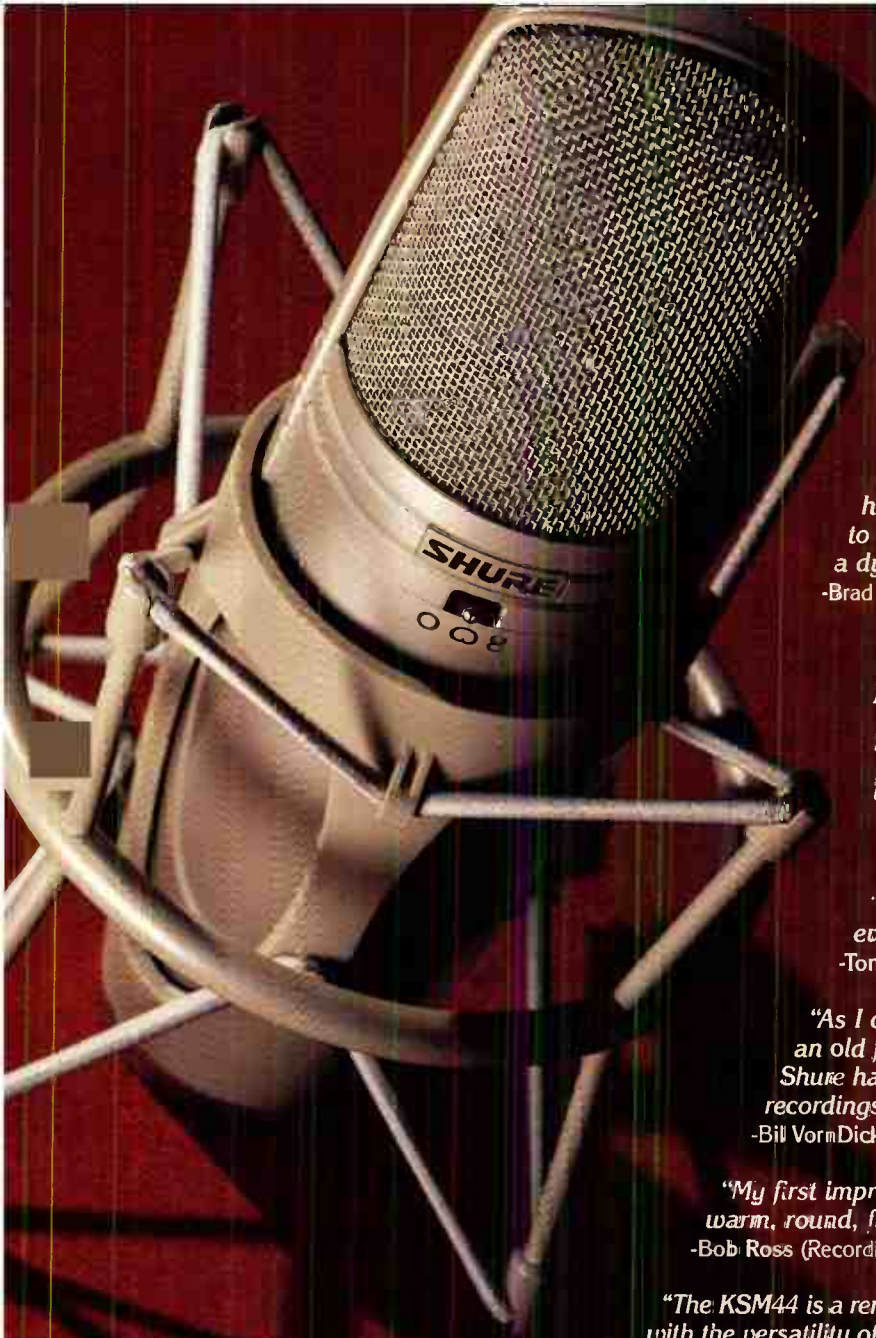

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-Eddie Kramer (Jimi Hendrix, Led Zeppelin, Kiss, the Beatles, ...)

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-Joe Chiccarelli (Beck, U2, Elton John, ...)

"I tested the KSM44 on vocals, bass, guitar, and drums, and haven't stopped using it since. It's hard to describe, but there is an immediacy to the KSM44 that is very appealing – sort of like a dynamic mic, but more elegant."
-Brad Wood (Smashing Pumpkins, Liz Phair, Better Than Ezra, ...)

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-Bill VornDick (Alison Krauss, Bela Fleck, Mark O'Connor, ...)

"My first impressions of the KSM44 were warm, round, full – dare I say it? Fat!"
-Bob Ross (Recording Magazine)

"The KSM44 is a remarkable achievement. I am especially impressed with the versatility of this microphone and have yet to find its limits."
-Steve Albini (Nirvana, Page and Plant, PJ Harvey, ...)

"I was given the KSM44 prototype early-on, not knowing its intended purpose - so I tried it on everything. Guess what, it worked on everything!"
-Chuck Ainlay (Trisha Yearwood, Mark Knopfler, George Strait, ...)

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Blue The Ball

By Steve La Cerra

Taking its name from its unusual spherical shape, The Ball microphone from Blue is like nothing we've ever seen, and certainly is like no other microphone currently in production. The Ball is the first phantom-powered dynamic (moving coil) microphone.

Unlike condenser microphones — which typically require phantom or battery power for polarization of the capsule and for powering of an onboard preamp — dynamic microphones are passive devices. They convert acoustic energy into electrical energy through electromagnetic induction without the need for an additional power source. (Electromagntic induction is the principle whereby moving a coil of wire in a magnetic field induces a voltage in the coil.) This characteristic makes dynamic microphones easy to use, durable, and reliable. However dynamic mics have their limitations, one of which is that their resistance varies with frequency. When you plug a dynamic microphone into a fixed-impedance console input or outboard mic pre, you create a resistive load in the transducer that varies along with frequency. This characteristic influences the mic's tonal balance, phase coherence, noise level, and output level, acting as a sort of random tone control. Not something you'd normally want on a microphone.

Rumor has it that the folks at Blue locked their engineers in a windowless room with a notebook, a calculator, a loaf of bread, and a couple of bottles of Balzam (a rather flammable Latvian beverage). The engineers were given the task of finding a way to eliminate frequency-dependant, variable resistance in a dynamic microphone. The result was a phantom-powered balancing circuit for use in The Ball's output stage. This solid-state, Class-A circuit maintains a consistent, resistive 50-ohm load across the frequency range, yielding a smooth and open sound typically associated with large-diaphragm condenser mics. Regardless of whether it's capturing sound with a frequency of 20 Hz, 1 kHz, or 15 kHz, the output level of The Ball will be uniform, resulting in a more balanced overall sound. Phase distortion (particularly in the low end) is reduced, yielding smoother performance, and unlike most condenser mics, The Ball can handle sound pressure levels as high as 148 dB (into a 2,000 ohm load for 1% THD).

The Ball requires 48-volt DC phantom power (supplies of lower voltage are insufficient and will result in distortion) and has a current draw of only 2.5 milliamps. Sensitivity is stated as 3.5mV/Pa at 1kHz (where 1 Pa = 94 dB SPL) and output noise is specified as 18 dB, A-weighted.

Due to its anti-resonant ABS shell and spherical shape, The Ball exhibits excellent off-axis rejection and feedback suppression characteristics. This, combined with its rugged construction, cardioid pickup pattern and high-SPL capability, enables The Ball to be used in a wide variety of miking situations. Blue suggests using The Ball on kick drum, snare drum, toms, electric and acoustic guitars, bass cabinets, vocals, blues harp and even strings, horn, reeds, and wind instruments. The Ball features a unique swivel mount located on the bottom-center of the mic body for mounting on a standard-thread, counter-weighted mic stand. Once mounted, The Ball's integral pivot facilitates optimum positioning of the mic in front of the sound source. ■

BLUE THE BALL

WHAT IS IT? The first phantom-powered moving-coil dynamic microphone

WHO NEEDS IT? Music, broadcast, and film production studios, sound reinforcement companies

WHY IS IT A BIG DEAL? The Ball employs a 48-volt phantom powered, active balancing circuit in the output stage, which maintains a consistent output level, low noise, and low distortion across the frequency range.

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By Steve La Cerra

Mark of the Unicorn MachFive

At the Winter NAMM show, MOTU announced MachFive, a sampler plug-in that runs on Mac and Windows platforms, supporting all major formats including MAS, VST, RTAS, HTDM, Audio Units, and DXi. With sample rates up to 24-bit/192 kHz, MachFive can import and play back multi-channel samples in surround. Using its UVI-Xtract utility MachFive can import programs and samples from every major sampler format (including Akai, Kurzweil, Roland, Emu, Giga, SampleCell, EXS24, HALion, Creamware, WAV, ACID, AIFF, SDII, REX, and others), allowing use of existing sound libraries.

MachFive operates under just about any audio program for Macintosh or Windows, providing a sampler/sound source directly within the project. All MachFive settings are saved with the host application project for instant recall, with no additional files to manage. You can open as many instances of MachFive plug-ins as your CPU permits. Each instance or "performance" is made up of 16 multitimbral parts. Typically each part is used for a separate instrument with its own octave, transposition, bend range, volume, pan, and MIDI channel parameters. Depending upon the audio hardware and host program, parts may be output to individual audio jacks; multi-channel samples may be routed to "bundled" outputs. Each part can have up to four effects such as reverb, tempo-sync'd delay, tremolo, chorus/modulation, filter, BitCrusher, and more. All effect settings are saved, and a part's effect remains audible while samples are auditioned, allowing (for example) different snare drums samples to be auditioned while using the same reverb. Since MachFive supports so many different audio programs, a performance can easily be moved from one platform to another simply by saving it along with the session. When the MachFive performance is opened in the new program, all MachFive settings will be loaded intact.

One of MachFive's convenient features is drag-and-drop importing of samples or audio files directly from the desktop or host application into the MachFive "keyboard," effectively eliminating the tedious chore of key mapping. Multiple samples may be simultaneously dragged and mapped chromatically or even according to their pitch — which MachFive can determine and automatically assign to the appropriate key. Samples can be auditioned on the fly while being imported, allowing you to determine how far to stretch a sample across a set of keys before switching to the next sample.

MachFive's multi-channel waveform editor accepts and converts audio samples in all formats from mono to 5.1, up to 24-bit/192 kHz resolution. Multi-channel samples can be played and transposed in real time with multi-channel effects and outputs, and MachFive allows truncating, normalizing, fading, and other DSP audio manipulation in real time. Loop crossfades can be adjusted in real time while listening to an entire sequence. Real-time downsampling allows creation of one high-rez sample library for use at any sample rate without need to catalog the same samples at different resolutions.

MachFive also includes a powerful synthesis engine with six filter algorithms and extensive modulation options, all of which may be MIDI-controlled. A 32-bit UVI engine provides extremely low latency and unlimited polyphony. UVI-Extract allows sample CD-ROM's to be mounted on the computer desktop; programs can then easily be converted to the MachFive format. Disk streaming (playing large samples from hard disk) will be included free of charge in a future update. ■

MOTU MACHFIVE

WHAT IS IT? A cross-platform sampler plug-in designed to work with just about any host audio program.

WHO NEEDS IT? Sound designers, audio production studios, post and ADR studios.

WHY IS IT A BIG DEAL? In addition to supporting multi-channel samples, MachFive works with any Mac- or Windows-based audio program, and is compatible with any sample file format.

SHIPPING: Mac OS 9 and OS X, Q1 2003. Windows: Q2, 2003.

PRICE $395

For further information contact MOTU at 617-576-2760 or visit www.motu.com.

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With its new version 2.0 software, TASCAM's DM-24 becomes more than just an incredibly powerful digital mixing console. It adds control surface capabilities for software DAWs like Pro Tools®, Digital Performer™ and Nuendo® via HUI emulation, with external control of levels, mutes, pans, track arming and aux sends, in addition to standard MIDI control of DAWs like Cubase®, Logic™ and Sonar™.

But that's just the beginning. DM-24 v2.0 is a great front-end for your DAW, with 16 high-quality mic pres, 24-bit converters, 4-band parameteric EQ, dynamics processing and more. Plus, with standard interfacing like 24 channels of TDIF and 8 channels of ADAT, it's a perfect companion to DAW interfaces like Digidesign's 001™ and MOTU's 2408™.

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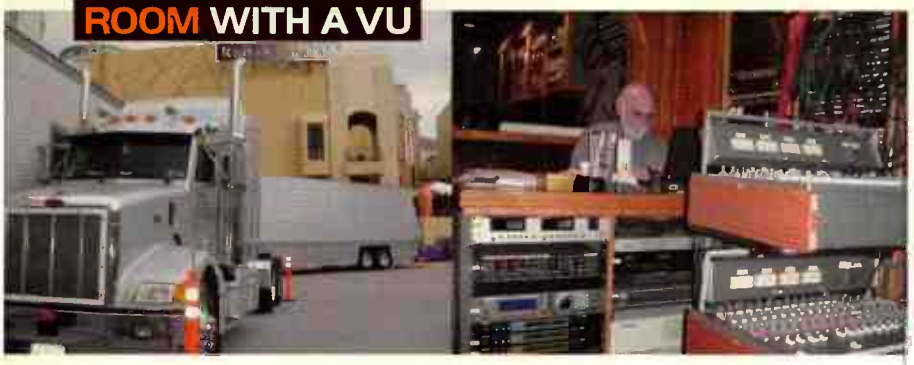

Remote Recording Services

By Steve La Cerra

Recording anywhere, anytime

STUDIO NAME: Remote Recording Services "Silver Studio"
LOCATION: Anywhere in North America
KEY CREW: David Hewitt (chief engineer), Phil Gitomer (tech), Sean McClintock (digital editor and engineer), Karen Brinton (studio manager)
CREDITS: Everyone from AC/DC to Frank Zappa (see web site)
CONSOLE: Neve VRM (48x48) w/Flying Faders; Studer 961, 962, 963
MONITORS: KRK custom tri-amped 15A31 w/Bryston 10B crossovers; B&W HTM [5]; KRK Exposé E7 and E8, 703, E4; JBL 4411, Yamaha NS10M, Sigtech AEC-1000 Digital Time Domain Monitor EQ; Headphones: AKG, Fostex, Sennheiser 480, Sony V-6, Stax
AMPLIFIERS: Bryston 4B [3], 3B [2]; Headphones: Behringer, Creek OBH11, Crown D60
RECORDERS: Studer A-820 24-track analog w/Dolby SR, D-827 48-track DASH [2], A-810TC two-track; Sony PCM-800 [3], TCWR-99ES cassette; Panasonic SV3700 DAT [2], Otari CDR-800 CD-R [2]
OUTBOARD: Aphex Compellor, API 525, 550A, 550B [2], 560A [3], 560B [2], 2500; dbx 160VU [2], 902 [2], 903 [7]; Dolby Dynamic Equalizer, Drawmer 1960, Empirical Labs Distressor [4], GML 8200, Summit DCL-200, Tube Tech CL-1B, LCA-2A; UREI 1176 [3], 1178, LA-3A [4]; TimeLine Lynx Syncronizers [3]
EFFECTS: Desper Spatializer, Eventide DSP-4000, Yamaha REV7, Lexicon 480L, PCM60; Sony DPS-D7, DPS-M7, DPS-R7; TC Electronic 1210, 2290
MICROPHONES: AKG D12, D112 [2], C414-EB [2], C460 [2]; Audio-Technica AT25 [6], AT35 [6], AT4041 [4], AT4033[4], AT4047 [4], AT4050 [6], AT4071 [4], AT4073 [4]; Beyer M88 [2], M160 [3], M500 [2], TGX480 [4]; Crown PCC-160 [2], GLM; Electro-Voice RE20, Microtech Gefell UM70S [4], Neumann KM184 [3], Schoeps CMC-6U, Sennheiser MD421 [5], MD441 [4], MKH60 [2]; Shure Beta 57 [6], Beta 58 [10], Beta 87 [6], Beta 87c [6], Beta 98 [4], KSM32 [2], KSM44 [2], KSM141 [2], SM7 [2], SM57 [10], SM58 [4], SM81 [14], SM98 [4], VP88 [2]; Sony C-38, C-48 [2], C-535 [8], C-536 [3]; Soundelux U-95S, U-99; AMS Soundfield ST-250 Surround Microphone.
MICROPHONE PREAMPS: API 212 [12], Millennia Media HV-3 [44], Studer D-19 Mic Valve
DAW: Windows workstation running Nuendo, Sonar, and WaveLab; plug-ins including Waves, Antares, TC Works
POWER CONDITIONING/BACKUP: Studio is isolated by transformers (multi-tap) for main tech area, "Studio B" tech and two zones of auxiliary power for HVAC and lighting.
STUDIO NOTES: According to David Hewitt, "The Silver Studio is engineered for the needs of location audio recording, with custom-built double-thick walls and ceiling providing excellent sound isolation from the outside world. Construction is MDF sandwich over sprayed foam insulation finished in cherry hardwoods, fabric, and carpet-covered panels. The floor is 1.75-inch ship lap oak, covering the three-inch steel I-beams of the chassis. At the rear of the truck is an acoustically and electrically isolated, 6.5x7-foot production room with its own air conditioning and separate entrance. "Studio B" is intended to be a flexible work space for overdubs, production control for live broadcasts, film, or video shoots, or as an iso booth for Live TV or Radio announcers."
PRODUCTION NOTES: "Recent projects include the Live HBO Broadcast of The Rolling Stones from Madison Square Garden, mixed by the inimitable Ed Cherney. We used 84 channels of Millennia HV-3 and 24 channels of API 212 to drive the signal five stories down to the Silver Studio below. The shows were recorded on Studer D-827 48-track digital and taken to The Hit Factory where they were loaded into Pro Tools HD for editing and remixed by Ed Cherney for later broadcast and DVD.

"We also recorded the Lonnie Plaxico Quintet live at the Jazz Standard in New York for SACD release on the new Japanese label, Village Records. The two sets were mixed live in 5.1 by David Baker, and recorded directly to the Sony Sonoma DSD. A second Genex DSD recorder was also running. It sounded amazing! Once again we used our trusty rack of Millennia HV-3 mic preamps at the stage and routed line-level out to the Mobile Studio's Neve VRM console. We also routed steaming plates of BarBQ from the Blue Smoke Restaurant upstairs from the club!" ■

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ROOM WITH A VU

Atlantis Group Recording

By Steve La Cerra

Recording on the lost continent

STUDIO NAME: Atlantis Group
LOCATION: Santa Monica, CA
KEY CREW: John Chominsky (president/engineer), Sean Graham (studio manager)
CREDITS: Casino of the Sun, ESPN Zone, '76 Gas, Activision, Blue Cross, Cadillac, Honda Motorcycles, PD Quick, Hyundai; Films: Blacklisted, Ubuntu's Wounds, My Husband's Son, Elixir, Wonderboy, Cryskrike, The New Sound Theory
CONSOLE: Mackie 8•Bus, Baby HUI; Argosy console
MONITORS: Dynaudio Acoustics BM15 [5], Bag End Infra Sub 18, Yamaha NS10, Auratone Sound Cube, Martinsound MutiMAX speaker switcher, Fostex D40 headphones [5]
AMPLIFIERS: Bryston 9B, Crown D75, Samson Servo-260, Q5 headphone amp.
RECORDERS: Panasonic SV3800 DAT [2], Fostex D15 timecode DAT, TASCAM DA88, DA38; HHB CDR-850 CD-R
OUTBOARD: Teletronix LA2A, UREI 1176, dbx 162, 160 [2]; TC Electronic Finalizer Plus, Gentner SPH10 telephone patch
EFFECTS: Lexicon PCM91, Yamaha SPX90, Aphex Aural Exciter Type C II
MICROPHONES: AKG C414 TLII [2], D112; Electro-Voice N/Dym 408 [6], Shure SM57 [2], Sennheiser MD416 [2], Milab VM-41
MICROPHONE PREAMPS: Summit MPE 200, TPA-200B, MPC-100A; Neve 1272 [2], Aphex Tubessence 107
COMPUTERS: Apple G4/400 MHz w/384 MB RAM, 50 GB internal drive and Lacie external 120 GB Firewire drive, 22-inch Apple Cinema Display; Dell PC/Pentium III w/128 MB RAM, 20 GB internal hard drive, Digidesign AudioMedia III card, 19-inch Dell monitor
DAW: Fairlight MFX3+, Digidesign Pro Tools Mix Plus TDM w/888l24, Universal Slave Driver
SOFTWARE: Digidesign Pro Tools v. 5.2 (Mac), Sonic Foundry Soundforge v. 4.5, Fairlight Autoconform (PC); Plug-ins include Digidesign Maxim, Bomb Factory LA-2A, 1176, Joemeek VC5 Meequalizer; Line 6 Amp Farm, Summit Extension 78
KEYBOARDS/MIDI: Akai CD3000, Alesis D4, Korg M3R, drumKAT, MidiMan Midisport USB
DIGITAL TRANSMISSION: ednet affiliate ISDN digital patch, Spot Taxi, DG Systems, DigiStudio
STUDIO DESIGN: Carl Yanchar of Wave:Space
STUDIO NOTES: "We are located a block from the 3rd St. Promenade," says John Chominsky, "a traffic-free street full of shops and restaurants — a client favorite. Location is important to us, and Santa Monica is a post-production Mecca. If there are two things that give a studio in the L.A. area marketability, they are location and speed. We pay great attention to how quickly we edit and how efficiently we attack a production without compromising quality. It's important to make your project's sound sparkle, but it's equally important to make your client comfortable. Oh, and by the way, the studio has a window to let in that Santa Monica sunshine!"
EQUIPMENT NOTES: "I track most everything through my Summit Audio MPE 200 preamps, then a good compressor, patched directly into Fairlight or Pro Tools, recording at 24-bit. I think the Summit MPE 200 is one of the best sounding modern preamp/EQ units on the market today. It is a two-space rackmount unit, but can be automated and recalled via Pro Tools TDM plug-in. We chose the Mackie 8•Bus analog console because it is super-reliable, flexible, fast (just reach up and turn a physical knob), and it sounds cool. Moving fader automation would be nice, but considering I do 99 per cent of my level adjustments, EQ'ing, and fades on my DAW, I don't mind reaching up and riding a fader or turning a pan pot every once in a while, on-the-fly. I love the versatility of my AKG 414 TLII's. They make just about everything sound great."
PRODUCTION NOTES: "A great deal of our work involves the internet. We often send ADR tracks via FTP or Appletalk, email finished radio mixes as MP3s through Spot Taxi or DG Systems, and receive sound effects or revision notes via email. So what keeps our clients busy while we're editing away? They are probably in the hallway playing our newly acquired vintage Ms. Pac-Man arcade game!"

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Sheryl Crow Accordion

By Lisa Roy

"Masterlink is a great facility that opened in 1965 as a studio for Monument Records. It's gone through technical renovations over the years, but the sound of the main floor has been modified very little," states engineer Chad Hailey.

DATE: November 11, 2001
STUDIO: Masterlink Studios
LOCATION: Nashville, TN
ARTIST: Emmylou Harris and Sheryl Crow
PROJECT: *Kindred Spirit* — A Tribute to Johnny Cash
TRACK: Sheryl Crow playing accordion on "Flesh and Blood"
PRODUCER: Marty Stuart
ENGINEER: Chad Hailey
1st ASSISTANT: Chris Scherbak
2nd ASSISTANT: Rob Clark

When producer/artist Marty Stuart tapped Hailey to engineer Kindred Spirits, which features the Grammy-nominated track by Emmylou Harris and Sheryl Crow with Crow on accordion, Masterlink was his studio of choice. "The tracking room is mostly wood with 35 foot ceilings," explains Hailey. "Instruments sound great in this big room because the space allows them to breathe. We recorded Sheryl's accordion out on the main floor to take advantage of the air."

SIGNAL PATH

"Mic choice was pretty easy," remembers Hailey. "I asked Sheryl if she had a favorite and she came back with Neumann U47 and Neumann U48 tube. I was pleased with her choice as Masterlink has several to choose from. I picked the U47 with a VF14 tube. Bill Bradley at the Mic Shop keeps Masterlink's tube mic collection in fabulous condition and I use this one quite a bit. I ran the U47 through an API 512 mic pre and back through a line input on the Neve V3-60 with Flying Faders and Legend Mix Mod out to an Otari MTR-100 two-inch 24-track analog deck running at 30 ips. I recorded on Quantegy 499 tape at +5/250.

"I SPENT A LITTLE TIME IN THE ROOM WHILE SHERYL WAS NOODLING AND FOUND A PLEASING AREA TO PLACE THE MIC SLIGHTLY IN FRONT OF AND OFF TO THE LEFT AS YOU FACE THE ACCORDION."

"Masterlink has about 28 channels of outboard preamps to choose from. I chose the API for two reasons: It adds a little warmth to the U47 and smoothes out the accordion a bit, and it was handy. No EQ or compression was used because the part was sort of a smooth pad sound with great tone and didn't need me to color it with anything in the signal path."

Photo by Glen Rose

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DAW mixing

By Tal Herzberg

This month, let's pay a visit to mega-mixer Dave Pensado, to discuss the roll of DAW's in his mixing process. Dave's credits include Pink, Christina Aguilera, Brian McKnight, Ice Cube, Destiny's Child, and Justin Timberlake.

EQ: What's "step one" for you when starting a mix?

DAVE PENSADO: The first thing is to know where you're going, so you want to have a game plan. For me, this always means listening to the rough mix first and carefully studying it; the song, the production. If no rough mix was provided, I'll spend a few minutes putting one together, than sit back and listen to the song. Sometimes it can take me hours before I come up with a game plan, but one way or the other, I never start a mix by listening to individual elements, like kick drum or vocal. It's just not musical. In the past, people didn't have the means to come up with good rough mixes. But working with DAW's, almost every producer I work for provides me with a great reference to the way they hear the final product, so I don't want to be arrogant and ignore their original vision. If the snare on the rough mix has lots of reverb on, I'm not just going to use a dry snare sound, even if I feel it calls for one. I'll wait for the opportunity to introduce this element to the producer, but only after starting with a wet snare. As a mixer, you're running a fine line between inflicting your taste upon people, and making sure you've preserved the taste of the producer.

Analog versus digital summing?

In analog summing, once you pass a certain threshold, you start getting a very pleasing distortion. As a result, and depending on the electronics, certain harmonics are becoming more emphasized, and the mix gets a unique "color." In digital summing, once you cross a certain threshold, you start getting non-pleasing distortion, so you can only go so far before you need to start limiting the bus.

Engineer Dave Pensado has used DAWs to mix some of today's hottest artists.

How "hot" is your stereo bus running?

Hot as hell...I have no self-control when coming to this issue. My rule of thumb is "the redder, the better". Now, of course this is true only for analog summing. You have to do it completely different when dealing with digital summing, since zero is zero, and there's no beyond. You have to learn how to work around this reality. Limiting plug-ins like McDSP's Analog Channel or Waves' L2 would often provide the answer.

Are you using any kind of processing across the stereo bus?

About half the time I put nothing across the stereo bus, especially if I know who's going to master it. There's no need to introduce extra processing like EQ and compression that will be done later in mastering anyway. Sometimes I'm of the opinion that doing that is like admitting defeat; you should be able to get a satisfying mix without it. I'll turn to it as a last resort.

Are you combining analog and digital signal processing?

When I play poker, I want all the cards in the deck to count for me. Same in mixing, I'll use whatever it takes to get the stuff sounding right, and I don't care if it's all analog, all digital, or a combination of both. Try getting intimately familiar with all your tools, so when duty calls you can quickly choose the right tool. Digital and analog compressors and EQ's can work beautifully together if set correctly. I gravitate toward analog processing when it's coming to kick, snare, and bass. Digital processing works great on vocal and keyboards. Guitars love cheap gear; it somehow works the best in that department....

Automation?

Lots of it. It's important that elements keep modulating in volume throughout the mix, or your brain will turn them off. Every fader in my mix constantly moves. I'll always push every kick on a downbeat of a bar up a few DB's, a snare after a drum fill will also get louder, etc. Certain elements will progressively get louder during the song, sometimes as much as 15 dB! I'll occasionally turn the master fader up and down between sections, or the entire mix will progressively get louder from top to bottom.

What medium are you using to print your mixes?

I'm using both analog and digital mediums, regardless if the mix was analog or digital. I like the sound of analog two-track tape machines running at 30 IPS, either 1/4, 1/2, or 1-inch, because they add a dimension to my mixes that digital doesn't have. However, since I'm also keeping in mind the mastering process, I'll choose which medium to provide to specific mastering engineers, since some of them are dealing with digital sources better than analog, and vice-versa.

Any experience with higher sampling rates?

Yes, and I think it clearly sounds better than lower rates, both for multitracking and two tracks. Sometimes

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however — mainly when working on rap or hip hop — I might go back to 44.1/48 kHz, for the relatively lo-fi and familiar characteristics of those rates; just like there were times when we've used analog tape for these styles.

Are you adding kick and snare samples to the original sounds?

I do when it calls for it. If the original sounds aren't strong enough, or if the mix is taking the production to a new direction, I'll add extra layers to reinforce what's already there. Unlike some other mixers I know, I rarely use the same samples on all my mixes.

Is there a Dave Pensado mixing template?

No. For me it's unfair for a client to pay my fee and get a generic mix. My mixes of Christina Aguilera's "Beautiful" and Pink's "Get The Party Started" sound completely different. There were times when I thought no mixer should practice generic (template) mixing, where the same sounds and processing apply to every job that comes through the door. But I have to admit that I do hear a benefit of doing that when it comes to radio airplay. However, it usually doesn't sound as good on a regular stereo system.

I try to reinvent the wheel every time I sit at the console. That means changing the effects, presets, signal chains, etc. I'm also trying not to mix more than three or four songs back-to-back by the same producer or artist, because I run out of ideas.

Do you see a time when most records will be mixed digitally?

I hope so. The more analog processing I'm taking out of the mixing process, the closer I am to being able to execute all my ideas. I can't wait for the day we're free of all this stuff, when people hire me for my ideas and not my ability to run a console. The ability to tweak sounds with digital processing is great, yet most of today's mixers are busy trying to mimic analog sounds with digital processing, and understandably so, since most of them were raised in the pre-DAW days. I'm waiting for the next generation of mixers who will be free of any analog habits, and I believe that then we'll hear a new sound.

Do you see a benefit in using a DAW control surface?

Yes, I do. There's something more musical about moving fader, turning rotary pots, and pushing switches, than graphically or numerically entering automation data. It's like the difference between playing into a music sequencer or manually entering the notes.

Are there any engineering "mistakes" you find hard to cure?

Over-compression is my biggest enemy. I can cure almost everything else, but that's a hard one to fix, and can only be done with lots of fader riding and constantly changing EQ and compression setting for different parts of the performance. Dynamics are very important to me, and if the singer gets loud on certain words, or a snare hit is softer in a certain spot, I don't want to iron it, but rather emphasize it even more.

Any final advice?

Get as much education as possible. Study music, recording, mixing, editing, the more knowledge you've got, the better you are as an audio professional. I'm always happy to answer any question via email (fdpen@ix.netcom.com). ■

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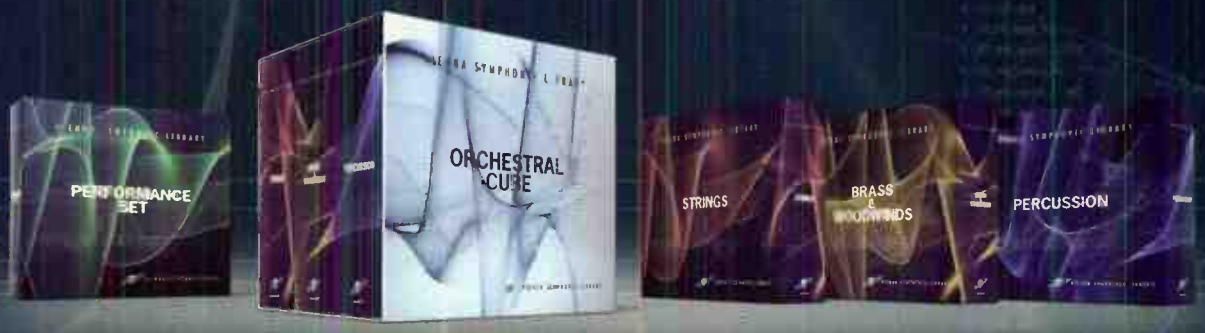

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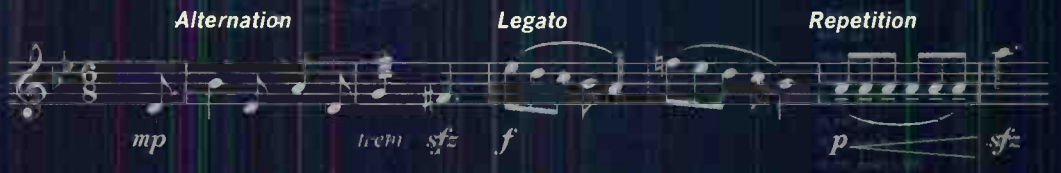

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Create a sequence to grab synth samples

Simplifying
Vintage Synth Sampling

by Ray Legnini

With MIDI being over two decades old, many classic MIDI devices have acquired "vintage instrument" status. Instruments such as the Casio CZ-101, Ensoniq Mirage, E-mu Drumulator, Yamaha DX7, Oberheim OB-8, etc. have unique sound qualities that can add useful timbres to contemporary productions.

A few vintage instruments have probably passed through your studio, and maybe you've contemplated sampling their sounds for future use. But do you just grab a few notes into your hardware- or software-based sampler, hoping that you'll be able to loop them later? This may work sometimes, but to get the most out of sampling a vintage synth, consider creating an archive recording that can serve later as a master source of samples.

There are several advantages to archiving sounds in a standard audio format rather than a particular sampler's format (which may be proprietary). Recording the instrument to a hard disk recorder, DAT machine, CD-R recorder (*e.g.*, Alesis MasterLink, HHB Burn It), or even a multitrack digital tape deck can create a source recording that will be usable for years to come, and be "clonable" to other digital media. Should your sampling needs change, you can re-visit the archives and create new samples.

THE SEQUENCER CONNECTION

The most efficient method I've found for creating an archive is with a MIDI+digital audio recording program, as you can use the MIDI sequencer as a "sample generator" that triggers source material in a controlled manner, while recording the results in an audio track. This is particularly handy if the instrument has multiple outputs (*e.g.*, a drum machine), as you can record these to separate tracks. And of course, a sequencer gives a much more even, smooth performance than having a human simply hit keys.

Another advantage is you can re-use the same MIDI sequence to record new instruments to new audio tracks. Thus, one project can hold all your archives, and be backed up to CD-R, DVD-R, or removable hard drive as a single entity.

The object is to program a sequence that triggers notes in a specific order, at specific velocity values, and for exact time durations. You can apply this process over the instrument's entire range, and even better, the sequencer can do all of this while you do something else! Just select the sound to be sampled, set a level, and start the sequencer and recorder.

The ultimate sampling sequence would contain every chromatic note of the keyboard (or every hit from a drum machine) played at multiple velocities. Each sample would allow the source note to decay fully for ultimate flexibility, and cover the instrument's full pitch and dynamic range. Practically, with keyboards you may want to limit the sampling sequence to notes that are a minor third (three half-steps) apart. Starting on C, you would use the notes C, E♭, G♭, and A in every octave. This requires no more than a two-note pitch stretch before a new sample takes over — for example, your C samples play from B (a half-step below) to C♯ (a half-step above). Then the next sample takes over. Most pitched instruments sound quite realistic with this sample layout.

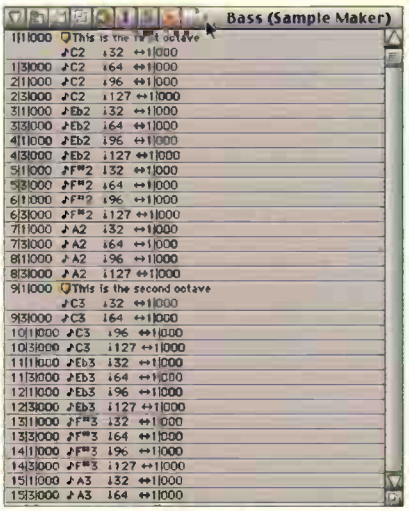

Fig. 1. A typical sequence designed to sample instruments.

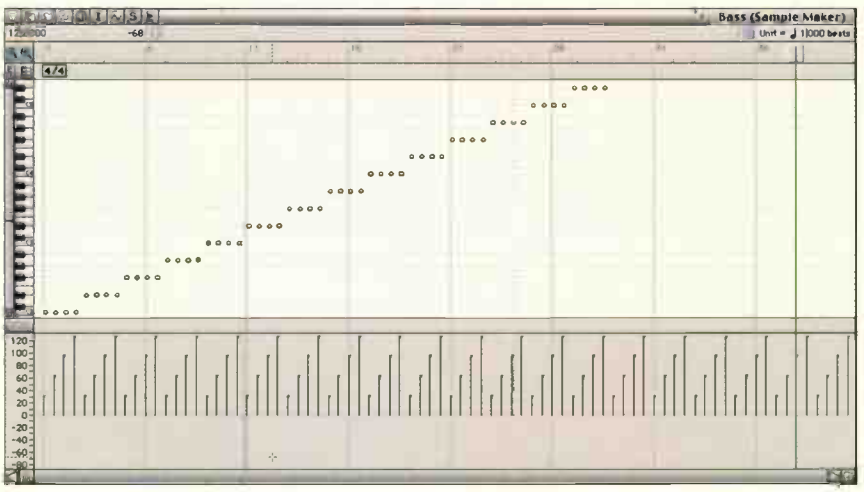

Fig. 2. Printing out an event list provides a useful reference document.

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Between three and eight velocity points should cover the dynamic range of most sounds, but remember that different instruments have different velocity curves; you may want to standardize on a linear velocity curve for archive-oriented sampling.

Figure 1 shows a sequence set up to record a bass sound. It has four velocity levels, plays notes one beat long at 60 BPM, and covers the notes over four octaves, played in minor thirds. It takes about three minutes to record 16 notes per octave.

REFINING/CUSTOMIZING THE SEQUENCES

Customizing the sampling sequence is easy. As the sequences are small and take up virtually no disk space, it makes sense to create multiple versions that are tailored to specific instruments (bass sounds, pads, pianos, drum machines, etc.).

For example, suppose a pad sound has a fairly long release time. Playing notes from the sequencer that are exactly one beat apart will cause the first note's decay to run into the next note's start, rendering the samples useless. To prevent this, simply program a sequence variation where held notes are followed by a few beats or measures of rest (for example, start the note at measure 1, release the key at measure 2, but don't start the next new note until measure 4).

Once you map out the sampling sequence, you can also use your sequencer's editing tools to create "documentation" that will help later in retrieving the samples. For example, looking at the note event list will let you determine the start time of specific pitches: C2, C3, C4, etc. Create markers to help locate particular sections of the recording, such as where each new octave of samples begins. Most DAWs let you add and name markers, and DAT tape allows the use of start IDs. In any event, document your sessions well to simplify the process of finding and using samples in the future. Many sequencers can print out the contents of a marker list, making record keeping even easier (Figure 2).

Here's one last labor saving tip: If you want to sample several different patches, use copy and paste to extend the original sampling sequence. Then, insert a program change before the start of each copied section. You can use a similar approach if certain controller values have an important effect on the sound — sample the sound several times, each time with different controller values or curves.

So, next time some great vintage instrument floats through your studio, set up the sequencer and do a little recording during the break. It won't take long to build up an archive of sounds that you can dump into a sampler later on, long after the vintage instrument is gone (or has broken down and you can't find replacement parts — but that's another story).

Ray Legnini spends his days as a product manager for Aviom, Inc. He spends his spare time doing sound design, engineering, and wishing there was more time to play guitar.

World Radio History

It's a dirty job to go from high-res audio to 44/16, but someone's got to do it.

What's The Deal With Dithering?

By Craig Anderton

The ultimate form of digital audio used to have a 16-bit word length and 44.1 kHz sampling rate. Early systems even did their internal processing at 16/44.1, which was a major problem — every time you did an operation (such as change levels, or apply EQ), the result was always rounded off to 16 bits. If you did enough operations, these round-off errors would accumulate, creating a sort of "fuzziness" in the sound.

The next step forward was increasing the internal resolution of digital audio systems. If a mathematical operation created an "overflow" result that required more than 16 bits, no problem: 24-, 32-, 64-, and even 128-bit internal processing became commonplace. As long as the audio stayed within the system, running out of resolution wasn't a problem.

Nowadays, your hard disk recorder most likely records and plays back at 24 or 32 bits, and the rest of your gear (digital mixer, digital synth, etc.) probably has fairly high internal resolution as well. But currently, although DVD-A and SACD are starting to show signs of life, your mix usually ends up in the world's most popular delivery medium: 16-bit CD.

What happens to those "extra" bits? Before the advent of dithering, they were simply discarded (just imagine how those poor bits felt, especially after being called the "least significant bits" all their lives). This meant that, for example, reverb decay tails below the 16-bit limit just stopped abruptly. Maybe you've heard a "buzzing" sort of sound at the end of a fade out or reverb tail; that's the sound of extra bits being ruthlessly "downsized."

Fig.1. Cubase includes dithering that defaults to being enabled, so if you use this, make sure that any other master effects plug-ins you add don't have dithering enabled. Or, disable Cubase's dithering section and use the other plug-in's dithering instead

DITHERING TO THE RESCUE

Dithering is a concept that, in its most basic form, adds noise to the very lower-level signals, thus using the data in those least significant bits to influence the sound of the more significant bits. It's almost as if, even though the least significant bits are gone, their spirit lives on in the sound of the recording.

Cutting off bits is called *truncation*, and some proponents of dithering believe that dithering somehow sidesteps the truncation process. But that's a misconception. Dithered or not, when a 24-bit signal ends up on a 16-bit CD, eight bits are truncated and never heard from again. Nonetheless, there's a difference between flat-out truncation and truncation with dithering.

THE TROUBLE WITH TRUNCATION

The reason why you hear a buzzing at the end of fades with truncated signals is that the least significant bit, which

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tries to follow the audio signal, switches back and forth between 0 and 1. In a 24-bit recording, there are 256 different possible levels (the lower 8 bits) between that "on" and "off" condition, but once the recording has been truncated, the resolution is no longer there to reproduce those changes. This buzzing is called *quantization* noise, because the noise occurs during the process of quantizing the audio into discrete steps.

Bear in mind, though, that these are very low-level signals. For that punk rock dance mix where all the meters are in the red, you probably don't need even 16 bits of resolution. But when you're trying to record the ambient reverb tail of an acoustic space, you need good low-level resolution.

HOW DITHERING WORKS

Let's assume a 24-bit recorded signal so we can work with a practical example. The dithering process adds random noise to the lowest eight bits of the 24-bit signal. This noise is different for the two channels in order not to degrade stereo separation.

It may seem odd that adding noise can improve the sound, but one analogy is the bias signal used in analog tape. Analog tape is linear (distortion-less) only over a very narrow range. We all know that distortion occurs if you hit tape too hard, but signals below a certain level can also sound horribly distorted. The bias signal adds a constant supersonic signal (so we don't hear it) whose level sits at the lower threshold of the linear region. Any low-level signals get added to the bias signal, which boosts them into the linear region, where they can be heard without distortion.

With digital, adding noise to the lower eight bits increases their amplitude and pushes some of the information contained in those bits into the higher bits. Therefore, the lowest part of the dynamic range no longer correlates directly to the original signal, but to a combination of the noise source and information present in the lowest eight bits. This reduces the quantization noise, providing in its place a smoother type of hiss modulated by the lower-level information. The most obvious audible benefit is that fades become smoother and more realistic, but there's also more sonic detail.

Although adding noise seems like a bad idea, psycho-acoustics is on our side. Because any noise added by the dithering process has a constant level and frequency content, our ears have an easy time picking out the content (signal) from the noise. We've lived with noise long enough that a little bit hanging around at –90dB or so is tolerable, particularly if it allows us to hear a subjectively extended dynamic range.

However, there are different types of dithering noise, which exhibit varying degrees of audibility. The dither may be wideband, thus trading off the lowest possible distortion for slightly higher perceived noise. A narrower band of noise will sound quieter, but lets some extremely low-level distortion remain.

SHAPE THAT NOISE

To render dithering even less problematic, *noiseshaping* distributes the noise across the spectrum so that the bulk of it lies where the ear is least sensitive (*i.e.*, the higher frequencies). Some noiseshaping curves are extremely complex — they're not just a straight line, but also dip down in regions of maximum sensitivity (typically the midrange).

Again, this recalls the analogy of analog tape's bias signal, which is usually around 100 kHz to keep it out of the audible range. We can't get away with those kinds of frequencies in a system that samples at 44.1 or even 96 kHz, but several noise-shaping algorithms push the signal as high as possible, short of hitting the Nyquist frequency (half the sampling rate, which is the highest frequency that can be recorded and played back at a given sampling rate).

Different manufacturers use different noise-shaping algorithms; judging these is a little like wine tasting. Sometimes you'll have a choice of dithering and noiseshaping algorithms so you can choose the combination that works best for specific types of program material. Not all these algorithms are created equal, nor do they sound equal.

DITHERING RULES

The First Law of dithering is: *Don't dither a signal more than once.* Dithering should happen only when converting a high bit-rate source format to its final, 16-bit, mixed-for-CD format (and in the years to come, we'll probably be dithering our 32 or 64-bit internal processing systems down to 24 bits for DVD-A, SACD, surround, etc.).

For example, if you are given an already dithered 16-bit file to edit on a high-resolution waveform editor, that 16-bit file already contains dithered data, and the higher-resolution editor should preserve it. When it's time to mix the edited version back down to 16 bits, simply transfer over the existing file without dithering.

Another possible problem occurs if you give a mastering or duplication facility two dithered 16-bit files that are meant to be crossfaded. Crossfading the dithered sections could lead to artifacts; you're better off crossfading the two, then dithering the combination.

Also, check any programs you use to see if dithering is enabled by default, or enabled accidentally and saved as a preference. For example, Sonar includes a dithering option (go *Options > Audio > Advanced* tab; there's a check box labeled "apply dither"). This is disabled by default. Unless you plan to export final, mastered material directly from Sonar, leave this unchecked.

Or consider Cubase, which comes with an Apogee-designed UV22 plug-in (HR in Cubase SX, standard in Cubase SL). When you call up a new file, this defaults to inserting in the final effects slot and is enabled (Figure 1). Now, suppose you add another plug-in, such as the Waves L1-Ultramaximizer+. This also includes dithering, which defaults to being enabled when inserted. So, check carefully to make sure you're not "doubling up" on dithering, and disable dithering in one or the other.

The best way to experience the benefits of dithering is to crank up some really low-level audio and compare different dithering and noise-shaping algorithms. If your music has any natural dynamics in it at all, proper dithering can indeed give a sweeter, smoother sound free of digital quantization distortion. ■

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You don't always need a dedicated controller for hands-on control

Hands-On Control with Cubase SX/SL

By Craig Anderton

It's so much more fun to mix with physical controls than a mouse, whether you go for a commercially available control surface (Radikal Technologies' SAC-2.2, Mackie Control, TASCAM US-428, Steinberg Houston, etc), a simple MIDI fader box, or even a synthesizer's controllers (mod wheel, footpedal, and data slider — I often use the M-Audio Oxygen8's controller knobs to make quick tweaks). Let's check out the many ways you can add control to Cubase SX and SL.

SETTING UP DEVICES

Go *Devices > Device Setup;* if you see your controller listed under Devices, you're good to go (if not, skip to the next section below). Make sure the controller is hooked up correctly; some connect via USB, some need a single MIDI cable, and some need bi-directional MIDI where both MIDI in and MIDI out go to the device. (Note: If Devices shows a controller you don't have, you can safely remove it. Click on its name in the Devices list, click on the Add/Remove tab, then click on "Remove.")

Next, click on the Device name, and a Setup box appears. Choose the MIDI Input and MIDI Output to which the device connects (Figure 1).

Now consult your controller's manual to see which knobs are assigned to which Cubase functions. Typically, you'll be able to switch faders in banks (*e.g.*, 1-8, 9-16, etc.) so a limited number of faders can control as many channels as you like. You may also be able to use other controls for various purposes — *e.g.,* switch a set of rotary controls from controlling panning to controlling EQ frequency.

Verify that all is well by moving some faders on your control surface; corresponding faders in the VST Mixer should move as well.

INSTALLING A SUPPORTED DEVICE

If you don't see your controller under Devices, go *Devices > Device Setup* then click on "Add/Remove." You'll see a list of all currently supported devices.

If your controller is on the list, great. Select it and click "Add." This will now show up under Devices, so proceed as described earlier.

Even if your controller isn't on the list, don't panic — it may emulate one of the supported devices. For example, many controllers can emulate the JLCooper CS-10. If so, choose that emulation mode, and select JLCooper CS-10 within Cubase. As another example, the SAC-2.2 does an excellent Houston emulation, so you can just select Houston if you're using the SAC-2.2 Of course, also make sure you have the correct emulation mode selected at your controller.

INSTALLING A GENERIC DEVICE

If you have an unsupported controller, you can still use it as a Generic Remote. To do this:

1. Go *Devices > Device Setup > Add/Remove tab.*

2. Click on "Generic Remote."

3. Click "Add."

4. Click on "Generic Remote" in the devices list.

5. Click on the "Setup" tab (Figure 2).

6. There are two fields. The upper field matches controls on the generic

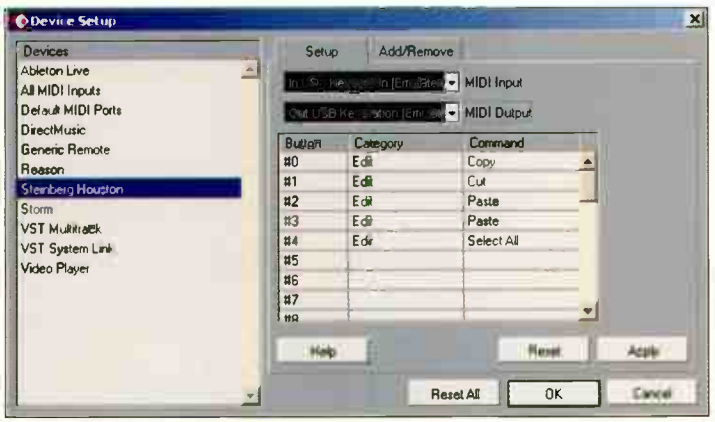

Fig. 1. The Setup menu for Steinberg's Houston controller not only includes a place to assign MIDI in and out, but also, lets you assign the buttons to various functions.

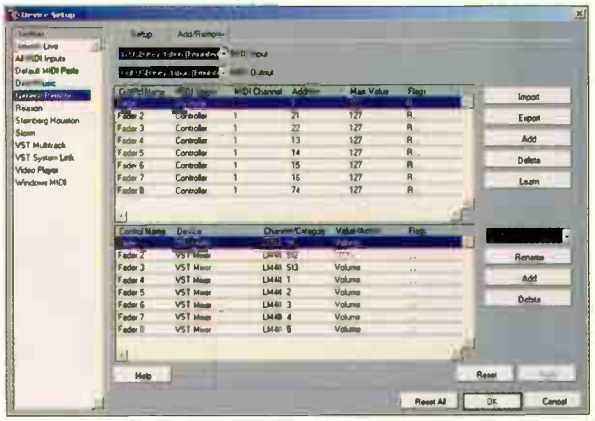

Fig. 2. The Generic Remote setup has been used to assign the eight control knobs on the M-Audio Oxygen8 to the first eight faders of the VST Mixer, which control the LM4 drum machine output levels. This is only one bank; a second bank (not shown) assigns the same knobs to VST mixer faders 9-15

World Radio History

remote to virtual faders; these may or may not correspond to actual Cubase faders, as determined in the next field. If you know the type of MIDI signal being generated, set the MIDI Status, MIDI Channel, Address, Maximum Value, and Flags parameters to correspond to the data sent by the controller. (Note that clicking on the "Help" button provides lots of useful information on these parameters.) For example, if you're using a synthesizer with a volume pedal that transmits controller 7 data over channel 1 and you want to map it to fader 1, the Fader 1 line would read Controller – 1 – 7 – 127 – R. To map the synth's aftertouch (also on channel 1) to Fader 2, its line would read Fader 2 – Aftertouch – 1 – (address is irrelevant) – 127 – R.

7. With the upper field, you can remove an unused entry by clicking anywhere on a line to highlight it, then clicking the "Delete" button. Conversely, if you have a controller with a zillion knobs, add entries by clicking on Add.

8. If you don't know the signal your controller is generating, no problem. Click on the Control Name that you want to assign (*e.g.*, Fader 1), move your controller, and while moving it, click on the "Learn" button. The fader will now respond to the signal generated by the control you were moving.

9. The lower field maps parameters within Cubase to the virtual faders. Typically, if you wanted to change track levels in a mix, the Device would be VST Mixer, Channel/Category would show the channel you want to control, and Value/Action would show Volume.

IT'S SO MUCH MORE FUN TO MIX WITH PHYSICAL CONTROLS THAN A MOUSE.

However, you have a huge choice of what can be controlled — click on a fader's Device or Value/Action field, and you'll see what I mean!

GOING TO THE BANK

Note that the lower field has a drop-down Bank menu where you can create banks of controls. For example, suppose your controller has eight knobs. You could click on the Bank field, click on "Rename," call it "VST 1-8," then map the first eight faders listed under Control Name to Cubase parameters (*e.g.*, volume for mixer channels 1-8). Next, you could add another bank, rename it to "VST 9-16," and again map the first eight faders to additional Cubase parameters (*e.g.*, volume for mixer channels 9-16). You could create another bank for Transport control, another for EQ settings, etc.

When you want to use the Generic Remote, go *Devices > Generic Remote,* and a small window appears where you can select the desired bank. Pretty cool — now go slam some faders! ■

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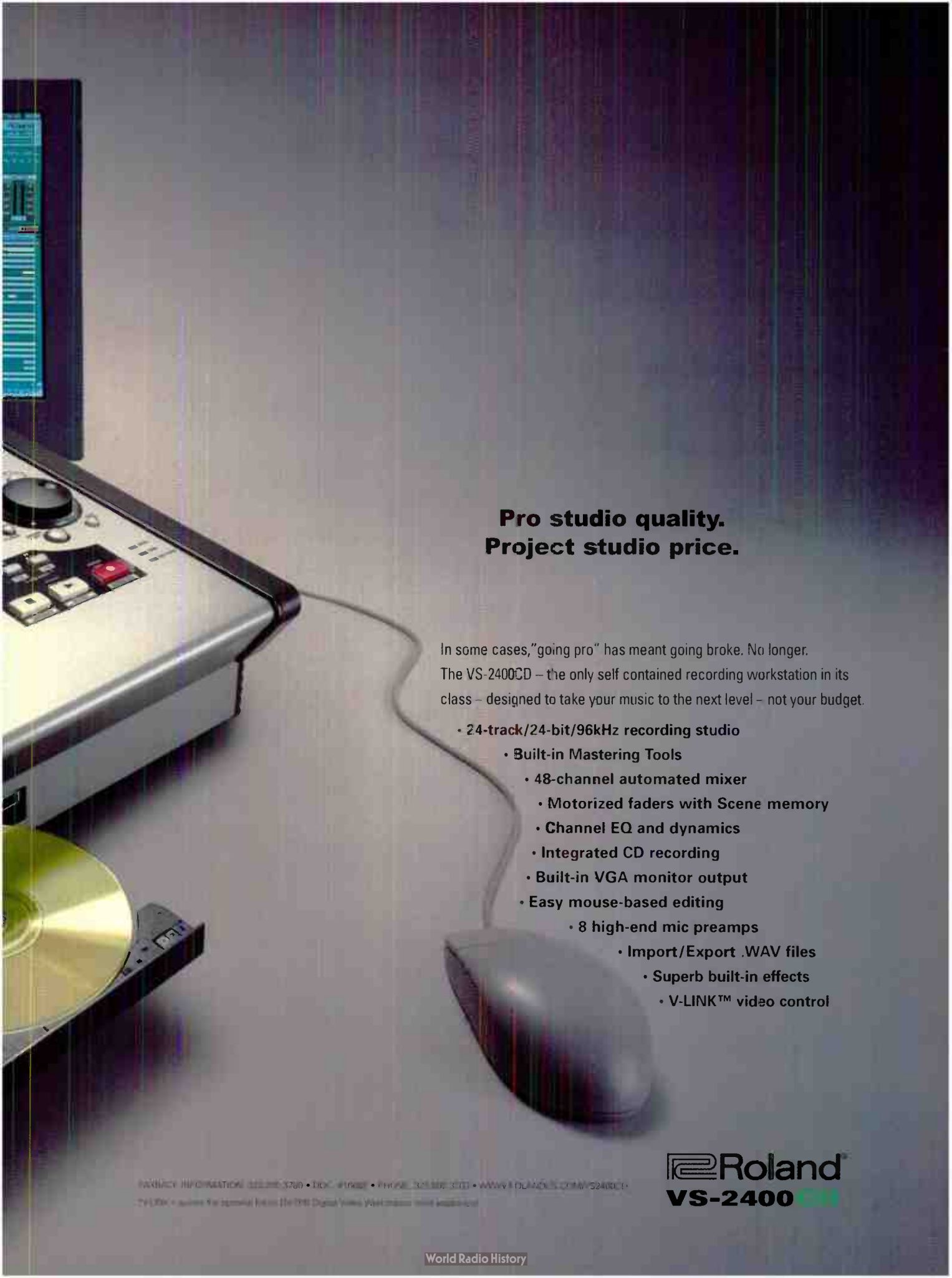

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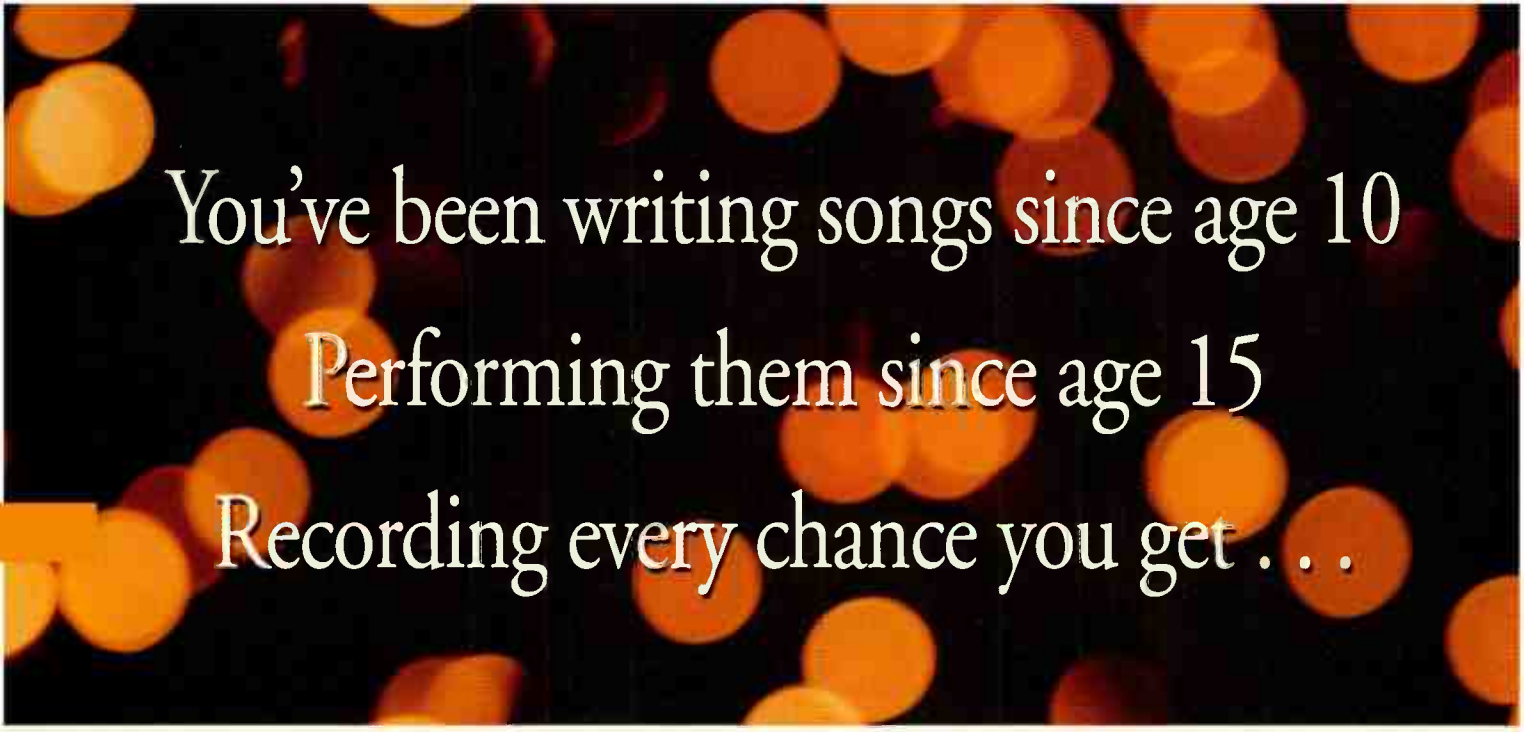

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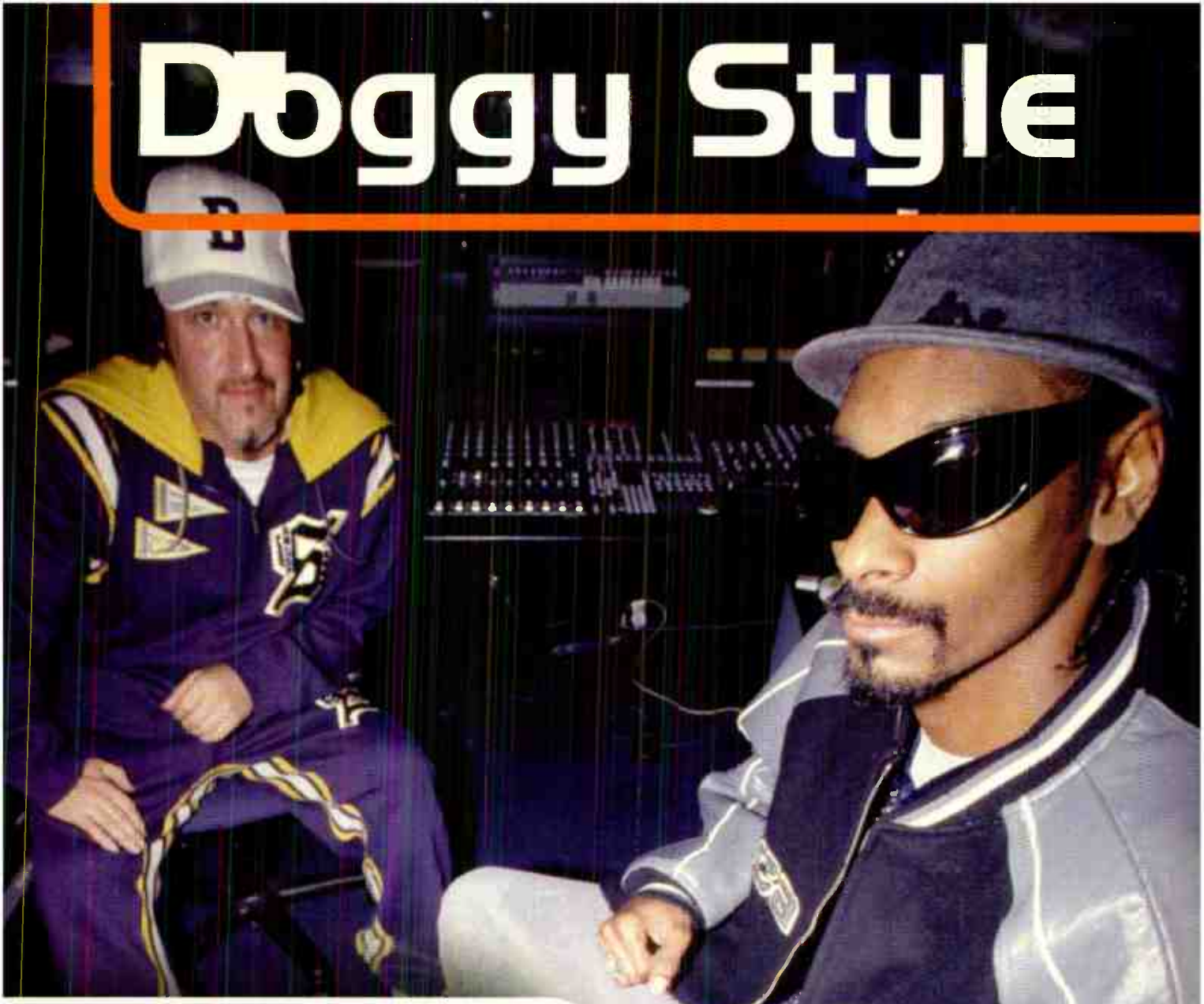
Doggy Style



Snoop Dogg launches a new album and a new label using his studios.

Snoop Dogg and engineer Dave Aron worship at Tha' Chuuuch, one of Snoop's studios.

By Steve La Cerra, photos by Block

There's no grass growing under this Dogg's feet. With his sixth studio album on the street, *Paid Tha' Cost To Be Da Boss*, a recently debuted MTV show called *Doggy Fizzle Televizzle*, Bigg Snoop Dogg is one of the busiest dogs in the music business. If that weren't enough, Snoop is negotiating to play the character Huggy Bear in a forthcoming film version of the '70s cop show *Starsky and Hutch*, has ongoing tour date commitments well into 2003, has his own clothing line and still manages to make time for charitable

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Doggy Style

Dave Aron recorded Snoop Dogg's latest in a variety of studios around the country, ranging from commercial facilities to home studios.

events such as his Snoop Bowl fund-raiser for the Lama Linda Children's Hospital in California. In addition to *Paid Tha' Cost To Be Da Boss*, Snoop's Doggy Style label recently released a showcase CD of new talent, *Snoop Dogg Presents: Doggy Style All-Stars — Welcome to Tha House, Vol. One*, which features up-and-coming artists LaToiya Williams, RBX, E White, Soopafly, and Lady of Rage.

"Doggy Style Records was a dream I had around six or seven years ago, " begins Snoop. "I saw a lot of artists who couldn't stay in position because they didn't have the patience or talent, and a lot of artists who needed a chance to be heard. Releasing *Welcome to Tha House Vol. 1* as a showcase for these artists was the best way I could get them all out at the same time. I basically oversaw the whole project. Some of the artists came in with producers, or came in with songs already done. Some just had ideas and I connected them with outside producers. Then there were a few songs I wanted certain artists to be on. Most of *Welcome To Tha' House* was recorded at my studio, but some of it was done on the road traveling, where the artists went to a producer in another town to finish their tracks."

When Snoop refers to his studio (aka Tha' Chuuuch), he actually refers to several of his studios, which served as the nucleus of production for his most recent release, *Paid Tha' Cost To Be Da Boss*. Snoop's engineer, Dave Aron, clarifies: "We have been recording either to the TASCAM MX2424 hard disk system or to Pro Tools because it's easy to take the tracks from place to place, studio to studio — quite a bit of recording was done at other studios. Snoop has a few different studios: two at this house, one at his other house. But the setup is pretty much the same at each one: Mackie D8B, Pro Tools, TASCAM MX2424's, Avalon 737sp's. I have the same exact studio at my house as well, so I can take the tracks there and work on them. Even some of the producers we work with have the same gear at their studios, so it's interchangeable. I can put tracks on disc, take them to Snoop's house to do vocals, bring it back to my house, mix, take a disk back to a producer's house, do more overdubs and mix. We don't have to work in one place so it gives us a lot of flexibility. I even did tracks with Bootsy Collins — though not for this album; for the soundtrack *Undercover Brother* — who we work with a lot. We recorded his tracks at his studio, where he has TASCAM DA88's and a Mackie analog board. I took the tapes back to my studio and played them on my DA-88's, which are connected to my D8B with TDIF connectors. From the D8B I went through the optical outputs into Pro Tools (888l24, and also HD3 with the 192 I/O), took a disk with the Pro Tools session to Snoop's studio, recorded his vocals, put the revised session on another disk with his vocal tracks, brought that back into my Pro Tools system and then mixed."

"Some producers have the gear at their own studio and bring us a track on disk. We bring the session into Pro Tools — we have a couple of Mac G4/833 MHz's — and then we can overdub and mix the track. Most of the time when we're working on vocals, the producers are at the session and the track they have brought us is still a bit rough. On occasion a producer will give us a stereo mix of the production and we'll add vocals or overdubs. They might hear Snoop's vocal, and want to make a change before we cut the instruments to multitrack. They can go back to their studio, make the changes and then we'll re-cut the instruments to multitrack, even if we have already worked on the vocals. Other times we multitrack the song at Tha' Chuuuch directly from the producer's instruments into Pro Tools or into a TASCAM MX2424. When we

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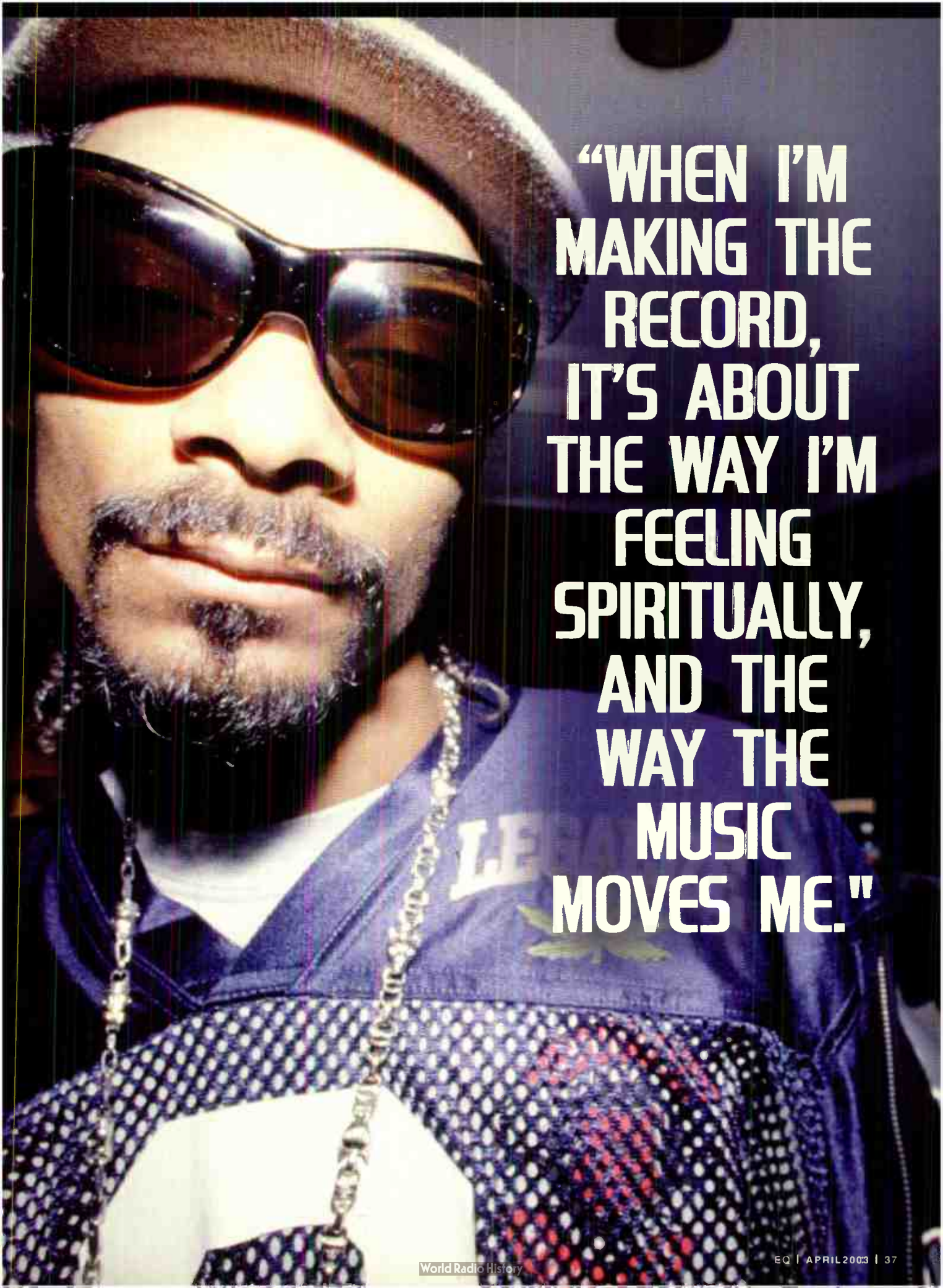

World Radio History

Doggy Style

The Mackie D8B digital mixer, TASCAM MX2424, Avalon 737sp, and Digidesign Pro Tools are the centerpieces for Snoop's studios.

work this way it's pretty easy for Snoop to suggest changes to a track while we're all working together. Then we continue with vocals and maybe a few overdubs.

"The recording process has been an evolution for us since I started working with Snoop around 1992 or 1993. In the past we'd record straight to two-inch. If necessary we'd fly hooks from one place on the tape to another using an AKAI MPC3000, and more often we'd match the vocals to the track rather than the other way around. The digital age has changed the production process for us. The big advantage is that it's so easy to extend a track or fly hooks around to different parts of a song in Pro Tools. With analog tape, sometimes it was easier to just record the hook every time it happened in the song instead of flying it in."

The credits for *Paid Tha' Cost To Be Da Boss* read like a who's who in hip-hop, with contributions from producers The Neptunes, Just Blaze, Fredwreck, and Jelly Roll, and guest artists including Soopafly, Nate Dog, Ludacris, Jay-Z, and Goldie Loc. "When I'm making the record," says Snoop, "it's about the way I'm feeling spiritually, and the way the music moves me. I have the producers come in with tracks ready for me. I'll tell them (ahead of time) what kind of style and sound I'm looking for, and either they have a sound that's perfect for my personality and my voice, or they work on a track for me (I do the lyrics). Usually when they bring the track into the studio, it's pretty close to finished. If there are changes to be made we'll do it on the spot. A lot of times I'm calling them based on what I have heard them do already, so it's usually pretty together."

"MY INSPIRATION IS THE MUSIC. I WRITE WHATEVER THE MUSIC MAKES ME FEEL FROM THE HEART."

Dave recorded Snoop's vocal tracks for *Paid Tha' Cost To Be Da Boss* "using a few different microphones. We have an AKG C12, a Sony C800G, a Neumann U89 and we'll pick the mic based upon the track. The C12 is pretty bright and sometimes that's not the sound we're looking for. The Sony mic has a warmer sound and is not as bright as the C12. Snoop has a real sibilant voice so I like to use something a little warmer, and the C800 suits his voice. The U89 is easy when we need something we know will work right off the

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NUENDO

nuendo... a producer's dream

chuck ainlay

Arguably the hottest producer/engineer in Nashville, **Chuck Ainlay** recently put the flexibility of the NUENDO system to work on **Mark Knopfler**'s latest solo release *The Ragpicker's Dream*.

"My progress from using NUENDO as an editor with EQ to a full multi-track recorder, processor, and sequencer has been astonishing to me!"

Chuck was able to combine tracks transferred from analog with comps of Mark and his guitar, overdubs by other musicians, and even material recorded on the rooftop of Mark's London studio with a laptop using the NUENDO Audiolink 96 series hardware. NUENDO gave Chuck the technical ability and sound quality that would have not been possible with analog while allowing him to capture all the magic of live recording.

"There are so many ways that I have found the NUENDO system superior to all others that I will never be able to go back."

nuendo producers group

This group of world-renowned producers including industry notables such as Chuck Ainlay, Elliot Scheiner, Phil Ramone, Frank Filipetti, Alan Parsons, Rory Kaplan and Greg Ladanyi know what it takes to be the best. They also know why NUENDO is the best digital audio production tool available and have partnered with Steinberg to ensure that it will continue to meet the needs of tomorrow.

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World Radio History

Doggy Style

bat. It's like a standard that we know will always work. I usually de-ess his voice because the 's's really come through. When we're working here I'll use a combination of EQ and the de-esser on the Mackie D8B. You can patch in a dynamics section and set it so that it is only operating on a particular frequency. When we're at a bigger studio, I like to use the dbx 902's. They can't be beat. Usually we go through the Avalon 737 for vocals and I cut the track flat with maybe a bit of compression, set for a fast attack and fast release to just catch the peaks (when we go to mix, I'll use an [UREI] 1176 on his voice if one is available). Snoop is consistent with his vocals — once he gets a sound the way he likes it, he'll maintain that through the track."

Some of Snoop's vocals were recorded in remote locations throughout the country. "We made it into a road trip," laughs Dave. "We got on the bus and headed to spots where the producers were located to track vocals with them. Some of the songs were recorded at Right Track (NY). The tracks came as Pro Tools sessions to Right Track, and we cut vocals using a Neumann U67 through the SSL mic pre and the SSL compressor. I like the way that compressor sounds on Snoop's voice because it keeps the vocal level very consistent without limiting it. We also recorded at The Neptunes studio in Virginia Beach and at Hi Tek's studio in Cincinnati. It was easier for us to travel to some of the producer's studios than it would have been for them to pack up all their gear up and come to our studio."

Though most of the time they use a small iso booth and headphones for recording vocals, Snoop will occasionally sing in the control room while monitoring on speakers. "We'll use a pair of NS10's," he explains, "and Dave will position them so that the mic won't pick up much; also we keep the volume low to avoid leakage."

"When it comes to recording vocals, Snoop typically has a clear idea of what he wants to do when he gets into the studio," Dave reveals. "He'll listen to the track and decide who will be on it (whether it's him alone or him with other guests). While the beat is playing, he'll write the lyrics right there on the spot. When he's ready to record the vocal, he'll ask me to put the beat up and off he goes. Most of the time the vocal stays, especially the hook — though he may have a guest do the hook (it depends upon whether or not the hook is done at that point).

"A lot of times Snoop nails it on the first take and he'll listen back to that. Other times we'll listen back and realize we need a better take. If it's good the first time out we don't keep working it to death. Snoop goes for the feel. If there's something *wrong* (sonically or in the performance) we go back and fix it. If the producer is at the vocal session, then obviously he will have input as well. Really anyone in the room at the time will have some input. Snoop will say that he's not a producer, but he does a lot of the production and arranging on the songs."

"DOGGY STYLE RECORDS WAS A DREAM I HAD. . . I SAW A LOT OF ARTISTS WHO COULDN'T STAY IN POSITION BECAUSE THEY DIDN'T HAVE THE PATIENCE OR TALENT, AND A LOT OF ARTISTS WHO NEEDED A CHANCE TO BE HEARD."

Snoop likes to do the whole song a verse at a time, and knock it down: "Even before I record vocals, I like to have people in the studio so I can get feedback on the music. If it's a bangin'-ass track, it makes you move even before you hear the words...the DJ's will mix it and they'll play it without the words. If I get a good reaction to the track, then I'll write the lyrics. I don't usually let anyone hear the words until I drop them in the studio, but sometimes I might let the producer hear them to get his opinion. The lyrics always come from me, but a lot of times the producer comes in and the hook is on the track already, so we'll gather it together and make it happen as a song. My inspiration is the music. I write whatever the music makes me feel from the heart. Certain times call for me to write the lyrics ahead of time but other times I just go with it — improvise. That's what I do. It's the gift I've got."

"When I work with other artists," Dave continues "I'll comp vocals, but for Snoop I usually handle it with

World Radio History

punches. Snoop likes to concentrate on recording one verse before moving on to the next. We'll record the lead vocal and also any double or triple (background) vocals while he's in the booth. Backing vocals are very important. When he records a double or triple, he rarely tries to double the lead vocal. He'll emphasize certain lines or add other vocal parts or sounds. Most are accents to certain words but he might do a different low or high voice, or do it with a different attitude on different tracks. When Snoop is done recording all the verses, he'll ask me to go back and record a track from top to bottom of the song. He'll add phrases or ad-lib, tying the track together with a laugh or a cough to accentuate the lyrics.

"We don't usually go back to fix one or two words, unless it's a case where a little punch can fix an entire take. He'll rap along with the tape, I'll drop him in and out and it's a done deal. I don't want to get too punch-y on rap. We want to keep that same feel and attitude for the song. It's not a matter of being able to punch or not. It's more the fact that he wants to take as much of the song as he can in one flow. If there's a mistake, we'll stop, go back a bit and punch in to the end of the verse.

"It's like a collage that Snoop is putting together. That's what keeps it interesting and adds life to it. It's always spontaneous and I have to get it right the first time because I can't

Doggy Style Live

In addition to handling engineering duties for Snoop in the studio, Dave Aron mixes Snoop's live shows. As we went to press, they were getting ready for a summer tour on a bill with the Red Hot Chili Peppers.

For this tour," Dave explains, "it'll be Snoop, DJ Jam, and a few guest rappers. In the past we've toured with a band, but most of the time it's Snoop and DJ Jam. In addition to Snoop's wireless mic (we prefer a Shure Beta 58) we run a stereo pair of channels for the DJ mixer and another stereo pair for a 360 Systems Instant Replay. There's a separate DJ mixer for the Instant Replay so DJ Jam can mute it if he wants. When we're mixing a record, we make show tapes so we don't have to go back later and remix the songs for the show. Most of the time it's the track with the hook, and empty spots for Snoop's vocal. When we do the song live I know that we have a good track right from the start because either I mixed it, or someone else who knows what they are doing mixed it.

"One of the most important things is making sure during sound check that the stage sound is as good as it can be. I work with the monitor engineer to get the music to a comfortable level (not overly loud) because Snoop's vocal has to be above the music on stage. He has to be able to feel it without getting swallowed up. Usually we put a lot of music into the sidefill mixes and the DJ wedge mix. The front wedge mix gets a bit of music but most of it is vocal. Backing vocals also go into the front mix but they tend to be louder in the sidefills.

"At sound check we also listen for potential problems with the turntables. Sometimes there's low-end feedback or the needle will jump because there's so much bottom. The trick is to find that spot where you can roll off the bottom end to eliminate the problems without taking the power out of the mix. Usually I cut the low end on the turntables around 60 Hz in the monitors, maybe 40 or 50 Hz for the house (I'll leave the Instant Replay full-spectrum). When you have a lot of subs in a concert system, you're still getting plenty of low end even when you roll off the bottom.

"Regardless of whether it's a DJ or a live band, it's relatively easy to get the music bangin'; the challenge to the whole show is keeping Snoop's vocal above the music. In some venues you have to fight the room and the PA as well. You can tell a lot just by looking at the PA — if it's stacked on the stage you're in trouble! When it's flown and it's done right, life is good. When we come into a room I like to test the system for clarity, bass response, volume limits and overall performance. I'll see where it maxes out and then back it down a bit. You need to know the limitations — how loud or how good the system can possibly sound— and then work within them. I don't play it safe, so it's a hard-hitting mix — maybe as high as 114 dB — but it's a warm sound. I watch the audience. I don't want to see anyone looking like they are in pain. It's never loud to where it hurts. I'll use a graphic EQ and set a curve that cuts out the nasty stuff: 2 kHz, 4 kHz, sometimes 800 Hz can get honky. I shape the graph to be as warm as possible, yet still keep Snoop's voice loud and clear. I think our show is a lot more clear than many rap shows.

"On Snoop's vocal I'll run a touch of compression (I might also ride his fader during the show). He has incredible projection and doesn't shout. Even when he talks softly, he pushes from the diaphragm. I usually leave his vocal dry and bring in special effects during certain parts of songs. I might use a quarter-note or eighth-note delay for the end of a phrase. I like the Roland SDE delays for that effect. I'll set the delay times during sound check and use the "X2" button to switch between quarter- and eighth-note delays. I sometimes use a pitch change, like in the beginning of "Murder Was The Case" where one of the rappers speaks a part with a devil-type voice. I drop the pitch maybe a fourth or fifth; if you drop it down too far you can't understand the voice.

"Snoop truly listens to what is happening out front. He can do a word or expression, and he knows I'll trail it with a delay. In the studio I usually turn up the send for a special delay while the return stays at the same level. In a live show you may not know it's coming and it's too late to send to the delay. At all times I leave the send opened up and bring the delay back to a fader. If I hear something I want to delay, I bring up the *return* instead the send. It adds a bit of production over the typical rap show. Snoop loves that kind of stuff." —*Steve La Cerra*

World Radio History

Doggy Style

make it onto the album. Even if it's just a rough mix after the vocals are recorded, I put everything I can into it because it could be the last session before the track goes to the album. There's no 'fix it in the mix' — when he's done, it's done unless there's a major problem."

Snoop and Dave mixed *Paid Tha' Cost To Be Da Boss* on Yamaha NS10M's with a Hafler power amp. "We've been using them for forever and we're accustomed to them," notes Dave. "We know what they sound like, and what they *look* like when they're pumping. You get a feel for how they are supposed to react, and you can tell if there's too much bass because they start to break up. The best of course are the George Augspurger/TAD's in the big studios, and also we like KRK's for mid-field. We have a pair of Mackie self-powered PA speakers with two 15's and a horn, plus a subwoofer. That's our large system for when we need to monitor it loud and get the club vibe, but when it comes to recording the vocals we always use little speakers because we don't want the bleed."

"I like to listen to mixes on the NS10's," adds Snoop, "because I can really hear the balance of the vocals against the track. I always burn a CD and take it to the car to check it out. I listen for clarity in the vocal and also the overall sound quality. Some of the car systems just bump up the bass too much. I want to make sure you can hear everything in the mix."

Some of the mixes were done on the D8B and others on SSL desks at Stankonia (Atlanta), Patchworks, or Right Track. Dave used automation "both from the consoles and Pro Tools depending upon what was easier. If it's a question of making a quick mute, I'd do that in Pro Tools because it's so fast. Or when we were recording I might have added a fader move in Pro Tools that I knew we would want in the mix later on. I usually keep the fader moves to one automation system, and then if I need to trim the overall level of a track I could do that in the other automation to avoid the possibility of a fader trim overwriting a move.

"I don't use much processing on Snoop's vocal, maybe a short reverb from a Lexicon PCM70, or I might use a longer reverb on the background vocals to distinguish them from lead vocal. Sometimes I use the reverb in the Mackie D8B, which sounds really good. I might occasionally use a delay for a special effect but I won't leave it on Snoop's voice throughout the entire track. Snoop doesn't have a lot of hardware at his house so if we are mixing there and I need say, a Pultec for a bass or kick drum, I'll use the plug-in. Sometimes I run his vocal back out of the D8B to the Avalon for a bit of EQ (or use the EQ on the board) but not much. It's more about getting a clean natural tone and making the words intelligible

World Radio History

and clear.

"We recorded the mixes to DAT and to a TASCAM CD burner at the same time. Sometimes I record the stereo mix back into Pro Tools on a two open tracks, but for this project it was mostly DAT and CDR. A lot of times you're under pressure and have to go with what is fast. It's not always about taking all the time in the world, like 'I have all the drum mics set up and this sounds good but let's change all of them to see what happens.' Unless there's a problem, I usually go with the first choice. I've got to keep the flow going. Snoop has a high patience level for the technical aspect and I'll keep working to get something right until he's ready to record, but I don't like to slow him down either."

When asked what makes *Paid Tha Cost...* different from previous records, Snoop replies "the direction of this record was a bit more fun, a little more playful, whereas the older stuff was more serious — which is what I was feeling at the time. The hardest part about making this record was trying to pick the best songs to make the record. I write so many songs, I don't want to make a bad decision. We didn't really do any scratch versions of the songs. Most of the time we go right ahead to the record, on the spot. We recorded and finished about 35 songs for *Paid Tha Cost...*, and then I picked the best ones for the record."

"EVEN IF IT'S JUST A ROUGH MIX AFTER THE VOCALS ARE RECORDED, I PUT EVERYTHING I CAN INTO IT BECAUSE IT COULD BE THE LAST SESSION BEFORE THE TRACK GOES TO THE ALBUM." —DAVE ARON

"We had two or three album's worth of material," elaborates Dave, "and some of it went to *Welcome to Tha House*. The two records were done almost simultaneously, just about a song per day. I admire Snoop's work ethic — he's *always* working — and that's part of what keeps it interesting for me. There's always movement on to another song or project — which is what intrigued me about working with him in the first place. It gives his music an edge like no one else's."

In addition to Snoop Dogg, Dave Aron has also worked with 2 Pac and Redman, as well as producers Dre, DJ Quik, and RZA. He can be reached via email at DaveAron@earthlink.net or through Gilly Iyer at 323-816-8358.

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By Craig Anderton and Mitch Gallagher

Winter NAMM 2003

The annual Winter NAMM (National Association of Music Merchants) tradeshow, held in Anaheim, California, in late January is one of the music industry's primary outlets for the introduction of new products. Gathered under one roof are manufacturers displaying every type of music-related item, from the most primitive ancient percussion instruments to the latest digital recording wonder-toys. The show is aimed at retailers — the idea is that manufacturers show their wares and convince the dealers to order products and sell them to you — but the show is also attended by an amazing array of individuals from all walks of life, including a few malcontent journalists like us. Here's a sampling of the new and cool products we saw during our time at the show....

Version 3.0 software for the Mackie/Universal Audio UAD-1 DSP card supports the use of multiple UAD-1 cards in a single Windows computer (multi-card Mac support is due soon), and also supports the Cambridge five-band EQ plug-in (**$149**) and Dreamverb (free for registered UAS-1 users). **www.mackie.com**

Engineered for smaller P.A. or nearfield stage monitoring applications, the **Yamaha AS312 three-way acoustic suspension speaker** (**$259** per speaker) requires no additional low-end support. The compact (22-9/16" H x 15-3/8" W x 16-5/8" D, 44 lbs.) design features a single 12-inch long-throw woofer with butyl rubber surround, a sub-enclosed high-compliance 4.25-inch cone midrange, and a one-inch compression driver coupled to a 60 x 40° horn. **www.yahama.com/proaudio**

The **AT3060** from **Audio-Technica** is a large-diaphragm tube microphone with a decidedly unique twist: Unlike virtually every other tube mic on the market, the AT3060 doesn't require an external power supply — it can be powered from the standard phantom power found in most mic preamps and mixers. **www.audio-technica.com**

The **PSP MixVerb** reverb plug-in utilizes a wide range of independent internal algorithms, from spring and

World Radio History

plate through ambience and reverse to room, hall, and cathedral. All basic parameters (decay time, room size, high frequency damping, pre-delay time, dry-wet mix ratio and output level) are freely editable. The **PSP PreQursor** plug-in brings vintage warm sound to EQ. It consists of a digitally modeled class A amplifier and a parametric equalizer with high shelf, sweepable mid band, switchable low shelf, and switchable low-cut filter.
www.pspaudioware.com

Tube ($129) from **Antares** is a tube Mac/Windows tube simulator for RTAS, MAS, VST, and DX formats. Based on technology from Antares' Microphone Modeler plug-in, the saturation effect ranges from a gentle warmth to a heavily overdriven tube amp sound.
www.antarestech.com

M-Audio's compact **Ozone ($399)** is an all-in-one device that comprises a 25-note keyboard (with pitch and mod wheels), MIDI controller with eight assignable knobs, mic preamp with phantom power, and USB audio interface with zero-latency monitoring.
www.m-audio.com

Digidesign has opted for the **iLok** plug-in authorization management tool, hosted by PACE. An iLok can hold over 100 cross-platform authorizations; the companion iLok.com website lets you manage your iLok's software authorizations (*e.g.*, register authorizations, and receive new authorizations from participating software publishers). iLok.com works with Mac OS9.1 to 10.2; Windows support is forthcoming.
www.digidesign.com

Edirol's PCR-30 ($225) and **PCR-50 ($295)** USB MIDI keyboards offer significant real-time control functions (34 controls and two pedal inputs). Other features include velocity sensitivity, memory presets for several software apps, and General MIDI 2 and blank cut-out templates for overlaying over controls.
www.edirol.com

BLUE's The Ball is a phantom-powered large-diaphragm dynamic mic. For further information, check out the First Look elsewhere in this issue. **www.bluemic.com**

■ DIGITECH RPX400 MODELING GUITAR PROCESSOR

There are lots of recording products. There are lots of processing products. But the RPx400 manages to make recording part of processing...or maybe it makes processing part of recording. Either way, it's significant because it breaks down barriers that previously separated the two.

In addition to providing a broad selection of modeling effects, the RPx400 USB computer interface simultaneously streams four processed and unprocessed guitar, microphone, and line level signals to the computer (with 24-bit resolution) for recording, while receiving a stereo mix back from the computer. Thanks to the software — designed with Cakewalk — the processor's pedals control primary recording functions such as track arming, transport, and more — you can lay down ideas, hands-free, without touching a mouse. But also, much of the process is semi-automated, making for a very smooth, musician-friendly workflow.

For live use, stereo XLR outs with cabinet/speaker simulation can go to a PA, while standard 1/4-inch stereo phone outs feed a guitar amp. In addition to the guitar input, the RPx400 includes an XLR mic input with level control, stereo line inputs, and a stereo "jam-along" input for a CD player, MP3 player, etc. for practice and jamming. A stereo headphone jack allows monitoring while recording, or practicing using headphones. There's even an-board rhythm programmer with 30 patterns and adjustable tempo, and a digital guitar tuner.

The RPx400 takes the "studio in a box" one level further, putting processing and recording control inside a floor processor for $374.95 list. Watching a guitarist put it through its paces is impressive indeed. www.digitech.com

The **Studio Precision 8** series of high-end speakers (**$799** per pair/passive, **$1,499** per pair/active) from **Event Electronics** feature next-generation technology, including redesigned woofer, tweeter, amplifier, and bass ports. Even the look is new — black mirror finish with gold trim. **www.event1.com**

The **V-Station ($199)** from Novation, based on their K-Station hardware, is a VST-format, Mac/Windows virtual analog synth with three oscillators, an arpeggiator

World Radio History

with programmable speed, synchronization, and effects section. www.novationmusic.com

Propellerhead Software has introduced Reload (**$49**), a Mac OS X/Windows XP utility that allows Reason and ReCycle users to load Akai S1000/S3000 sound disks, as well as import WAV files. www.propellerheads.se

The latest addition to **Apogee's** Mini Series, the **Mini-DAC**, is a portable two-channel D/A converter is capable of up to 192 kHz operation, and can connect directly to a computer using USB or it can accept a variety of digital input formats...**Big Ben** is a standalone master digital clock intended to reduce jitter and its affect on audio sound quality. www.apogeedigital.com

Focusrite announced the **ISA428**, which features four Neve-designed mic preamps with switchable impedence, instrument-level inputs, and optional A/D conversion. www.focusrite.com

The clip-on **Bil-lite Sport Utility Light** (**$29.99**) from Q-Lighting features a bright, white LED lamp powered by two 2032, three-volt lithium batteries (available from Q-Lighting for $1 each). Battery life is three days of continuous operation. www.bil-lite.com

TC ELECTRONIC REVERB 4000

TC's System 6000 has garnered accolades for its sound quality and flexibility, but its price has kept it from reaching a wider audience. The Reverb 4000, a single engine stereo version of System 6000, lists for $2,800 and features the best reverbs and presets from System 6000 and M5000 — along with emulations of classic reverb effects.

Fitting in a single rack space, the Reverb 4000 works in true stereo. In addition to an easy-to-use interface, the package includes the ICON software editor for Mac/PC (which talks to the Reverb 400 via USB). The Reverb 4000 features 24-bit AD/DA converters, 44.1 to 96 kHz sample rates, analog and digital connectivity (AES/EBU, S/PDIF, TOS-Link and ADAT digital I/Os), and presets that offer vintage reverb emulations, several types of stereo reverbs, mono reverbs, and a variety of "environments" ranging from claustrophobic rooms to outdoor scenarios. www.tcelectronic.com

DYNAUDIO ACOUSTICS AIR 20

The AIR series of speakers use precision DSP filtering and PWM (pulse width modulation) amplification, but also feature the intelligent TC Link network that provides central remote control, preset storage and recall, and extensive alignment flexibility. The AIR 20 ($4,660), which integrates into any AIR network, is the first three-way design to use this technology.

New tweeter and midrange designs allow for superior control over directivity, thus minimizing reflections from consoles, floors, and other surfaces. The tweeter utilizes a 1.1-inch softdome, a 1.1-inch aluminum voice coil, and an oversized neodymium magnet system; the midrange driver is built around a one-piece molded polypropylene 5.5-inch cone. To complement the lowest frequencies, the AIR 20 features a 10-inch woofer utilizing a one-piece molded polypropylene cone and a 4-inch aluminum voice coil.

Configurable in both stereo and 5.1 monitoring setups, AIR Series monitors are matched and interchangeable out of the box. www.dynaudioacoustics.com

TC-HELICON VOICEWORKS AND QUINTET VOICE PROCESSORS

TC-Helicon is a leading name in creative, DSP-based vocal processing. Their continued refinements in voice processing algorithms have culminated in HybridShift technology, whose surprisingly natural sound now lets you put harmony-shifted vocals up front in a mix without significant sonic compromise.

But there's more than just better harmonization quality. VoiceWorks ($799), the flagship of the new line, includes a high-quality mic preamp with 48v phantom power, TC compression and EQ, four fully programmable humanized harmony voices, two lead voice doubling voices, pitch correction with special live control feature optimized for performance, a "HarmonyHold" function that can freeze the backing harmonies while you continue to sing over them, TC Electronic tap-tempo delay, TC reverb, and both S/PDIF and analog I/O. It's also possible to select between equal-tempered and just tuning of harmonies, which can add more realism in group vocals (good vocalists naturally tend to use just harmonization because it's more accurate).

VoiceWork's little brother, Quintet ($599), offers the same harmony technology but is less "accessorized." It nonetheless includes a high-quality mic preamp and TC Electronic reverb. www.tc-helicon.com

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MACKIE D8B VERSION 5.0

Although the digital mixer market never took off as expected, Mackie has remained true to its established customer base, and continues to improve their D8B Digital 8•Bus mixer. The latest software rev is designed to improve overall productivity and efficiency, but also offer enhanced surround options.

The D8B Version 5.0 operating system ($299; free to those who purchased a D8B after November 15, 2002) includes an updated graphical user interface for improved navigation (with new views for all EQ and dynamics to go along with updated dynamics and EQ algorithms), a HUI emulation layer for interfacing with desktop recording systems, the ability to export track sheets and channel notes as HTML files for sharing session information with other users, independent surround monitoring level controls and on-surface surround monitor control, and plug-in chaining capability that permits "daisy-chaining" up to four plug-ins for one send. www.mackie.com

EMAGIC LOGIC 6

This updated version provides a new level of processor efficiency thanks to a novel "freeze" function for audio and virtual instrument tracks. This reduces their CPU load down to that of an unprocessed stereo audio track, thus freeing up CPU power for other purposes — and tracks can be unfrozen at any time for further editing.

Furthermore, each channel in Logic can now be assigned to one of 32 groups (mix group, edit group, or both); a new Arrange Channel Strip allows making changes to the mix while editing in the Arrange window, thus minimizing window-switching. The Arrange window also allows zooming into an audio region's waveform display at sample-level resolution, can now access DSP functions (including time-stretching using an improved Time Machine algorithm) that were previously limited to the Sample Editor window, and offers a marquee tool that allows region and sequence-independent selection and editing (move, copy, delete, cut, mute, etc.).

Video capabilities have been enhanced, thanks to a Video Thumbnail track that displays a video as single frames, and the ability to output a DV-formatted QuickTime movie via FireWire. This allows the connection of a standard DV camera or FireWire conversion box to Logic.

A Project Manager function saves all media files (audio, sampler instruments, settings, and movies) in a new "project" file format, making archiving and transport of projects created in Logic both efficient and easy; furthermore, a new Track EQ features eight bands with fixed modes (highpass, lowpass, high shelf, low shelf, and four parametric EQ bands). Each channel EQ has an optional "high resolution analyzer" graphic display mode.

Logic 6 also offers increased import/export support for audio file formats (MP3, AAC, Qdesign Music 2, Qualcomm PureVoice, µLaw, Alaw and IMA), and expanded control surface support (CM Automation Motormix, RadikalTechnologies SAC-2k and SAC 2.2, Mackie HUI and Baby HUI, and Yamaha DM2000 and 02R96). These hardware controllers can be used in combination with each other — or as part of an expandable Logic Control and Logic Control XT system. www.emagic.de

TC Works' digital audio editor for the Mac, **Spark XL 2.7** (**$599**, free update for users of Spark XL V2.6), features direct CD-burning with crossfades and pauses taken from Spark's Play List. Track indices may be activated or deactivated per region, so several regions can create one track without the need for rendering. Starting with this version, Spark is OS X only; Apple AudioUnit plug-in support is forthcoming in a free update. **www.tcworks.de**

Waldorf's two rack-space **AFB16** (**$2,495**) analog filter bank can integrate 16 high-quality analog filters into VST-compatible host software via USB. The brushed aluminum module features 16 filter status LEDs as well as power-on and USB activity LED. **www.waldorf-music.com**

Arturia is starting early in celebrating the 40th anniversary of the Moog synthesizer (introduced at the 1964 AES show): the **Moog Modular V** (**$329**), a virtual version of the legendary Moog Modular synthesizer, functions as a stand-alone module or

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3 Telly Awards,
2 Videographer Awards

Akane Nakamura - Engineer
LARW Graduate
"The Marshall Mathers LP"
Eminem (over 16 million sold)

Lisa Huang - Engineer
LARW Graduate
"Silk" The Silk Album (Cert. Platinum)
"Gridlock'd -The Soundtrack" (Cert. Gold)

Wassim Zreik - Engineer
LARW Graduate
Most recent: -
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Christina Aguilera
Mary J. Blige
Janet Jackson
Boyz 2 Men
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YAMAHA 01V96 DIGITAL MIXER

Yamaha's line of digital mixers, starting with the DMP7 and continuing on through products including the ProMix 01, 02R, 03D, DM2000, and DM1000, have dominated the digital mixer market. Their latest models with 24/96 operation move into the world of high-resolution audio; the 01V96 provides Yamaha's most cost-effective option yet.

The rack-mountable 01V96 ($2,499) features 40 simultaneous mixing channels with 24-bit/96 kHz audio, a range of stereo effects with 32-bit internal processing, and full automation. The control surface, large display screen and user interface allow analog-style hands-on operation, with eight user-defined keys available for assignable functions. Furthermore, it retains the same input/output, signal routing flexibility, and "feel" of the original 01V.

Inputs 1-32 feature independent gating/compression processors, four-band parametric EQ, delay, and two pre-EQ/post-delay insert points. Stereo inputs 1-4 feature parametric EQ; up to four of the built-in effect processors (two at 96 kHz) may be used simultaneously. Up to 99 scene memories are available for instant recall of all console settings, while separate memory libraries are included for storage of EQ, dynamics, input and output patching and effects settings. In addition to snapshot capability, an external sequencer can record real-time movement of the motorized faders, EQ settings, and other parameters, allowing complete mix automation

The seventeen 100-millimeter motorized channel faders can be instantly layer-switched to control any input or output. All available inputs, outputs, effects, and channel inserts are assignable to any channel or output via a digital patching system. A direct out function allows signal from any input channel to feed any digital or analog output.

The 01V96 also integrates with digital audio workstations and supports DigiDesign ProTools, Nuendo, and other popular computer-based recording programs; Mac/Windows-compatible Yamaha Studio Manager software is included as well. A significant upgrade is the inclusion of ADAT I/O, eliminating the need for a dedicated expansion card. For further expansion, an I/O slot accepts any existing or new Mini-YGDAI digital and analog I/O cards, including third-party cards, providing up to 16 inputs and outputs at 48 kHz (eight at 96 kHz). The 01V96 is also compatible with the Waves Y56K expansion card. www.yamaha.com/proaudio

APHEX SYSTEMS XCITER LINE

Starting with their Aural Exciter, Aphex has carved out a reputation in studios for high-quality processing devices, many based on novel technology. But the Xciter line represents a new direction, as Aphex takes its studio technology to the stage.

The Xciter pedals ($179 each), include Aural Exciter high-frequency enhancement and Optical Big Bottom low-end enhancement, and are available in versions tuned expressly for acoustic guitar, electric guitar, and electric bass.

The easy-to-use design features four control knobs, allowing separate control of the Aural Exciter and Big Bottom effects. Additionally, each model features an on/off foot switch, a switch to select between passive or active pick-ups for optimum noise performance, and a balanced DI output that can connect to the mic input of any preamp or mixer. The Xciters can be battery-powered, or run from a standard 9v adapter. www.aphex.com

VST/DXi/MAS/RTAS plug-in. Thanks to a new process that produces aliasing-free oscillator sounds, the sound is so close to the real thing Bob Moog gave his permission to use his name on the product. **www.arturia.com**

The **A48 Vintage Valve** microphone (**$1,295**) from **ADK** is a class A mic featuring a 12AX7 tube, a 1.07-inch/5 micron diaphragm, and nine polar patterns. The mic comes with a shock mount, heavy duty case, power supply, and multi-pin cable. **www.adkmic.com**

APO Multimedia's series of **Drum, Bass and Percussion** tracks (**$60** each) records the samples over an entire arrangement several times, then divides the arrangement into easy-to-access folders for intro, verse, chorus and endings. Users can drag and drop samples to create their own arrangement. Audiotrax comes in two different styles, "DJ Drums" (a stereo mixdown of the drums) and "DJ Mix It" (eight track unmixed version that allows the user to mix the tracks). All the tracks come in Acidized WAV and RX2 format. Each series of Audiotrax comes with five different song styles. **www.fostex.com**

Steinberg was showing a number of new software products including **V-Stack**, a virtual synthesizer rack for the PC, **VSL-2020**, an ultra-low latency PCI audio interface, **Virtual Guitarist Electric Edition**, a new version of Virtual Guitarist software focusing on electric guitar styles, and **HALion String Edition**, a dedicated string orchestra sample player. Also on display at the Steinberg booth was **Nuendo version 2.0**; support for Microsoft's WMA9 encoding for surround audio was also being shown. **www.steinberg.net**

The **Radial Engineering Dragster** (**$69**) is designed to correct the impedance and loading of guitar pickups when they are run through

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MIC PRE ▸ MULTIVOICE HARMONY ▸ PITCH CORRECTION ▸ HARMONY HOLD™ ▸ COMP & EQ ▸ TC EFFECTS

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With VoiceWorks your vocals are on target to hit the mark.

Features

- Superior mic preamp with phantom power, XLR and 1/4" inputs
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- Natural, humanized 4-part HybridShift™ harmony with Just and Tempered Tuning
- Lead-voice doubling and thickening
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- New HarmonyHold™ processing
- Transparent Pitch Correction with special live performance mode
- TC Electronic tap tempo delay
- Pristine TC Electronic Reverb
- Full MIDI implementation
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Just want the basics?
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PRESONUS TUBEPRE

Tubes were supposed to die a long time ago. And they pretty much did, except for the music industry. With the continuing dominance of digital, the warmth and overdrive characteristics of tubes are helping to add a bit more of a "vintage sound" to otherwise pristine recordings.

The TubePRE single-channel microphone/instrument tube preamp is based on a 12AX7 vacuum tube, and has a transformer-free signal path. It can serve as the first stage of a live or studio system, as a direct box, or insert in an effects chain. The dual-servo gain stage design employs no capacitors providing extended low-frequency response along with ultra-low noise performance, and wide dynamic control.

Frequency range is 10 Hz to 80 kHz, with a noise floor of 94 dBu and signal-to-noise ratio greater than 90 dB. Unweighted THD + Noise is typically 0.05% with no Tube Drive used, and up to 10% with 20 dB of Tube Drive. This means the TubePRE can provide both a high-quality clean sound as well as a colored tube saturation effect.

The front panel offers a gain and tube drive rotary control yielding 0 dB to +40 dB amplification for the gain stage, and 0 dB to +20 dB for the overdrive circuit. Four illuminated push switches control phase reverse, 20 dB pad to control high level input signals, an 80 Hz rumble filter that rolls off the low-frequency section to control bass swell (especially in live situations), and a 48v phantom power supply for condenser and some ribbon microphones. A red peak indicator light and backlit VU meter round out the front panel features.

The back panel contains the input, output, and 16-volt AC power connectors. The input section features a standard balanced XLR connector with an input impedance of 1.3k ohms and a 1/4-inch unbalanced "instrument" input with a 1 Megohm input impedance. The output section features the same connectors as the input section, with a balanced XLR output impedance of 51 ohms and an unbalanced 1/4-inch TRS output impedance of 51 ohms. Power is supplied by an external transformer rated at 16 VAC/1,000 mA, consuming 16 watts. The unit comes in a compact, steel/aluminum case that takes up 1/3-rack space and fits in a universal rack tray. www.presonus.com

FOSTEX MR-8 DIGITAL MULTITRACKER

Portable multitrack recorders are growing in popularity, as they shrink in size, cost, and weight. Fostex wasn't the first company to introduce a portable multitrack recorder, but its initial offering is a stunningly cost-effective eight-track recorder for portable use.

The MR-8 ($299) recorder/mixer (with real faders, knobs, and buttons) records to CompactFlash memory cards. Recording and playback uses uncompressed, linear 16-bit/44.1 kHz digital audio for a total recording time of about 25 track-minutes on the supplied 128 MB CompactFlash card. An Extended Mode doubles the available time, and larger capacity flash cards are also available.

The unit measures 2.5 x 12 x 8.5 (H x W x D, in inches) and weighs 3.5 lbs; operating on six AA alkaline batteries, it offers about three hours of recording time in the normal mode. The unit features several on-board effects, including reverb, delay, guitar distortion, amp simulation, mic simulation, and mastering settings. There are dual XLR mic inputs, two guitar inputs and two headphone outputs.

Other features include a USB port for WAV file import/export, archiving and CD burning via a PC interface, S/PDIF digital output, and a built-in microphone for memos, notes, and quick recordings of ideas.

CompactFlash media can also be read by many laptops and other computers, allowing the files to be used in a different host environment. A 128 x 64-dot matrix display and self-illuminating keys to show current status are designed to streamline operation. www.fostex.com

wireless systems and effects pedals. The compact lightweight unit can be attached to a guitar strap or to an effects pedal board.
www.radialeng.com

Z-Foam from **Primacoustic** is a high-density, open cell acoustical foam that is sculpted into a deep anechoic wedge shape. The flame-resistant foam is effective down to 500 Hz. The new foam also features a "frame-cut" design that allows cut pieces of foam to be easily lined up for a professional clean look.
www.primacoustic.com

The **V2.0** software upgrade (**$99**, or free download) for the **Eventide Eclipse** features two new algorithms, the DynamicDistortion and Predictive Vocoder modules. By modeling analog distortion types based on a proprietary curve-fitting process, the DynamicDistorition module produces characteristics that are highly responsive to the input signal. The Predictive Vocoder creates a vocoder effect using a high-resolution physical model of the human vocal tract. Also new is a program compare function, as well as significant enhancements to the system's performance.
www.eventide.com

TASCAM's Giga-PCI package combines the PCI-822 computer digital audio/MIDI interface card with their GigaStudio 96 software. The PCI-822 is a PCI-format computer card for Windows 95/98/XP that offers digital audio and MIDI interfacing.
www.tascam.com

The **Akai Fatbody** multi-effects processor uses acoustic guitar modeling to create the sound of an acoustic instrument from a piezo pickup's output. It also features a built-in guitar tuner, reverb, low shelf and high shelf filter, compressor, noise gate, and chorus/flanger/slap-back echo/rotor effects; effects can be easily combined...The **Rotator** signal processor uses modeling

World Radio History

technology to simulate the physical effects of a rotating speaker, but also incorporates multi-band distortion to create a smooth distortion sound... **MPC4000 operating system V1.40** adds the ability to save directly to ATAPI, SCSI, or USB CD-R/RW drives, providing convenient, low-cost removable media storage of up to 700 MB of data. This enhancement allows MPC projects to be saved directly to the on-board CD-R/-RW drive. Discs can be shared with Mac and PC computers, as well as any OS compatible MPC4000...**OS V1.40** for the **DPS24** adds improved mastering tools (dithered bit reduction and sample rate conversion), a project recovery function and improved support for ak.Sys Track View software that provides a PC-based graphic editing environment...The **HV-10 DecaBuddy**, a rack-mount version of the DecaBuddy VST plug-in, adds up to nine harmony parts to a vocal track, and also provides pitch correction and formant changes (male to female or vice-versa). **www.akaipro.com**

MOTU unveiled **MachFive**, Universal Sampler is a broadly compatible software sampler capable of handing surround samples. See First Looks elsewhere in this issue for more on MachFive...MOTU was also showing a pre-release version of the upcoming Digital Performer for OS. **www.motu.com**

Alesis featured their new compact surround monitoring system, **ProActive 5.1**. Comprising five tiny satellite speakers and a subwoofer, the system also includes built-in decoding, 450 watts of power, analog and digital I/O, wireless remote control, and it's THX approved. **www.alesis.com**

KORG TRITON STUDIO OS 2

EQ covered the Triton Studio previously as a First Look in large part because we saw it as a studio with a keyboard attached, not the other way around. OS 2.0 shows that assessment was correct, as the enhancements relate mostly to making it an even more capable keyboard-centric "all-in-one" studio.

Triton Studio now adds two dedicated tracks of hard disk audio recording to the existing 16-track MIDI recording, resampling, and "in-track" sampling. Audio can be recorded through onboard effects, and several editing functions are available. In fact, entire songs can be bounced onto two HD-Audio tracks for virtually unlimited track capabilities.

Other additions to the sequencer include MIDI System Exclusive Message recording for real time capture and control of every sequencer parameter (including effects changes), swing quantize, a "tone adjust" function for tweaking sounds from within a song, and one-touch setup for recording Programs and Combinations (complete with their arpeggiator settings).

Akai-format sample data loading has been improved, and the ability to merge multiple banks of native sample-based sounds has been included. Audio that has been sampled onto the internal hard drive can now be edited without loading into RAM, and the Triton Studio can connect directly to a computer via SCSI to move files to and from the internal hard drive. Additional enhancements include tap tempo, compatibility with Triton Le and Karma sound and sequence data, and footswitch control of SMF playback mode. The operating system is available as a free download. **www.korg.com**

SOUNDCRAFT MH3 CONSOLE

Audio may be traveling down a virtual path, but for live performance, large-format consoles with plenty of real-time controls remain essential. Last year, Soundcraft's MH4 caused quite a stir because of its feature set and design philosophy, so Soundcraft introduced a lower-priced follow-up at this NAMM — the MH3.

Available in 24, 32, 40, 48, and 56 mono channel frame sizes, all with an additional four stereo channels as standard, the MH3 features eight groups, twelve auxiliary buses, the same mic amp and EQ designs as the MH4, eight VCA and eight mute groups with snapshot automation, true LCR panning and outputs, and an integral 12x4 matrix.

The multipurpose topology allows companies to maximize inventory investment by using one type of console in several roles; in some cases, one MH3 console may need to fulfill both FOH and monitor duties.

Using Modular Block Architecture, inputs are assembled in blocks of eight, which helps to reduce both manufacturing cost and weight, but have been designed so that access to modules for servicing is still from the top of the console. Four stereo inputs comprise a single block, while the output and master modules also form two blocks. Each mono input module features four-band EQ with two parametric mid sections and swept high and low sections

Additional module blocks permit input/output flexibility, with a block of four mono and four stereo inputs available to replace eight mono inputs, or an eight-way stereo input block to bring the console's stereo capacity to twelve inputs.

The mode in use is determined by the output controls — there are a dozen fader-controlled outputs and eight rotary-controlled outputs. Each output section also features a stereo FX return with three-band EQ, with routing to the main mix outputs or to whichever signal is under fader control.

The integral matrix has four outputs with input feeds coming from the eight group busses, L, R and C mix outputs, and an external line input. The matrix can be expanded to 12x8 by using an optional module, which also has four mono inputs and would replace an eight-way mono input section.

Prices range from $15,495 (24 mono + four stereo channels) to $28,995 (56 mono + four stereo channels). **www.soundcraft.com**

World Radio History

The **K271** and **K171** Studio headphones from **AKG Acoustics** feature a closed-back ear cup design and ambient noise attenuation...The **SR 40/DIV** (**$250**), a stationary UHF diversity receiver, augments the WMS 40 Wireless Microphone System series. It comes with an all-metal case, automatic squelch, optional rack mounting kit, and provides two outputs that are adjustable from mic to line level. The SR 40 Diversity is also available in handheld, bodypack, and microtools system packages. These include the **WMS40/DIV/880** diversity handheld system with a D880 capsule (**$436**), the **WMS40/DIV/55** bodypack system with a CK55L cardioid lavalier (**$448**), and the **WMS40/DIV/GT** bodypack with a MK/GL guitar/instrument cable ($398). The WMS40 Diversity microtools systems include the **WMS40/DIV/GB** with GB 40 guitarbug (**$428**), the **WMS40/DIV/SO** system with a SO 40 wireless transmitter (**$428**), and the **WMS40/DIV/MP** with the MP 40 micropen ($448). **www.akg.com**

Crywolf's CoolMac Silencer xCab (from **$1,699**) and **gCab** (from **$699**) use heat pipe and airflow technologies to eliminate the need for external fans and provide quiet, cool sound enclosures for Apple Xserve and PowerMac G4 computers. Noise from an Xserve is reduced by 44 dB and a PowerMac G4 by 28 dB; the cabinet is virtually airtight to prevent the entrance of dust and dirt, and costs about as much to operate as a 20w light bulb. **www.crywolf.com**

SampleTank 2 from **IK Multimedia** includes three different synthesis engines: traditional resampling, pitch shifting/time stretching, and the new Stretch! engine that offers independent control over basic sound components such as intonation, tempo, and frequency spectrum. It also imports WAV, AIFF, Akai, and SampleCell sounds directly. In addition to the four dynamic sound parameters in the original SampleTank, envelopes, LFOs, filters, and other tools allow for complete editing ability — up to 64 parameters can now be accessed. It also features a new mix panel, redesigned GUI, 256-voice polyphony per module, more effects, and easier MIDI controller association...**AmpliTube** and **T-RackS** plug-ins are now

available for ProTools 6 running on Mac OS X...The **T-RackS** mastering suite plug-in (EQ, compressor, limiter, soft clipping) is now available for VST and DX platforms... **AmpliTube Live** for Mac OS X (**$99**) is a standalone version of the Amplitube guitar processor that needs no other application or hardware: plug your

■ EVENTIDE CLOCKWORK'S LEGACY PLUG-INS

A long time ago in a galaxy far, far away, Eventide was known for producing analog and digital signal processors that set new standards for their time. Long out of production, but still coveted for their sound, these classic algorithms have now been ported to the Pro Tools HD platform, where they've been reincarnated as plug-ins.

The Clockworks Legacy series emulates the sounds of several plug-ins that were studio mainstays throughout the '70s and '80s. These include:

The Omnipressor, introduced in 1971, was an analog compressor with an attitude. It uniquely offered simultaneous compression above the threshold point and expansion below; Queen's Brian May was a very early customer, and it quickly became a part of his signature guitar sound.

The Instant Phaser, also introduced in 1971, was a single-function analog processor with a sweeping filter bank whose two outputs were 180 degrees out of phase from each other. Members of Led Zeppelin endorsed it; listen closely to "Kashmir," and you'll hear the unmistakable sound of the Instant Phaser.

The H910, Eventide's first Harmonizer-brand effects processor, was introduced in 1975 and sold through 1984. Tony Visconti was among the early devotees, using it to create the unique snare sound on David Bowie's "Young Americans," "Low," and "Lodger."

The Instant Flanger, first released in 1976, was one of the first hardware products to recreate the flanging effect electronically. It was widely used on hit records thoughout the '70s and '80s.

The H949 was the first "deglitched" pitch changer. Introduced in 1977, the H949 was the only piece of digital gear Jimmy Page allowed in his rig. It became a staple in most successful studios of the time and is considered by many leading producers and artists to have immeasurably influenced that era's music.

The plug-ins all offer full automation, MIDI Control, and Pro Control integration to take advantage of the Pro Tools feature set. www.eventide.com

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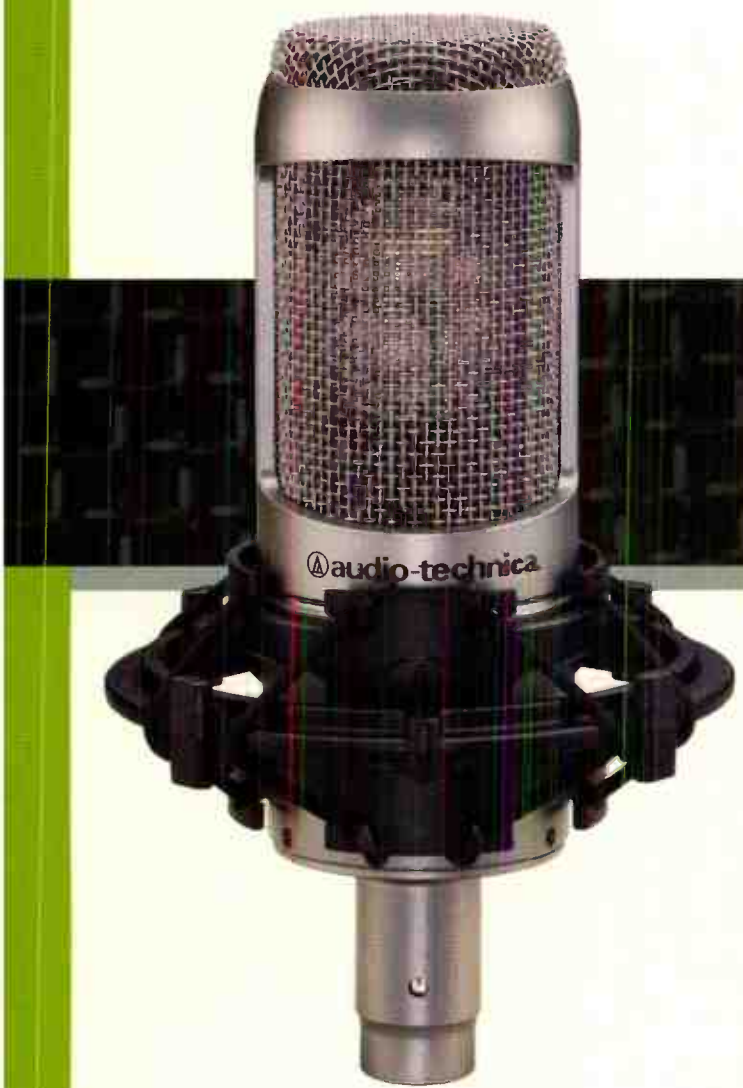

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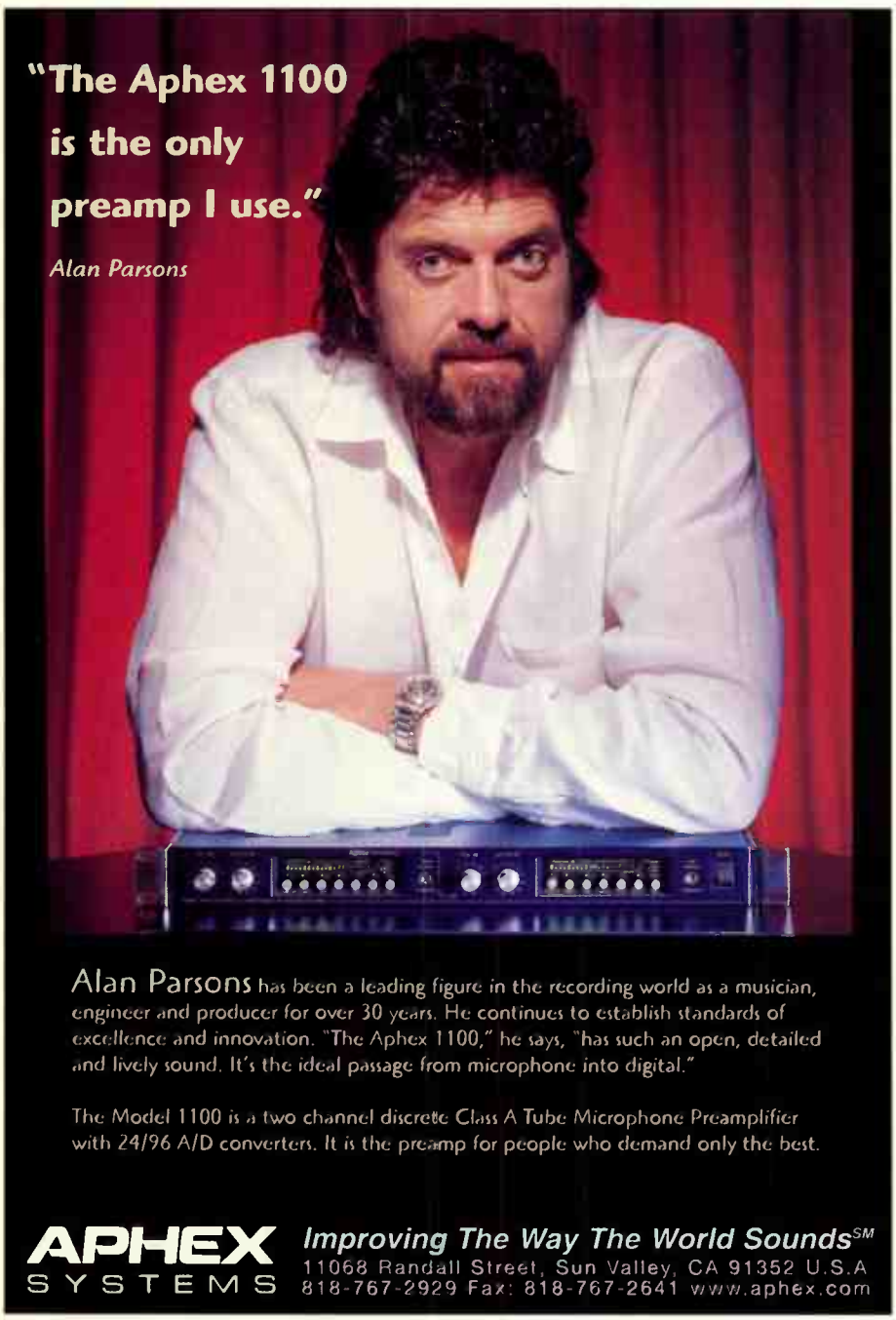
guitar into the mic input of a Mac running Jaguar, patch the line out to any amplification system, and you're ready to play with no detectable latency. Also, the standard AmpliTube guitar software now supports DirectX as well as RTAS, HTDM, and VST...The **IK Studio Bundle** (**$699**) includes the AmpliTube guitar amp plug-in, SampleTank XL plug-in sound module, and T-RackS plug-in.
www.ikmultimedia.com

Nady Audio's SDR-260 is a 1U stereo digital reverb with 60 factory and 60 user presets. The unit accepts MIDI program changes and a variety of modulation effects (flanger, pitch shifter, vibrato, etc.).
www.nady.com



The **Sonic Implants Symphonic Strings MINI** (**$449.95**), a smaller, more affordable version of the company's Symphonic String Collection, ships on six CD-ROMs in GigaSampler and Sound Font formats. Despite a smaller size, it contains all the major articulations of the larger library.
www.sonicimplants.com

The **IBP Junior Analog Phase Alignment Tool** (**$375**) from **Little Labs** provides an adjustable phase shift, as well as phase invert, to correct for situations where out of phase or partially out of phase signals are combined.
www.littlelabs.com

Cycling '74's Pluggo (**$199**), the acclaimed collection of plug-in processors and soft synths for the Mac, has announced an OS X-compatible version that supports VST and RTAS formats...**Max/MSP 4.2**, a toolkit for creating plug-ins, instruments, educational tools, etc. is now OS X compatible. A Windows XP version will be available soon.
www.cycling74.com

Ableton's Live 2.0 makes the transition from stage to stand and studio by incorporating multitrack recording and editing along with "elastic audio" — the ability to set tempo at any time during recording or playback, as well as a way to drop in hard disk-based audio, from loops to complete songs, for synched playback. Time-stretching is not limited to loops but works with any audio of any duration.
www.ableton.com

Behringer announced nine new products at the show, including the **DCX2496 UltraDrive Pro** (**$439.99**), a digital loudspeaker management system, **DX626** (**$129.99**) and **DJX400** (**$129.99**) DJ mixers, **Europower PMX2000** (**$379.99**) powered mixer, the B2 Pro (**$189.99**) dual-diaphragm condenser microphone, **UltraDI**

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DI20 (**$24.5**) dual-channel direct box/splitter, **UltraMatch Pro SRC2496** (**$249.99**) sample rate and digital format converter, headphones in the **Ultraphone** series: the **HPM1000** (multi-purpose, **$9.99**) and **HPX3000** (studio monitoring, **$19.99**), the **Ultra-Voice Digital VX2496** (**$199.99**) preamp and voice processor, and the **XM1800S** dynamic microphone (**$39.99**). **www.behringer.com**

A line of accessories by **Samson** includes the **PS01 Microphone Pop Filter** (**$25**), **DMC100 Drum Mic Clip Set** (**$25**; with three adjustable rim-clip drum mic clips), **WS1 Windscreen 5-Pack** (**$10**), **MC18 Mic Cable 3-Pack** with three 18-foot XLR cables (**$25**), speaker stands, mic stands, etc. **www.samsontech.com**

New from **TL Audio** is the **Ivory 5052 Stereo Valve Processor**. Each of the unit's two channels includes a

■ RME AUDIO HAMMERFALL DSP MADI PCI CARD

The MADI multi-channel digital audio interface has been eclipsed by the ubiquity and low cost of the ADAT and TDIF optical interfaces. But as the quest for more channels continues, MADI is getting another look. RME Audio, after introducing the ADI-648 MADI/ADAT converter, has now dropped the other shoe with a new PCI card that supports MADI.

Hammerfall DSP MADI for Windows XP supports 56- and 64-channel modes, as well as double- and single-wire technology (96k frame) for 96 kHz. Furthermore, the hardware delivers RMS and peak level meters for control of over 194 audio channels at minimal CPU load. Additional features include an analog 24-bit/96 kHz line/headphone output with 110 dB dynamic range, and separate mix bus for direct control of all input and output signals.

While most MADI-based devices require an additional word clock line, the Hammerfall DSP MADI (like the ADI-648) can extract the reference clock directly from the MADI signal, making long-distance connections even more convenient. The included expansion board carries word clock I/O (BNC), LTC sync input (RCA), and MIDI I/O. The word clock input is transformer-isolated and operates on both single- and double-speed signals automatically. MIDI I/O offers two completely independent MIDI inputs and outputs via breakout cable (four DIN sockets).

RME uses a configuration memory for the most important card settings. Instead of operating in a default mode on computer power-up until loading the driver, Hammerfall DSP MADI activates the last used sample rate, master/slave configuration, and MADI format immediately when switched on. This eliminates disturbing noises and clock network problems during power-up or re-boot of the computer. www.xvisionaudio.com

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tube preamp, tube compressor, four-band tube EQ, and a peak optical output limiter. VU metering and full connectivity is provided.
www.tlaudio.co.uk

Phonic's PAA2 sound analyzer features a 31-band spectrum analyzer, metering for SPL/dBu/dBV/VAC, signal generator, EQ setting program, and phase checker, with values displayed on a high-resolution LCD. www.phonic.com

Two additions to the **Sony Oxford** line of plug-ins includes **Dynamics** with separately controlled sections for compressor, limiter, gate, and expander, and two-band side chain EQ with audition function, and the **Inflator**, which maximizes levels for program material or individual instruments.
www.sony.com

KRK's E8T speaker features a new titanium oxide dome tweeter, woofer with high-temperature voice coil, and a 260w class A A/B discrete bi-amp design with 24 dB/octave filters and a delay to optimize driver integration and dispersion.
www.krksys.com

The **Joe Meek JM828**, distributed by **PMI**, is an 8x2 channel mic preamp with phantom power, phase reverse, mic/line switch, gain control, level, pan, and individual outs and ins (1/4-inch and XLR) for each channel.
www.pmiaudio.com

Emagic's EMI 6 | 2 m Gold Production Kit bundles the EMI 6 | 2 m USB/hub/MIDI interface, Logic Gold 5 recording software, the Xtreme Digital Sample Library, the EVB3 organ, EVP88 electric piano, and EXSP24 sample player.
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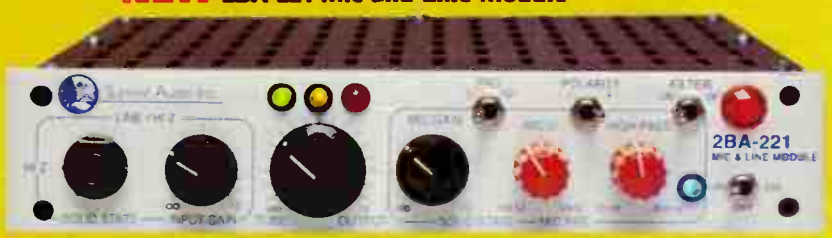

The new 2BA-221 continuously variable impedance microphone preamp is the latest offering from Summit Audio. Use the separate solid state input controls to mix the microphone input with the Hi-Z or line input into the variable vacuum tube output. The 2BA-221 also features a stackable input design; multiple 2BA-221's can be linked together to form a modular mixing device. Its swept high pass filter, multiple simultaneous tube and solid state outputs, insert jack, and internal power supply makes the 2BA-221 a powerful tracking and mixing tool.

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Roland's line of all-in-one studios, starting with the VS-880, has been a huge success: by combining a digital brain with an analog-style interface, and making the whole package portable, hundreds of thousands of musicians have found an entry point into digital recording. Yet the refinement process continues, with the latest model being the VS-2400CD.

This compact recording workstation provides 24 primary recording tracks and 384 Virtual Tracks for recording — all with 24-bit sound quality. A built-in 48-channel digital mixer eliminates the need for an external mixer, while 13 motorized faders make it easy to switch between the VS-2400CD's 16 input channels, 24 playback tracks and eight effects returns. Like the VS-2480CD, the operating system features an intuitive graphic LCD with mouse-based editing, and VGA monitor output.

New features include RSS panning, which can create realistic 3-D panning without complicated editing — up to six mono sources can be placed in a 3-D sound field — as well as Roland's

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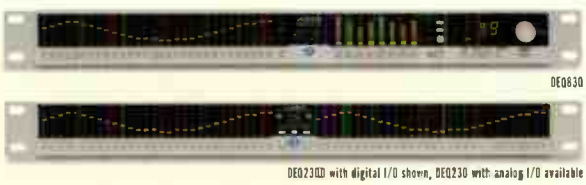

DEQ830

DEQ230D with digital I/O shown, DEQ230 with analog I/O available

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exclusive V-LINK technology, which allows the VS-2400CD to trigger video clips (or even control video parameters such as color balance and brightness) when used with the Edirol DV-7PR Digital Video Workstation.

Onboard effects include dedicated four-band EQ and dynamics on 32 channels, plus two stereo effects processors (expandable via additional VS8F-2 Effects Expansion Boards) with onboard mastering tools. A low-profile CD burner comes standard, which can also import WAV files directly into a song. An eight-channel R-BUS port allows the VS-2400CD to connect directly to another VS-2400/2480CD, to the SI-24 Studio Interface for more faders and I/O, or to a computer equipped with Roland's RPC-1 R-BUS audio card. www.rolandus.com

■ MAGIX SEQUOIA DIGITAL AUDIO EDITOR

Digital audio editors are a fact of life, and everyone seems to have their favorite. Sequoia has been pretty much "flying under the radar" in the U.S., even though the BBC and WDR (the German equivalent) use it in broadcasting applications. With new U.S. distribution and a seventh generation product, Sequoia is poised to become better-known on this side of the pond.

Intended for stereo and multi-track editing for classical, video, radio and film productions, interview and dialog editing, and surround mastering in stereo, Dolby 5.1 and ProLogic, Sequoia works natively on the host computer's CPU. It's also designed to be networked for administrative multi-user enterprises, whether on small peer-to-peer networks, or larger server-based networks such as Novell Netware or Windows NT/2000.

Sequoia supports MME, ASIO, and WDM; its cut mode offers two display areas that show and play back source and destination tracks independently of each other. As the lower display area shows the source material, the upper area displays the destination material in which the cut material can be arranged with the mouse or keyboard. Both areas can be navigated, zoomed, and played independently. You can therefore control your final cut by navigating source material while playing back in the destination area. Any number of tracks can be defined as source or destination.

All crossfades work in real-time and non-destructively. Crossfade editor features include symmetrical and asymmetrical crossfade editing, independent or grouped fade and audio material shifting, snapshots for on-the-fly comparison of different settings, multiple fade curve options (*e.g.*, linear, cosine, root cosine, log, etc.) and fade curve import using point lists.

Version 7 supports the Mackie Control for hands-on crossfader editor control. An external monitoring unit with optional motorized faders is also available.

Besides integrated effects such as de-noiser, de-hisser, pitch shift, four-band EQ, several dynamics processors, reverb, delay, and time stretch (and support for both VST and DX plug-ins), a special module from Algorithmix has been integrated for signal restoration functions including de-clicking. The dithering algorithms developed by the POWr Consortium retain a very high degree of perceptible signal dynamics while keeping noise levels to a minimum. Sequoia also supports Red Book CD burning. www.xvisionaudio.com ■

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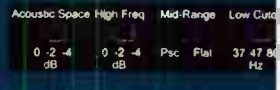
- works with any monitors

Today's compact recording setups allow you to make music anywhere you want. As a result, you need monitors that adapt to any work environment. That's just what **Acoustic Space Control** allows in our new world-class **BX8** and **BX5 reference monitors**. Since a monitor's bass response can change depending upon proximity to walls, this control section allows you to easily optimize performance—whether you need to put your **Studiophiles** on stands, on a shelf or in the corners. You can also compensate for room characteristics like reflective surfaces and anomalies in mid-range and bass response at the flick of a few switches.



The **Studiophile series** is also designed to let you take your music to new dimensions with surround sound so you can mix for today's home theater environments. The **Studiophile SP-8S** active subwoofer with stereo bass management adds low end that you can really feel to any stereo pair. And the minimal size, weight and price tag make it easy to add additional **BX8s** or **BX5s** to round out a complete surround sound system.

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7 Independently set attack and release times or use Auto mode to get that classic dbx sound.

8 12-segment gain reduction meter allows precision monitoring of compression.

9 Monitor either input or output signals.

10 Our patented switches are designed to be easily seen in the light or the dark

11 Tells you when the zero-attack, dbx- exclusive PeakStopPlus™ limiter is working.

12 Link both channels with True RMS Power Summing. The proper way to achieve stereo compression.

13 Over/Under LED's let you know at a glance if you're expanding or gating.

14 Vary the Ratio to select anywhere from gentle down-ward expansion to gating.

15 Detented controls and soft-touch knobs assure precision adjustments.

16 dbx's patented 3-segment precision LED OverEasy® indicator helps you precisely dial in just the right amount of compression.

17 Adjusts from mild compression to ∞ : 1 limiting.

18 Add make-up gain or match levels over a 40 dB range.

19 Patented peak-reading meter allows easy setting of optimum input and output levels.

20 Patented PeakStopPlus™ circuit intelligently tames signal peaks.

21 Internal power supply with easily replaceable power cord.

22 Easily accessible fuse — you'll probably never need to find out how easy.

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27 Separate sidechain send and return jacks—no special "insert Y-cables" required.

28 Convert semi-pro -10dBV signals to the dbx 1066's professional +4dBu internal level.

29 Precision balanced inputs reject hum and noise in tough audio environments.

30 Heavy-duty steel chassis will take years of road use and abuse.

dbx compressors have been the standard in signal processing for over thirty years. After all, our processors are in daily use all around the world with major touring companies, world class recording studios, radio and television broadcast facilities and anywhere else that audio professionals ply their trade.

Why do the best ears in the business time and time again turn to dbx for their processing needs? Maybe it's because we invented the modern day compressor. Perhaps it's because we have over 30 patents to our credit. It could that our technology like OverEasy and PeakStopPlus won't be found in any other compressor. However, we think it's because dbx just sounds better.

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Vintage Reborn!

EQ's guide to vintage re-issue and retro microphones

By Steve La Cerra

Ah, the musty smell of vintage gear, the warm glow of humming tubes. The wonderful scattering of metal boxes around the studio floor, pumping high voltage into classic tube mics.... That's a ton of fun, but the real motivation for using vintage mics is the sound. Who can argue with the sonic sheen of a Telefunken Ela M251, or the fat richness of a Neumann tube U47? You may not be able to argue with the sound, but some jaded microphone owners and collectors can argue about the potential aggravation associated with owning vintage transducers. All kinds of problems can plague old microphones including failed and hard-to-replace tubes, breakdown of diaphragm materials, power supplies that no longer deliver proper voltage to the capsule, and capacitors that sound bad due to age. Thus the challenge of finding a vintage mic in good condition can easily be as challenging as raising the cash to purchase it (see sidebar "Buyer Beware").

As far back as the early 1980s, manufacturers began to recognize the fact that "old-style tube microphones" were still in demand. It was

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then that AKG began producing The Tube, which combined a late version of their CK12 capsule (redesigned in the late 1970s) with a modernized version of the vintage C12's tube electronics. Slowly the trend grew, with Neumann re-issuing the U67 in 1992, followed a few years later by Lawson Microphones, who introduced reproductions of the U47 fet and U47 tube. The trend didn't stop at tube mics, with new re-introductions from AEA, Royer, AKG, and Neumann. One of the most commonly re-issued microphones is the Telefunken Ela M251. As one of the most rare microphones ever produced, steep price tags and dwindling numbers of prime specimens have resulted in no less that three different manufacturers offering their take on this legendary transducer.

The reasons for "going reissue" become pretty clear when you think about avoiding all those problems previously mentioned. You get a lot of security when purchasing a vintage reissue — a new microphone that's under warranty, a capsule that hasn't been abused, manufacturer support for cables, shock mounts, and other accessories, and better availability of the tubes used in the preamp circuit. Power supplies and schematics are readily available so you won't need to have one custom-built, and you can be assured that a new, modern supply will properly power the mic — without blowing it up. Generally speaking, noise is less of a factor in vintage reissues due to better manufacturing techniques and tighter tolerances, more critical tube selection and use of modern materials. Perhaps most importantly, a vintage reissue will sound consistent across the production run — so you won't have to pick through a dozen of the same model to find a "good one." And you'll still get the "warm and fuzzies" when you bring it into your first session. With all that in mind, here's a guide to vintage reissues currently in production (listed in alphabetical order)

AES's R44C is so similar to the original that it is parts-compatible.

● Audio Engineering Associates (AEA)

RCA's 44BX is one of the most recognized microphones in radio and television history. AEA's R44C is a museum-quality replica of the 44, circa 1936-1938. Hand-made by ribbon microphone guru Wes Dooley, the R44C uses the same 1.8-micron ribbon material originally manufactured for use by RCA. In fact, the R44C is so faithful to the original that its parts are interchangeable with those of the RCA 44B and 44BX. The R44C's exterior is finished as per RCA's "radio" finish — black and silver with a polished chrome grille.

The R44C's polar pattern is fixed bi-directional, and its frequency response is virtually identical to the RCA mic. A variation on the design — the R44CX — provides a higher output level for use with lower-gain mic pre's or in situations where mic noise would otherwise be an issue. The R44C is supplied with hard-wired, two-meter XLR output cable, shock mount/mic stand adapter, and AEA 44VC vertical case for proper shipping and storage.

● AKG Acoustics

Considered by many to be the Holy Grail of studio microphones, AKG's C12 VR draws its heritage from the original C 12, the first multi-pattern condenser microphone. The C 12 VR features a replication of the original CK 12 capsule, designed by AKG engineers after studying what are considered "prime" examples of original C 12's "donated" for study by microphone enthusiasts and engineers. Employing a multi-pattern, dual-diaphragm design, the C 12 VR's electronics are built around a 6072 tube — the same as the post-1960 C 12's considered to be the classic versions (pre-1960 C 12's used a 12AY7). A recessed pad switch allows pre-attenuation of 10 or 20 dB, and an internal switch adds a 10 dB boost for ease of use in a variety of situations.

The C 12 VR power supply adds six patterns intermediate to cardioid, omni, and figure-8 — very useful for fine balancing of direct and ambient sound. A two-position bass roll-off on

AKG's C 414B-ULS/SE Special Edition Stereo Set Stereo Set.

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#Digital8Bus Mackie 8-Bus Digital Recording Console ..... List ~~$6999.00~~ **$4995.97**

Roland's new VS DAW powerhouse!

Roland gives us another reason why their VS workstations are some of the most popular workstations out there, and why so many pros trust them to deliver superior quality and performance. Providing an amazing 24-tracks at 24-bit/96kHz, the **VS-2400CD** inherits many of the features found in the flagship VS-2480CD, but also offers a whopping 40GB hard drive and new RSS 3-D panning that creates a 3-dimensional sound field for mixing!

$2795.97

#VS2400CD Roland VS Digital Workstation .. List ~~$3295.00~~

The 01V goes 96k!

Last yeor, Yamaha updated their popular 02R to deliver 96kHz audio. Now, they're doing the same with another popular digital mixer, the **01V**, and taking affordable digital mixing to a new level – again! The 01V96 fits easily into a tight space (or budget) with full resolution 24-bit/96 kHz audio. You get 16 analog channel inputs - 12 with high-performance mic pres - and eight digital channel inputs via a built-in ADAT optical interface, plus a comprehensive range of superb 96-kHz compatible stereo effects with 32-bit internal processing.

$2199.97

#01V96 Yamaha Digital Mixer .....List ~~2499.00~~

Multi-track recording made affordable!

Searching for an affordable monster digital workstation? Your search is over! The **MRS-1266** offers 10 recordable audio tracks and two independent drum and bass tracks plus a stereo master channel for mixdown, comprehensive editing, digital effects, modeling, programmable rhythm section and a generous menu of other features at a great price! You can store your recording on the MRS-1266's 20GB hard drive, or burn it to CD with the optional CD-R/RW drive.

$749.97

#MRS1266 Zoom Digital Workstation .... List ~~$1329.99~~

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The hub of your digital studio

Now with 96 kHz recording and more!

Price ONLY $46.00/mo.

MOTU's **2408mk3** is a major upgrade to MOTU's popular 2408mkII but at the same price as the previous model!

This box contains everything you need to turn your computer into a powerful 24-bit/96kHz digital audio workstation. The 2408mk3 provides 8 channels of pristine 96kHz analog recording and playback, combined with 24 channels of ADAT and Tascam digital I/O — the most ever offered in a single rack space audio interface. Built-in video and SMPTE sync let you slave your entire workstation directly to video or SMPTE time code with sub-frame accuracy. The 2408mk3 provides cross-platform compatibility with Mac, Windows 98SE/ME/2K/XP and all of your favorite audio software and host-based effects. For Macs, AudioDesk workstation software is included.

MOTU's 2408Mk3

#2408CoreMk3	$949

All Access Price: $46/mo.*

- 8 analog I/O with 24/96 converters on balanced/unbalanced 1/4" TRS jacks
- 24 channels of ADAT optical I/O at 44.1/48kHz (1/2 at 88.2/96kHz)
- 24 channels of TDIF I/O (12 at 88.2/96kHz)
- Stereo S/PDIF I/O

www.sweetwater.com/2408CoreMk3

#2408CoreMk3 **MOTU PCI Digital Recording System** ..... List ~~$995.00~~ **$949.00**

CALL us today (800) 222-4700

24I/O

24I/O Expander

Price ONLY $41.94/mo.

Price ONLY $32.94/mo.

24I/O — MOTU's expandable studio

The **24I/O** interface fulfills the promise of host-based hard disk recording: to record, edit, mix, process, and master multitrack recording projects entirely inside your computer. The 24I/O provides 24 high-quality, 24/96 I/O in an affordable single rack space package, letting you connect and record from 24 simultaneous analog sources. Plus, the core system gives you MOTU's PCI-424 interface and Audiodesk workstation software. The front panel serves as a dedicated meter bridge, with every I/O represented by its own five-segment LED bar graph. The **24I/O Expander** is the perfect choice for adding on to your 24I/O Core system, your HD192 Core system, or your 2408mkII system! The 24I/O Core Expander consists of the I/O box of the 24I/O system. With that much I/O available, you can keep the outputs of your synths and outboard effects patched into your computer at all times.

#24ioCore **MOTU 24/96 Audio Interface** ..... List ~~$1495.00~~ **$1397.97**

#24ioExpander **MOTU Digital Audio Expander** ..... List ~~$1195.00~~ **$1097.97**

The Universal Sampler

The revolutionary **MachFive** plug-in not only samples, but reads just about every sampling format out there — including Akai, Roland, EMU, Giga, Emagic's EXS24, SampleCell, Creamware, HALion, Kurzweil, and REX. Plus, it's compatible with all the major audio formats, channel formats AND plug-in formats. What's more, you can actually save work within MachFive while you're working in one application such as Digital Performer, then seamlessly open it up and work inside of another application such as Pro Tools.

#MachFive **MOTU MachFive Recording Software** ..... List ~~$395.00~~ **$369.97**

Expanded high-end quality...

FireWire convenience

MOTU's **896** makes its mark as one of the best sounding, high-definition FireWire audio interfaces ever made. This eight-channel interface for both Mac OS and Windows boasts a 96 kHz sampling rate and eight built-in mic preamps, each with individually switchable phantom power. Its ease-of-use and incredibly simple set up makes working with the 896 a dream. The front panel sports handy input trim knobs, per-channel phantom power switches, headphone jack and monitor volume control. The 896 includes AudioDesk, MOTU's workstation software for MacOS, with recording, editing, mixing, real-time 32-bit effects processing, sample-accurate sync and more. It also ships with ASIO and other major drivers for both Mac and Windows platforms so you can use all of this power with your favorite audio applications.

#896 **MOTU FireWire Audio Interface** ... List ~~$1295.00~~ **$1249.97**

Quiet and mobile

The perfect laptop solution!

MOTU's **828** FireWire-based digital audio hard disk recording system takes professional audio recording a leap forward in portability and plug-and-play operation. It's an excellent solution for your laptop or any FireWire-equipped Mac or PC — just plug in and you're ready, with no PCI card or PCMCIA card required. The 828 offers 8 channels of ADAT optical digital I/O (switchable to S/PDIF optical), RCA S/PDIF I/O, 8 channels of balanced 24-bit analog I/O, phantom-powered mic pre-amps and an ADAT SYNC input for sample-accurate synchronization. The 828 provides CueMix™ Plus for zero-latency monitoring of live input with separate front-panel volume control over the monitored input signal. An ASIO driver gives you compatibility with all major audio software on both computer platforms. Also included is AudioDesk, MOTU's audio workstation software for Mac.

#828 **MOTU FireWire Audio Interface** ... List ~~$795.00~~ **$699.97**

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World Radio History

Apple's PowerBooks

The **12-inch PowerBook G4** packs formidable processing power for your computer-based audio production. This PowerBook G4 delivers blazing-fast performance thanks to its processor's aptly named Velocity Engine. The PowerPC G4 with Velocity Engine works with the PowerPC architecture to accelerate audio and video applications.

Fully loaded with a 1GHz PowerPC G4, 1MB of L3 cache, AirPort Card, Mega-wide display, Radeon graphics and a slot-loading SuperDrive, the 17-inch **Titanium PowerBook G4** boasts all the refinements and aesthetic touches that have made it the most coveted full-featured notebook computer on the planet.

Authorized Reseller

#ApplePowerBook Apple PowerBook for Audio **Call for price**

Mega data storage

The **Trip2** is the ultimate in capacity, functionality, and consistent performance for your studio projects. It can handle up to 1.4TB (Terabytes) of storage! It comes with 2 large-format drives in hot-swappable bays (6 bays), an AIT drive, and a DVD-RW drive for software installation and other options. Best of all, it connects to your computer via a single FireWire cable!

#Trip2Rack Glyph Trip2 Storage System **Call for price**

Cakewalk's "music creation station"

The **Project5** goes beyond the typical stand-alone soft-synth "rack" software to provide a complete studio environment. With Project5, electronic musicians have everything they need to experiment with, create, and perform music using integrated sequencers, software synths, samplers, audio and MIDI effects, and audio looping tools — all integrated into one workstation. In addition, Project5 provides advanced capabilities for synth layering, real-time pattern generation and triggering, and a seamless live-performance audio engine.

#Project5 Cakewalk Recording Software . . . . . List ~~$429.00~~ **$299.97**

Eventide

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Eventide classics

The **Clockworks** plug-in suite for Digidesign Pro Tools TDM painstakingly re-creates the sound and character of classic Eventide Harmonizer processors heard on so many landmark recordings from the 70s and 80s. The plug-in versions add full automation and MIDI control to take full advantage of current Pro Tools TDM & HTDM systems.

#Clockworks Eventide Plug-In . . . . . List ~~$695.00~~ **$495.97**

Universal control surface

The **M24** delivers instantly familiar, hands-on control of your favorite DAW software. Three MIDI ports allow for complete use of all 24 channels in HUI emulation mode, and its dedicated EQ section, 24 motorized faders with 10-bit internal resolution (1024 steps!) and advanced transport control set the M24 apart from the rest!

#M24 Mixed Logic Control Surface . . . List ~~$3499~~ **$3250.97**

UAD-1

The award-winning **UAD-1** DSP card gives you tons of vintage and modern workhorse FX, PLUS the power to run them at maximum strength on your Mac or PC! It features a floating point processor, so there's no drain on your CPU, and a collection of very powerful processing plug-ins, like RealVerb Pro and the CS-1 Channel Strip! Four megabytes of on-board ultra-fast memory means smooth reverbs and delays, and plenty of bandwidth to manage the DMA controller.

#UAD1 Mackie Audio DSP Processor Card . . List ~~$995.00~~ **$599.00**

Sweetwater Exclusive!

Only at Sweetwater can you get the amazing power of **PowerCore** DSP card, with TC Works' incredible plug-ins, AND the one-of-a kind Waldorf D-Coder synth vocode. for one low price! A single PowerCore is capable of running up to 8 Megaverbs at once! Included with the PowerCore is a collection of TC's finest processing — 24X 7•C, CLASSIC VERB, MEGA REVERB, CHORUS•DELAY, EQ, VOICE STRIP, VINTAGE CL, POWERCORE 01 Synthesizer, MASTER X3 — all easily available from within your VST or MOTU MAS compatible digital audio workstation. This plug-in bundle is easily one of the finest available at any price-point, and comes with its own DSP card! A streamlined version of Spark LE, TC Works' mastering software, is also included, with stereo waveform editing, playlist editing, comprehensive plug-in processing, CD burning and audio format conversion. It provides real-time processing with 32-bit floating point accuracy and supports 8 to 32-bit audio files at sample rates up to 192kHz. Sweetwater 's Exclusive PowerCore Plus adds Waldrof's D-Coder to these already powerful plug-ins. D-Coder goes beyond standard Vocoder concepts by providing an integrated synth as tone generator.

TC WORKS

#PowerCorePlus TC Works DSP Processor Card . . . . . List ~~$1299.00~~ **$999.97**

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New AT tube condenser

With a HUGE diaphragm (larger than an inch), and hand-selected tubes that are individually tested and aged to peak performance, the **AT-3060** delivers a full, beautiful sound that really makes this mic stand out. The tube is built into the AT-3060, so all you need is a good quality XLR cable and you're set! Unlike other tube mics, no dedicated power supply or special cable is needed.

#AT3060 Audio Technica Cardioid Microphone List ~~$599.00~~ **$499.97**

audio-technica

Low-priced condenser

The **CO5** offers Samson condenser technology in a comfortable, hand-held design. For far less than the price of many dynamic microphones, the CO5 gives the live performer professional, fantastic-sounding vocals and more. It has a cardioid pickup pattern, smooth, flat frequency response, a multi-axis shock-mounted element, gold-plated XLR connectors and a convenient carry case and mic clip.

#C05 Somson Handheld Condenser Microphone List ~~$174.99~~ **$69.97**

SAMSON

All Access Price ONLY $21.00/mo.

Perfect pitch is now within your reach...

TC HELICON

With Pitch Correction, multi-voice harmonies, double tracking and more, **VoiceWorks** is a complete vocal kit, with a lengthy list of professional-quality voice processing features. Just one highlight — TC Helicon's new HybridShift technology, which lets you flawlessly solo harmony voices without marring the overall sound.

#VoiceWorks TC Helicon VoiceWorks ..... List ~~$799.00~~ **$699.97**

Focusrite

Superb vocal processing

All Access Price ONLY $29.97/mo.

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You've never worked with vocal processing like this, especially at this price! Packed full of features to let you create the perfect vocal sound, the **VoiceMaster Pro** mic pre/compressor features characteristics of two Focusrite favorites — the legendary ISA channel strip range and the award winning Platinum Series processors — for some of the finest processing available!

#VoiceMastPro Focusrite VoiceMasterPro ..... List ~~$750.00~~ **$595.97**

All Access Price ONLY $16.20/mo.

Vibrant Avalon Sound!

The **U5** DI box will improve the sound of virtually anything you plug into it! It offers 6 EQ curves designed to optimize the sonic performance of the U5 DI box with a wide range of sources. Both the mic and line outputs run in tandem so you can A/B both signals of a single source and then decide which one you like. The U5 does all this with a superlative warmth that's second to none, with fully balanced, pure Class A outputs.

#U5 Avalon Mono Inst DI Preamp List ~~$595.00~~ **$539.97**

All Access Price ONLY $41.88/mo.

The portable Apogee

Apogee's **Mini•Me** is a compact, portable 2-channel A/D converter with built-in mic/instrument preamps. Expanding on Apogee's legacy of quality converters, the Mini•Me boasts 24/96 conversion and Apogee's industry standard UV22 HR word-length reduction system. Ultra linear mic/line preamps are provided with Phantom power on XLR/TRS connectors. A unique new three-curve stereo compressor/limiter circuit is ideal when you need extra punch, or require a safety net against overloads. Virtually every major stereo digital output format is available (AES/EBU, S/PDIF, even USB!), ensuring connectivity to everything from CD Recorders to USB equipped computers.

#MiniMe Apogee Mic Preamp ..... List ~~$1495.00~~ **$1395.97**

Apogee's lowest-priced D/A!

An excellent 192kHz D/A converter, **Mini-DAC** brings Apogee quality to your desktop or portable rig at an amazing price! Yes, it sounds great (the Mini-DAC is probably the best reference D/A you can buy for under $1000), but perhaps its coolest feature is the ability to pass signal from a digital input to a computer, then return the computer's output to the Mini-DAC for monitoring, all over a single USB cable!

#MiniDAC Apogee Digital Audio Converter ..... List ~~$995.00~~ **$849.97**

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Serious sound-shaping!

V-Synth combines all the best of Roland's sound-shaping in one easy-to-use instrument. It's the first synth to offer multiple oscillator technologies with real-time control over a waveform's pitch, time and formant via Roland's VariPhrase technology. Sounds can then be processed through new COSM® filters, a killer apreggiator and powerful real-time controllers including the TimeTrip Pad, which lets you rub your finger along the pad in a clockwise or counter-clockwise motion to scan a waveform forwards or backwards in time—without changing pitch or formant. You've never heard anything like it!

#VSynth Roland V-Synth ..... List $2695.00 **$2295.97** Roland

Pro sampling meets world-class synthesis

The **Fantom-S** takes the originals' "if you can dream it, you can create it" concept a giant leap forward, adding an entirely new sonic palette of fresh, bold ROM sounds AND advanced sampling capabilities! The new sounds are Roland's finest yet — 64MB-equivalent wave ROM created expressly for the Fantom-S, painstakingly sampled in world-class studios around the world — but it's the Dynamic Pad Bank that really puts this synth in a league of its own, making the Fantom-S two instruments in one.

#FantomS Roland Fantom-S Keyboard ..... List $2495.00 **$2095.97**

All the essentials!

The **VR-760** boosts any keyboardist's arsenal with great organ sounds, realistic pianos, and a huge range of amazing synthesizer sounds. If you're looking for a high-performance keyboard that gives you all the essentials at a great price, this is it!

#VR760 Roland VR-760 Keyboard List $2495.00 **$2095.97**

VariOS

VariOS is an open-ended hardware/software system that lets you build audio-based tracks on your computer with the same flexibility as MIDI. The V-Producer software lets you manipulate your audio without draining your CPU.

#VariOS Roland Module List $1495.00 **$1245.97**

Triton Studio

KORG

Triton LE

Triton

From sound design to expressive performance, from initial recording to final audio CD, the **Triton Studio** brings your ideas, materials, and music together. It encompasses all the functionality needed to make and mix your music. The world's greatest super-synth, Triton Studio's processor has been reved up to 6X of the speed of the original , allowing the touch screen to be as responsive as it is intuitive. Comprehensive sampling capabilities let you pull samples from just about anywhere, including the program, combination, or sequencing modes of the synth, as well as from the external inputs and the optional CDRW-1 CD drive. There are TONS of great sounds on board, including 16MB of stereo-sampled piano sounds that are among the best we've ever heard. The **Triton LE** offers unbelievable workstation performance in a streamlined, cost-effective instrument — nothing in its price range comes close.

#TritonLE76 Korg Triton 76-Key Keyboard ... List $1800.00
#TritonST76 Korg Triton Studio 76-Key ..... List $3800.00

Big Kurzweil sound in a small price tag

With a menu of fantastic sounds taken from Kurzweil's PC2 series instruments, the **KME-61** Micro Ensemble keyboard is an amazing instrument. It boasts a huge range of piano, keyboard and synth sounds, plus strings, guitars, basses, voices, drums... a total of 256 programs in all! The KME-61 has 32 voice polyphony and is multi-timbral on all 16 MIDI channels. You can choose from one of 9 different effects, along with the wet dry settings for reverb and chorus, directly from the front panel, or via MIDI.

#KME61 Kurzweil 61-Key .. List $849.00 **$699.97**

Finest feel and sound

The **P250** features three levels of stereo samples from Yamaha's acclaimed CFIII Grand piano for velocity switching based on the player's touch. The result is a tone and expression that faithfully reproduces the experience of playing an acoustic piano.

#P250piano Yamaha Stage Piano List $2395.00 **$1899.97**

EMU keys

The keyboard sounds of the '60's, '70's and '80's are all inside the **Vintage Pro** module, 32MB of classic keys in a rack! If you prefer your keyboard sounds with keys, check out the 61-key **Vintage Key** synth

#VintKeys EMU Vintage Keys ..... List $795.00
#VintagePro EMU Vintage Pro Module .... List $795.00

Motif expanded!

More than just Yamaha's hugely powerful synth without the keys, the **Motif Rack's** sound chip doubles the polyphony (128 Notes) and insert effects (4 Inserts in Mix Mode) of the keyboard version.

#MotifRack Yamaha MotifRack List $1295.00 **$999.97**

P60

A top-quality portable keyboard with a wealth of great options for beginners and pros alike! The **P60** features Yamaha's renowned 88-key, Graded Hammer Effect keyboard and built-in speaker system.

#P60 Yamaha P60 Keyboard List $899.00 **$749.97**

Radium 61

The **Rodium 61** offers real-time MIDI control via 8 assignable sliders and knobs and is powered by the USB bus! The knobs and sliders can be used to control everything from LFOs and EQs to volume and pan. You can enter drum patterns from the keyboard, and use the controllers to adjust the dynamic, feel and effects.

#Rodium M Audio 61-Key USB Keyboard List $299.00 **$239.97**

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Highway 1

Fender's line of affordable, no-nonsense, American-made instruments!

Fender® expands their popular Highway 1 Series to include all the legendary models in the company's catalog — Telecasters®, Showmasters®, J-Bass®, P-Bass® and Toronados®... In both looks and sound these instruments ooze Fender® Heritage. The Highway 1 Series boasts a unique, high resonance, low gloss acrylic lacquer that really lets that famous Fender® tone ring out!

#HWY1StrtM-B (A) Fender Highway Series Strat ..... List ~~$856.99~~ $599.97
#HWY1TeleM-HB (B) Fender Highway Series Telecaster ..... List ~~$856.99~~ $599.97
#HWY1JzBs-SB (C) Fender Highway Series Jazz Bass ..... List ~~$899.99~~ $629.97
#HWY1PBs-HB (D) Fender Highway Series P-Bass ..... List ~~$899.99~~ $629.97

Gibson USA

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Faded Series

Just like your favorite axe

The guitars in Gibson's Faded Series look and feel just like your favorite trusty six-string — a little worn, a little faded here and there, with an easy playability that only comes from years of gigs and jam sessions. But the Faded Series are brand new instruments, with all the performance capabilities of a brand new instrument and none of the negative effects of long-term use that might harm your favorite axe, or at least make it less easy or enjoyable to play. With worn finishes and classic Gibson body styles — the Les Paul, SG, and more — the Faded series guitars have that comfortable familiar feeling of your best and most-loved guitar, right out of the case.

#ES333 (E) Gibson Faded Series ES333 ..... List ~~$1599.00~~
#SGSP (F) Gibson Faded SeriesSG ..... List ~~$948.00~~
#LPLFadDC-WC (G) Gibson Faded Series Les Paul Dble Cut List ~~$948.00~~

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Meet the NEW POD!

The next generation of POD sets the new standard for guitar tone. **POD XT** features 32 stunning amp models built from the award-winning technology found in Line 6's flagship Vetta amplifier, and includes modeled stompbox effects (including several mind-blowing distortion boxes), full-time compression, A.I.R. II cabinet/mic modeling, and USB digital I/O for direct digital computer recording. The POD XT delivers 6 simultaneous effects (choose from more than 45 classic models of stompbox and studio effects) that can be routed to develop your own individual, unique tone. An intuitive screen display offers deep patch editing, and Flash memory allows for easy upgrades.

#PodXT Line Amp Emulator ...List ~~$569.00~~ $399.99

Variax: the world's first digital modeling guitar

Line 6 fuses their state-of-the-art modeling to a custom-crafted, solidbody guitar — **Variax**! Variax offers the sounds of a huge range of well-known vintage electric and acoustic guitars of all body styles. With just the turn of a knob, Variax can change instantly from a classic single-coil solid-body electric to a richly detailed acoustic 12-string. The characteristic tone and volume control response of each electric model are replicated with incredible accuracy and detail. You can even model a selection of other guitar-related instruments, such as a resonator, banjo, or electric sitar.

#VariaxR Line 6 Modeling Guitar .....List ~~$1399.00~~ $999.99

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Capable of delivering more gain than any other Marshall

A bold statement, but it's true!

The **Mode Four** is an amp to be reckoned with, baasting 350 watts of monstrous power and an undeniable pedigree as guitar amp royalty. The "basic" tone of the Made Four is beautifully clean, but its "two amplifiers in one" design makes it capable of some dangerous crunch. AMP 1 and AMP 2 have totally separate valve pre-amplifier circuits, including an ECC83 valve each. What's more, the Mode Four completely reconfigures its power amplifier section depending on the AMP type selected. AMP 1 is effectively the 'Classic' side of the Mode Four, producing the unmistakable Marshall power amp roar that you know and love. AMP 2 takes over from where AMP 1 leaves off, with OD2 mode offering more Gain than any other Marshall before it! And thanks to the Mode Four's bold new design, the player retains maximum control while searching for the ultimate high-gain signature sound.

#MF350 Marshall Mode Four Amp Head ..... List ~~$1699.00~~ **$1199.97**
#MF280A Marshall Speaker Cab for Mode Four Amp ..... List ~~$1299.00~~ **$899.97**

It will, it will rock you

Vox has teamed with Queen guitarist Brian May to offer a fantastic-sounding amp at a less than Queenly price. Back in the early days of Queen, guitarist Brian May and bass player John Deacon built their own, unique guitar amplifier, made in part with a salvaged and re-hauled 9-Volt powered amplification system (called "the Deacy" after Deacon) and paired with May's own handcrafted "Treble Booster" pedal. The result? An amp that helped create one of the most instantly recognizable guitar sounds in rock. Brian May used it in the studio on some of Queen's greatest recordings. The **Brian May Vox Special** is a reproduction of this amp (plus Treble Booster), with a few modern enhancements that enable it to be used as a standard amplifier, a recording amplifier with emulated output, or as a signal booster used in-line to overdrive another amplifier's input. All for a price that won't leave you crying "Mamma mia let me go."

#BrianMayAmp Vox recording Amp ...List ~~$199.99~~ **$149**

Line 6's finest...

all in one amp!

Take the amp tone of Line 6's flagship Vetta, the effects from the award-winning MM4 and DL4 stomp box modelers, 16 classic Reverb types, and the exclusive A.I.R. II direct recording technology, and you've got Line 6's mighty **Flextone III**! At the heart of the Flextone III is its remarkable collection of Amp and Cabinet models – 32 to be exact, everything from a 4x12 Mesa Boogie to a 1963 Fender Vibroverb! A 50-watt amp drives the 1x12 touring quality cabinet. When you combine all this in one "classic combo" amp, you have everything you'd need to gig, rehearse, or tour the world.

#FlextaneIII Line 6 Modeling Guitar Amplifier .....List ~~$1049.00~~ **$779.97**

CALL us today (800) 222-4700

Six-string ignition

Zoom explodes into the modeling amp arena with the **Fire30**. Capable of delivering every range of amp tone, from vintage combo to modern high gain amp sounds, the Fire-30 amp is packed with a host of amp-modeling and multi-effects, all built-into a compact cabinet with solid power and a great-sounding speaker. The **Fire15** boasts many of the same features as its brother in a 15 watt package.

#Fire30 Zoom 30 Watt Modeling Guitar Amplifier List ~~$459.99~~ **$279.97**
#Fire15 Zoom 15 Watt Modeling Guitar Amplifier List ~~$289.99~~ **$179.97**

Killer FX with a stompbox attitude

Kiss tedious menu-surfing goodbye

The **ME-50** Guitar Multiple Effects unit combines the rough-and-ready durability and convenience of a stompbox with the powerful effects fireworks of a major rack-based processor! Designed to work seamlessly with your existing amp, the ME-50 offers up killer multi-effects for guitar such as COSM overdrive and distortion — some of BOSS' finest! The key to the ME-50 is simplicity. Instead of a menu-driven display, the ME-50 features dedicated knobs for each effect section, making it easier than ever to dial in the right tone. Three footswitches make it easy to kick effects on and off, while an onboard expression pedal handles everything from simple volume control to six preset expression routings including wah, resonance, voice, ring mod and octave up or down.

#ME50 Boss ME50 Multi Guitar Effects ..... List ~~$345.00~~ **$295.97**

All Access Price ONLY $8.88/mo.

NO PAYMENTS NO INTEREST UNTIL JANUARY 2004

*Make no payments and pay no interest until January, 2004 on purchases made with the Musician's All Access Platinum Card before April 30, 2003. All Access Price represents minimum payment per retail installment credit for Sweetwater Musicians All Access Platinum Card. For more information and to apply for the Sweetwater Musicians All Access Platinum Card, call (800) 222-4700 or visit www.sweetwater.com/allaccess.

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the power supply provides a choice of a gentle- or steep-slope-filter. The C 12 VR is furnished with power supply, suspension mount, foam windscreen, and a case.

AKG's C 414B-ULS/SE Special Edition Stereo Set of microphones feature a classic nickel finish resembling the housing of the original C 414EB produced between 1976 and 1986. The matched stereo pair consists of two C 414B-ULS multi-pattern condenser microphones. The C 414-ULS/SE microphones utilize the revamped version of the CK12 capsule used in AKG's famous C 12 and C 24 microphones. This modern capsule (also currently used in the manufacture of C 12 VR and C 414B-TLII microphones) features an accentuation of high frequencies in the bands around 5 kHz and 10 kHz, enabling the C 414-ULS/SE microphones to record solo vocals or solo instruments without sounding metallic, harsh, or brittle.

The C 414-ULS/SE Special Edition Stereo Set is supplied with two H 100 shock mount suspensions, two W 414 windscreens, and an H 50 stereo bar that that allows both mics to be mounted on a single stand.

In response to demand from engineers (and probably a lot of C 451 activity on Ebay), AKG recently introduced the C 451B, a microphone with characteristics identical to the C 451 EB with a CK 1 capsule. In order to eliminate the mechanical problems of a screw joint, the capsule of the C 451 B is permanently fixed to the preamplifier. The preamp's all metal construction provides a high degree of shielding from RFI, and reduced handling noise

As with the original preamp, the C 451B features three-position high-pass (linear/75 Hz/150 Hz) and pad (0, –10, –20 dB) switches recessed into the body. The microphone may be phantom powered with sources from 12 to 48 volts DC, and the output stage is transformerless for minimum distortion in the low frequency range. With the 20 dB pad switched in, the C 451B is capable of accepting SPL's up to 155 dB with 0.5% THD. Each C451 B is furnished with a stand adaptor, windscreen, carrying case, and individual printout of frequency response.

● Lawson Microphones

Lawson Microphones was one of the earliest manufacturers of vintage reissue mics with their L47 series leading the pack. Lawson's L47MP is large-diaphragm, multi-pattern

Buyer Beware: How To Shop For A Vintage Microphone

Shopping for a vintage microphone can be tricky business, especially if it's your first time out. In light of the fact that a single vintage mic can cost upwards of $5,000, you need to be very careful. Needless to say, you'll want to see the mic and inspect its physical appearance. Despite what anyone tells you, if a microphone looks beat up on the outside, the capsule has probably not been treated with care. We're talking about dents on the body and head grille, not tarnish or even hints of rust on the body (acceptable for a "user" mic, though not necessarily a "collector" mic). Of course, a microphone can look great on the outside and have a bogus capsule on the inside — which is why you need to hear and examine it. If you're not exactly sure what (for example) a Telefunken 251 is supposed to sound like, either find someone who knows and hire them for their ears, or rent or borrow an original that's known to be in prime functioning condition and compare it with the potential purchase mic. If possible, have the head grille removed so you can take a look at the capsule. Check that the capsule mount is secure, and if there's a shock mechanism, make sure it hasn't dried out. Look at the diaphragm for pitting or rust; dirt can often be cleaned off by a qualified tech, but pitting and rust does not bode well for the life expectancy of the transducer. If possible have a qualified mic tech examine the mic for authenticity and condition.

Keep in mind that inconsistency is widespread among vintage tube mics — only rarely will two of the same model sound exactly alike. Certain vintage mics used PVC in the construction of their diaphragms, a material known to deteriorate with age. Many manufacturers switched to Mylar during their production history, which holds up much better over time. You may have to research capsule model numbers or serial numbers to determine what diaphragm material was in use at the time your potential purchase mic was built.

Determine ahead of time what accessories will be include with the sale (cables, shock mounts etc), because for some vintage tube mics, a cable or tube (a VF14 for example) could cost hundreds of dollars. Make sure that all of the connectors on the power supply, mic, and cables fit tightly and are intact. Many Tuchel connectors used on older microphones have been discontinued and are very tough (and expensive) to find. Other connectors may look the same and have the same number of pins as models currently in production, but may have the "key" (notch) in a different location — making the newer version impossible to mate with the older version, unless you want to get out your Dremel tool. Again don't underestimate the possible cost of a replacement connector: What looks like 35 bucks could easily cost $200. Another potential source of financial aggravation could be shock mounts: Carefully inspect the elastic bands for tears and wear spots. Likewise, take a careful look at the tube for cracks; a nice perk with a purchase is an extra tube.

One of the sore spots of purchasing a vintage mic can be the power supply. First and foremost it has to be operable, preferably at your local voltage. You can easily use a voltmeter to measure the voltage being delivered to the mic on the input connector pins but *be careful*! We're talking serious voltage across some of these pins (in other words, don't stick yer tongue in there; that only works with 9-volt batteries!) and you could get hurt. If you're a stickler for authenticity beware of output connectors that have been removed and replaced with XLR jacks, a common scenario. Replacing a panel-mount Tuchel can be a difficult prospect due to discontinuation. If the power supply does have the original output connector on and it's not an XLR connector, find out if you're getting the proper adapter cable with the deal. You'll have an additional expense if you need to make a cable or have one made for you. Be on the alert when a vintage tube mic is offered for sale without a power supply. Perhaps I'm a cynic, but I find it hard to believe that the legitimate owner of a classic microphone would have "misplaced" the power supply. If there's no power supply included and you decide to go ahead with the purchase, research the possibility of having one custom-built and determine how much it would cost before you agree to a price.

Perhaps most importantly, consider whom you are doing business with. Beware of dealing with online sellers who you don't know. There have been many horror stories about folks who thought they were purchasing the real McCoy and found out that their vintage mic had a bogus capsule inside. A reputable dealer can be counted on — not only for providing a fair deal — but also for selling you a mic that actually is what it promises, and for backing up the purchase with after-sale service and support. — *Steve La Cerra*

World Radio History

condenser mic that features Gene Lawson's reproduction of the M7 capsule used in the legendary U47 and M49 microphones. Pattern selection is made via outboard power supply featuring a continuously variable pattern control for achieving patterns in-between cardioid, omnidirectional, and figure-8. A cardioid-only mode can be used to attain a 3 dB increase in output level; multi-pattern mode is indicated by a really cool-looking blue LED inside the windscreen.

The L47MP employs a 6072 (12AY7) vacuum tube; each tube is selected to meet low-noise guidelines. To further insure high performance and stability, the 6072 is mounted in a low-loss tube socket with gold-plated beryllium copper contacts. This socket provides excellent grip, low contact resistance, low noise, and long life. The L47MP's body is made of precision-machined solid brass, textured with glass bead blasting and plated with 24-karat gold.

The L47C is a cardioid-only version employing the same capsule (one-inch diameter with a three-micron diaphragm, differing from the M7's seven-micron diaphragm). Lawson's reason for using the thinner diaphragm is improved transients and extended high-frequency response. The L47 capsule is manufactured in the United States, machined from solid brass then hand-lapped in the Lawson lab to meet specific tolerances. The L47C and L47MP are furnished with a power supply, 30-foot Mogami cable, a shock-proof carry case, and swivel mount.

The L47SH uses the same capsule as the L47C and L47MP but uses a solid-state, phantom-powered preamplifier. Housed in a "short" body, the L47SH is intended for instrumental applications where a mic with a larger body would be difficult to position. Lawson recommends the L45SH for use on bass drum, horns, electric guitar, and percussion instruments, as well as for vocals and acoustic instruments.

Lawson's most recent introduction is the L251 vacuum tube microphone, which features a faithful reproduction of the one-inch capsule used in the Telefunken Ela M251. The L251 utilizes the 6N1P (6922) vacuum tube for low distortion and low noise (this tube is widely available and in current production). Borrowing from the design of the L47 series, the 6N1P is mounted in Lawson's low-loss tube socket.

Like the L47MP, the L251 offers an infinitely variable pattern control located on the power supply. A switch in the base of the L251 toggles the L251 to cardioid-only mode, defeating the multi-pattern controls while simultaneously increasing output level, and lowering the noise floor of the microphone. The L251 power supply features a two-position low frequency contour control. When set to the "251" position, the L251 produces a faithful recreation of the original Ela M251 low-frequency response: a 6 dB/octave roll-off at 100 Hz. In the "+Bass" position this roll-off is defeated, and the L251 provides extended low-frequency characteristics with an increased proximity effect. The L251 ships with a power supply, 30-foot Mogami cable, shock-proof carry case, and swivel mic holder.

Neumann's M147 tube mic uses a capsule inherited from the U47 and M49.

● Neumann

Neumann is one of the companies that started it all in the first place, and vintage Neumann microphones are highly sought after and prized by their owners. Their U47 tube, M49, M50, and U67 microphones virtually defined the sound of recording, classical and popular as well. Neumann's first nod to their own vintage creations came in the early 1990s with the reissue of the U67 (now out of production).

The M149 was the first of the transformerless reissue mics produced by Neumann. At the heart of the M149 is Neumann's K 49 capsule, which earned its reputation as the capsule in the classic M49 microphone. Unlike earlier transformer-coupled microphones, the M149 uses its tube as an impedance converter, allowing it to feed long mic cables without sonic degradation. Any of nine directional patterns may be selected via slide switch at the front of the M149, while the switch at the rear operates a seven-step high-pass filter for fine adjustment of cut-off frequency.

Neumann's M147 is a pressure-gradient, vacuum-tube condenser microphone with a fixed cardioid pickup pattern.

World Radio History

A sibling to the M149, the M147 uses a K47/49 capsule inherited from Neumann's U47 and M49 lineage. The capsule features a flat response to the upper midrange and a boost of up to 3 dB above 2 kHz. The M147's polar pattern leans toward super-cardioid, becoming more directional at higher frequencies. The head grille of the M147 is a smaller version of that used on the U47, protecting the capsule from popping "p's" and wind noise. Both the microphone capsule and the electronic circuitry are shock mounted to eliminate mechanically transmitted noise.

Applications for the M147 include vocals, voiceover, and close miking of solo instruments such as strings, winds, and piano. The M147 ships with a mic cable, metal swivel mount, power supply, and aluminum case.

The Neumann M50 introduced in the 1950's has long been regarded as one of the premier microphones for orchestral recording. The M150 borrows many features from the M50 and matches them with modern transformerless preamp. One of the most interesting aspects of the M150 is the manner in which the 12-millimeter titanium diaphragm is mounted — flush within the surface of a small sphere. The result is that at the lowest frequencies, the transducer exhibits a perfectly circular (omnidirectional) polar pattern. In the mid and high frequencies, the pickup pattern narrows.

The head grille of the M150 is shaped identically to the one used on the M50, allowing it to retain some of the acoustic characteristics of that mic (it was discovered by Neumann engineers that the shape of the head grille has a profound influence on microphones character). The M150's transformerless, tube-based preamp circuitry is based on that of the M149.

● Royer Labs

The SF-12 microphone from Royer Labs is a stereo coincident microphone

Trés Retro

In addition to the vintage reissue microphones we've taken a look at, there are also quite a few mics that — while not necessarily vintage reissues — certainly take a cue from days past.

ADK's most recent new product is the A-48, a Class-A, variable-pattern tube condenser mic. Featuring dual 1.07-inch diaphragms and a choice of nine polar patterns, the A-48 employs a 12AX7 in its preamp. The A-48 is shipped with an external power supply, shock mount, and aluminum flight case. ADK's A-51 TL is a transformerless condenser microphone with dual 1.06-inch, three-micron diaphragms and four polar patterns. The A-51TL is supplied with a shock mount and aluminum case.

Another good example of a retro mic is the R84 from AEA. Looking like a stretched, modern-day RCA 77, the R84 is a ribbon mic with a diaphragm double the size of the typical ribbon, for the purpose of producing greater headroom, smooth highs, and extended lows. The R84 is suitable for a wide range of instruments including brass, strings, percussion, electric guitar, and bass, and is capable of handling SPL's greater than 165 dB at higher frequencies (no, that's not a misprint).

The Bottle from BLUE Microphones is the company's flagship microphone system, boasting eight different interchangeable capsules. Each capsule was designed to produce a unique tonality and polar pattern, and may be changed without the need to shut the mic down. The Bottle's preamp is built around an EF86 tube run in triode mode and hand-selected by BLUE for low noise. Powering The Bottle is BLUE 9610 Tube Mic Power Supply featuring a soft-start circuit that prevents the heater current from exceeding the limits for which the tube was designed — prolonging tube life.

Housed in a striking blue body is the VX2 from CAD. The VX2 features CAD's proprietary Optema dual-condenser capsule, which has independent tube head amps and output amplifiers (including separate, high-quality custom output transformers) for each side of the capsule. The dual-tube design allows the head amp tube to be optimized for low noise, while the output tube is optimized for driving the transformers and cables. Looking very retro is CAD's Equitek E350, a multi-pattern, side-address microphone with high-speed, low-noise, low-distortion electronics for use in critical applications.

Groove Tubes has long been manufacturing tube microphones beginning with their MD1, released approximately 12 years ago. Their latest line includes an updated version of the MD1, the MD1b with a 1.1-inch, three-micron diaphragm. Also in the Groove Tubes line is the GT-44, a tube condenser with a 0.75-inch capsule and a six-micron, gold-evaporated diaphragm in a top-firing design. Groove Tubes' GT-67 features a dual-sided, 1.10-inch capsule with a three-micron, gold-evaporated diaphragm and a pattern selection switch for supercardioid, omni, and figure-8 patterns.

Microtech Gefell is currently producing microphones using the tried-and-true M7 capsule developed by Georg Neumann. The tube-based UM 92.1S uses two large-diameter gold-sputtered membranes made of PVC, hand-selected for their optimum polar response patterns. A pattern selection switch on the UM 92.1S's power supply provides a choice of three polar patterns: omni-directional, cardioid, and figure-8. Microtech Gefell's UMT70S combines the M7 capsule with a transformerless, low-noise, solid-state preamplifier. A ring at the bottom of the microphone's head grille selects among cardioid, omnidirectional, and figure-8 patterns.

From MXL comes the MXL-V67, a large-capsule (one-inch) condenser mic with a six-micron diaphragm and a solid-state, balanced transformer output. The MXL-V67 has a gold-plated head grille and a brass body. Designed primarily for vocals, the V67 utilizes a double-screen grille to help produce a smooth frequency response extending from 30 Hz out to 20 kHz. Polar pattern of the V67 is wide cardioid. Equivalent noise is spec'd at 20 dB (A-weighted) and maximum SPL is rated at 130 dB.

Rode's Classic II is a multi-pattern tube condenser mic with Class-A circuitry utilizing a 6072 tube. The Classic II features a one-inch gold-sputtered diaphragm, and a custom-designed Jensen output transformer. A nine-position polar pattern switch, two-position pad switch and two-position low-frequency roll-off are located on the remote power supply. The Classic II is furnished with a power supply, swivel and shock mounts, oxygen-free copper cable, and case.

Shure's 55SH Series 2 is the latest in their series of "55" microphones that still use the classic housing of the original. A single-pattern (cardioid) dynamic microphone, the SH55 is intended for vocals and features an internal shock mount for the cartridge to reduce stand-transmitted and handling noise. The 55SH's die-cast enclosure is designed for reliability under adverse conditions, and a self-tensioning swivel mount permits tilting from 45 degrees forward to 80 degrees backward.

Employing a one-inch capsule similar to that used in the U99 (*a la* U67), Soundelux's U195 utilizes a FET preamp with a "Fat/Norm" switch. The "Norm" position provides an extended flat response with the slightly elevated high-end typical of FET condensers; the "Fat" position creates a low-end boost between 10 Hz and 400 Hz, emulating the distinctive sound of many classic cardioid condensers. —*Steve La Cerra*

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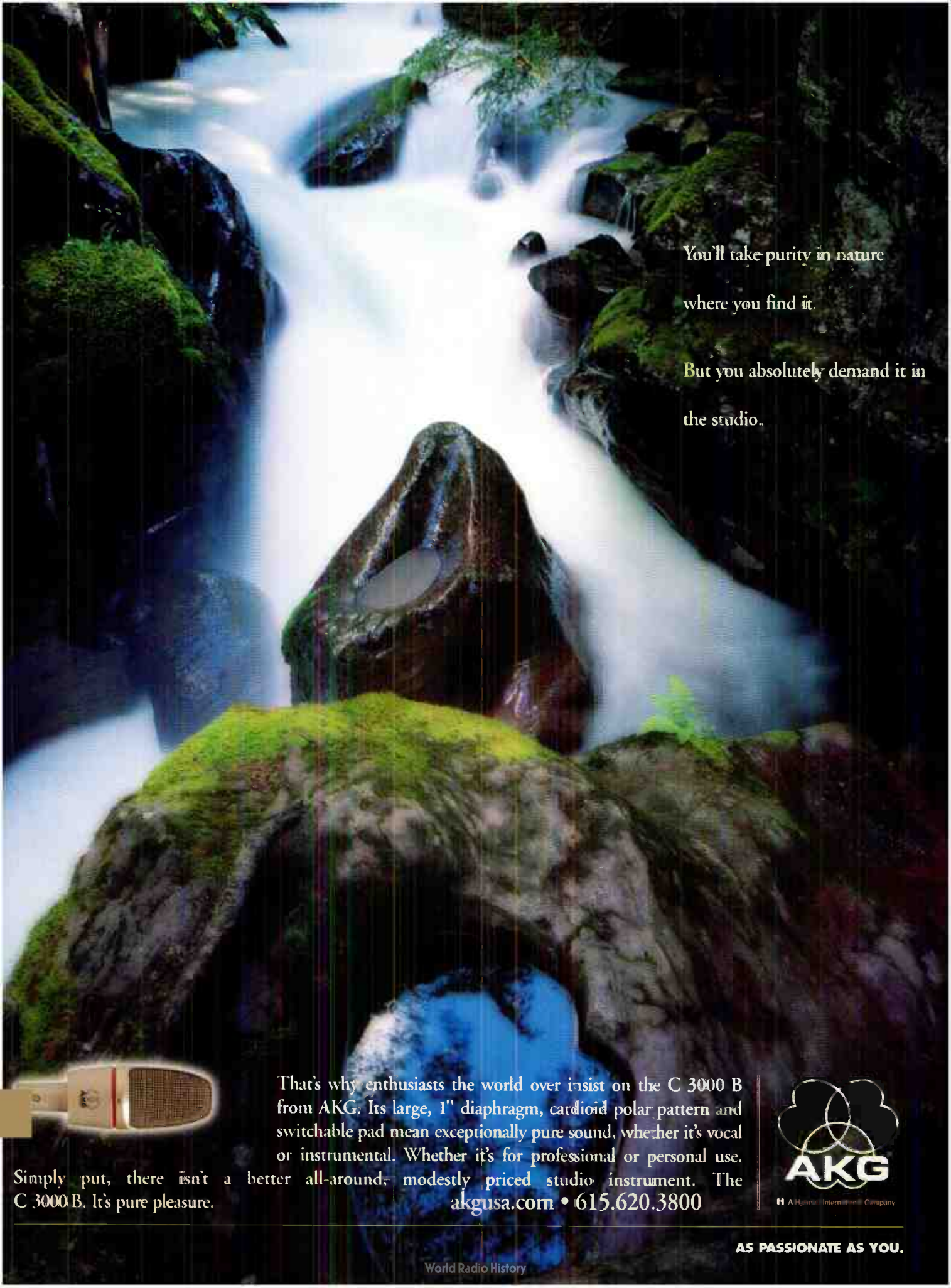

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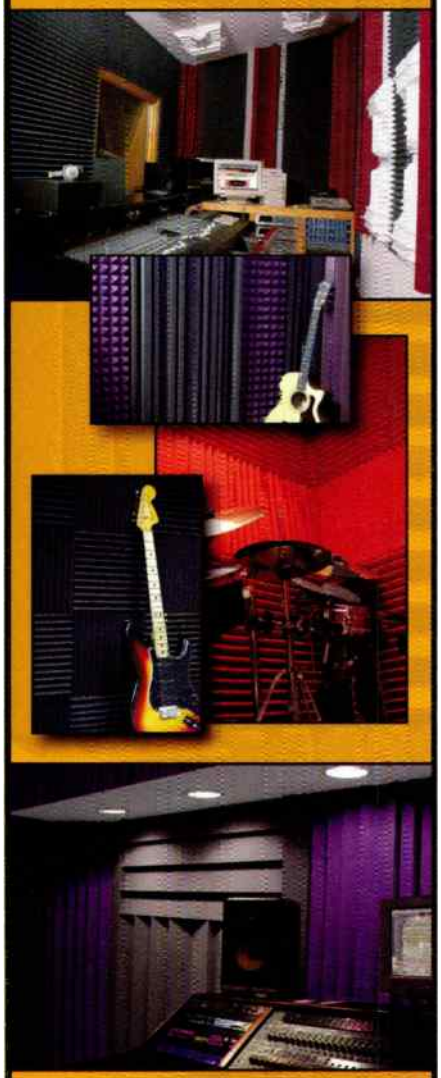

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Vintage Reborn!

Neumann's M150 borrows many features from the vintage M50 mic.

utilizing two bi-directional ribbon transducers mounted one atop the other, each aimed 45-degrees from center. Each of the SF-12's two 1.8-micron ribbons is constructed from pure aluminum (99.99%), and weighs approximately 0.3 milligrams, facilitating excellent transient response. Owing quite a bit to the Speiden stereo microphone produced in the mid-1980s (and bearing a remarkable resemblance to the Bang & Olufsen stereo ribbon mic produced in the 1970s), the SF-12 may be addressed from either side with equal sensitivity.

One of the issues plaguing many vintage ribbon mics with large magnetic structures is pickup of stray magnetic fields produced by power transformers or AC motors. The SF-12 is designed to minimize these effects by integrating the transducer barrel as part of the magnetic return circuit. The barrel serves to complete the north-south magnetic return and neutralizes the effects of outside magnetic radiation. Further reducing the effects of stray magnetism is

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The Soundelux iFET can duplicate the sound of two vintage mics.

Royer's use of a toroidal impedance matching transformer in the SF-12 (which has a natural ability to repel magnetic radiation). The SF-12 may be used for drum overheads, choir, orchestra, strings, drum overheads, room miking, brass, winds, stereo acoustic piano, and other instruments.

Soundelux

The Soundelux E47 recreates the smooth sound of the original tube 47 while maintaining the mechanical and electrical features of the original. The 1950s-era tube 47 is known for its big vocal sound and smooth response but — as is often the case with vintage microphones — determining the "right" sound for the E47 was a tricky task because 1950s-era 47's typically sound quite different from one another. By renting and borrowing the best examples available, Soundelux engineer David Bock determined the correct combination of components that would faithfully recreate a tube 47, while providing the consistency and reliability of modern manufacturing. The variable-pattern E47's primary use will be for vocals, but it can effectively be used for individual drums or drum kit, brass, strings, and acoustic or electric bass. Built by hand, the E47 is furnished with a

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Vintage Reborn!

wood storage box, remote power supply (120 or 240 VAC) and shock mount. Fixed cardioid is available as an option.

As its name implies the ELUX 251 recreates the Telefunken ELAM251, one of the most sought-after vintage microphones. Featuring hand-built, hand-tuned capsules and electronic components that are pre-screened for sonic quality, the ELUX 251 is faithful to its Telefunken original, even to the point of using an unregulated power supply. The ELUX 251 features the 251's tube and transformer circuitry, with all electronic components wired point-to-point. The ELUX 251 is designed to produce an open, "airy" top end to capture the fine details of vocal performance. Though primarily intended for male or female vocals, the ELUX 251 can be used on instruments such as acoustic guitar, percussion, piano, and drum overheads.

The ifet7 from Soundelux is a phantom-powered FET condenser microphone intended for the same applications as vintage 47 fet and 87 fet microphones. Combining a German-made capsule with two sonically different sets of internal electronics, the ifet7 features a vocal/instrument switch allowing the mic to change between 47 (instrument mode) and 87 (vocal mode) characteristics. The ifet7's instrument mode maintains the standard features of the vintage 47 fet, including the capacity for high SPL's required for instrument miking. When switched to vocal mode, the ifet7 captures the character and features of an 87 fet, including the coloration of the 87, which many engineers find favorable. As with its vintage inspiration, the ifet7 is transformer-coupled but offers several design improvements over older designs. A very large core transformer is employed to dramatically improve low-frequency headroom, yet retain a vintage sound. The ifet 7 is supplied with an arm for stand mounting (similar to the original 47 fet); an optional shock mount is available for isolating the mic from the stand and any mechanically transmitted noise. A wood box is provided for safe storage.

The Soundelux U99 is the evolution of the company's successful U95, with improvements in frequency range and dynamic range. The U99 features a hand-made one-inch diameter, dual-backplate, dual-membrane capsule. Each capsule is hand-tuned and uses six-micron Mylar selected for consistent thickness. The Mylar is sputtered with a unique blend of gold and aluminum for fast transient response and long life. The backplate of the U99 is derived from the KK67

The Telefunken Ela-M251 is a no-holds-barred reproduction of the original 251.

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family, and its electronics feature an EF86 tube run as a triode. Soundelux selects each EF86 for the best distortion, signal handling, and noise specifications. Circuitry of the U99's electronics uses only 12 components configured in a zero-feedback arrangement for quick transient response and absolute phase coherency; to increase reliability and sonic purity the mic uses no internal connectors (direct soldering only) or switches. The U99's polar pattern may be continuously swept from omnidirectional to cardioid to figure-8, adjusted via a control on the external power supply. In addition to a regulated power supply, the U99 comes with a six-pin XLR cable, shock mount, and flight case.

● Telefunken North America

The first product from Telefunken North America is the Ela-M251, a no-holds-barred reproduction of the original 251. The Ela-M251 is entirely hand-made in the USA; wherever possible original suppliers were used to source components ranging from the Mylar material used to construct the diaphragms to the output transformers. Components that are no longer available were reverse-engineered to extremely tight tolerances. Polar pattern and pad operation of this recreation is as per the original model. Though some manufacturing aspects of the Ela-M251 take more time than they would using modern manufacturing techniques, Telefunken North America feels that the result is a level of quality equal to the original. As a result, the microphone will initially be offered in very limited quantities to assure the highest possible quality. The obvious and most well-known application for the Telefunken 251 microphone is the recording of male and female vocals. However Telefunken North America emphasizes the fact that the 251 is not a "one trick pony" and has been a favorite of top producers for use on saxophone, guitar, drums, percussion, and many other instruments. The Telefunken 251 is furnished with a wood storage box, cable, and outboard power supply. ■

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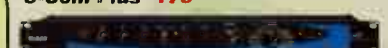

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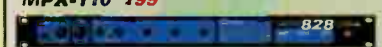

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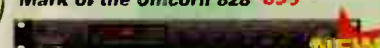

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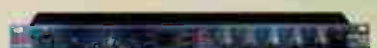

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World Radio History

By Mitch Gallagher, mgallagher@musicplayer.com

Audio-Technica AT3060

Phantom-powered Tube Microphone

Forget the power supply, this tube runs off phantom power!

Audio-Technica has been putting out some very interesting microphones lately. At last year's Summer NAMM show, the company announced the AE2500, which has two elements — one dynamic and one condenser — and is intended to capture kick drum. At the recent Winter NAMM show, A-T unveiled the latest in their 30 Series line of affordably priced mics, the AT3060. At first, I wasn't that impressed. After all, at first glance there's nothing all that unusual about the AT3060; it's a nice-looking large-diaphragm tube mic. Then they told me that it can run off regular 48 volt phantom power — that got my attention. No special external power supply? No multi-pin cable to connect the mic to the power supply? That's right, the AT3060 plugs straight into a regular mic pre using a standard three-pin XLR cable. Cool....

As nifty as the power supply thing is, it wouldn't mean anything if the mic didn't stand up in front of sound sources. Fortunately, it does.

Like the other mics in the 30 Series, the AT3060 has a nice silver finish; the mic feels solid in your hands, and slips easily into its included shock mount. There are no restraints on the shock mount, but the mic does sort of click into place and stayed put for me, whether hung upright or upside-down.

The AT3060 is a straight-forward cardioid-pattern transducer; no pads, filters, or polar pattern switches to mess with. Its resistance to off-axis sound is good, and proximity effect is solid without being overly aggressive.

My first test of the mic was on male vocals. I found the AT3060 to have a smooth, round sound with a slight upper midrange peak that gives vocals a nice presence in a mix. The top end is smooth, not harsh or spitty, even with sibilant passages. The low end is full and controlled, even when close in to take advantage of proximity effect, the AT3060 doesn't get thumpy. The mic does have high output compared to some others in my collection; for louder vocals, I ended up using the pad switch on my mic preamp to tame the AT3060's level.

On acoustic guitar, the '3060 is round and full, with nice presence and good top-end detail. If you're looking for a super-smooth strummed acoustic guitar, you may end up subtly dialing back the presence peak with some EQ, but for fingerpicking the presence peak increased attack enough to nicely differentiate each note.

On electric guitar, the AT3060 held up well under even the loudest assault. It had a solid, punchy sound, capturing the bottom end of a 4x12 cabinet well. The mic has excellent dynamic response, and tracks captured with it sit well in a mix.

If you've been looking for an affordable large-diaphragm tube mic, don't need a lot of bells and whistles, don't want to hassle with power supplies and special cables, and you do want excellent sound quality, the AT3060 should be on your short list of contenders. ■

AUDIO-TECHNICA AT3060

MANUFACTURER: Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, OH 44224-1760. Tel: 330-686-2600. Web: www.audio-technica.com.

SUMMARY: Warm smooth sound from a tube mic that plugs straight into your mic preamp — no special power supply or cable required!

STRENGTHS: No external power supply or special cable required. Smooth high frequency response. Slight presence peak. Round lows without exaggerated proximity effect. Includes shock mount.

LIMITATIONS: No pad or filters.

PRICE: $599

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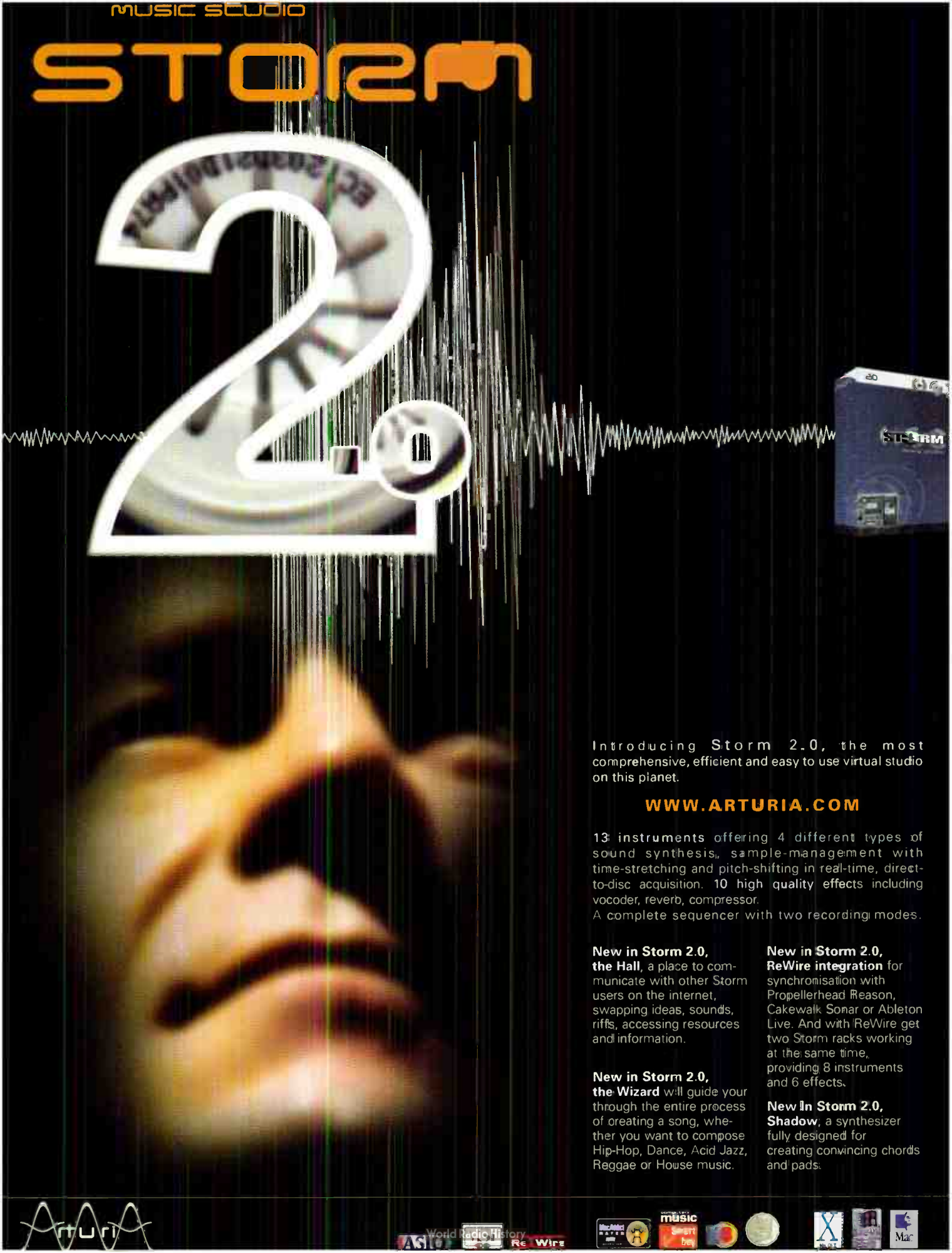

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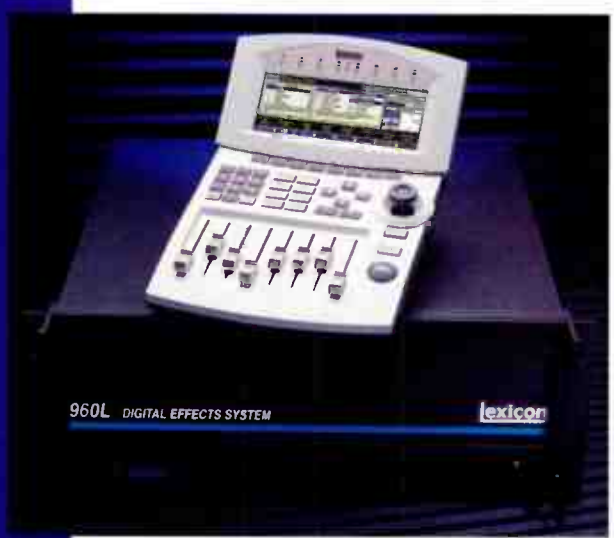
By Mitch Gallagher, mgallagher@musicplayer.com

Lexicon 960LS Digital Effects System

Lower-priced version of a top-of-the-line processor

Back in the July 2001 issue of EQ, we took a look at Lexicon's amazing 960L digital effects system, one of the most capable — and expensive — effects processors ever created. Now Lexicon has released a scaled down version of the 960L, the 960LS, which comes in less stratospherically priced, and which can be upgraded to full 960L specs. Let's take a look at what you do and don't get for your dollars.

The 960LS comprises two parts: The rack-mountable "mainframe," which holds the I/O and DSP electronics, and the LARC2 remote controller, which connects to the mainframe with a multi-pin cable. The mainframe rear panel has eight XLR ins and eight XLR outs for analog connections, as well as MIDI in, out, and thru, and word clock in, out, and loop thru. There's no digital I/O on the stock unit, but it can be added using optional I/O cards; in total, the unit can access up to 16 channels of I/O. Around front, you'll find a floppy drive for saving settings, a CD-ROM drive for software updates, a reset switch, and a power standby switch; everything else is controlled from the remote. Inside, the unit contains one DSP card. A second can be added for more processing power.



The LARC2 remote back panel has a multi-pin connector for hooking up to the mainframe; this cable can be up to 1,000 feet long. At distances less than 100 feet, the remote draws power from the mainframe, over 100 feet an external power supply is required. The remote back panel also has a connector for hooking up a PS/2 computer keyboard, a reset button, and a LCD contrast control.

Around front, the remote has eight touch-sensitive motorized faders for parameter adjustment, an array of dedicated and soft buttons, a joystick, three-stage signal present LEDs, and a beautiful LCD display. The display is amazingly informative, for example, you can access not only a list of presets, but also short descriptions of each preset. The LCD can also serve as an eight-channel level meter. The LARC2 is truly a joy to use. Everything you need to see is available on that lovely display, and getting around is a snap, even when digging deep into effect parameters.

The DSP card in the 960LS can be split into up to four "machines" or independent effects engines. The number of machines available depends on sample rates and effects configuration; for example, at 88.2 or 96 kHz, two machines are available. You can't access surround configurations, you're limited to stereo with the 960LS. You're also limited to only being able to use reverb algorithms; delay algorithms are available when the owner registers.

To summarize, basically what you get with the 960LS is a top-of-the-line stereo reverb processor — depending on the sample rate and configuration, you can access up to four independent stereo reverbs, each with its own analog I/O. You're given great control over those reverbs, and the sound quality is every bit as good as you'd expect it to be for this price.

For those looking for some of the best stereo reverb around, Lexicon has certainly nailed it with the 960LS. And if you want more, you can always upgrade to a full 960L. Even in this scaled-down package, it's not cheap...but the best and most versatile never is. ■

LEXICON 960LS

MANUFACTURER: Lexicon, Inc., 3 Oak Park, Bedford, MA 01730. Tel: 781-280-0300. Web: www.lexicon.com.

SUMMARY: If you're looking for top-notch stereo reverbs, look no further, the 960LS is about as good as it gets. Plus, you can upgrade to full 960L specs.

STRENGTHS: Outstanding reverbs. 88.2/96 kHz operation. Up to four separate stereo effects engines. Eight channels of analog I/O. LARC2 remote control offers motorized parameter faders and an extremely informative display. Deep effect parameter editing.

LIMITATIONS: Not exactly budget-priced. No stock digital I/O.

PRICE: $11 500

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World Radio History

By Mitch Gallagher, mgallagher@musicplayer.com

Discrete Drums Series Two

Multitrack Drum Library

The originators of the multitrack drum library return

Over the 20 or so years that I've had my own studios (of one sort or another), I've rarely found myself in a situation where I could really do justice to recording live drums in my own place. I always had to go outside to another studio (assuming one was available and that I could afford the time). When I built my current studio, I ran mic tie lines out to a garage, assuming I'd use it for that purpose. Ten months later, and I still haven't gotten around to attaching connectors to the end of the tie line cables, let alone thinking about acoustically treating the garage so that it would sound halfway decent. Maybe this weekend....

Because of this, I've gotten pretty good (if I do say so myself) at programming drum tracks using sequencers and samplers. And things have gotten even better with the advent of sample-accurate software samplers — no more MIDI slop! But it's still not as good as the real thing. Rick DiFonzo seems to have found himself in a similar situation. But rather than sit around complaining about it like me, he hauled himself and a world-class drummer into a top studio and created his own library of multitrack drum loops; thus was born Discrete Drums and the concept of drum loop libraries where individual drums are broken out on their own tracks and can be mixed, EQ'd, and processed individually. Since then a number of companies have followed in Discrete Drum's footsteps, putting out some great-sounding, versatile libraries that are as close to a live pro drummer as it's possible to get without hiring one and recording him yourself.

Now Discrete Drums are back. This time, they went into the renowned Sound Kitchen in Franklin, Tennessee, and engineer Steve Marcantonio recorded not only drummer Chris McHugh, but also percussionist Eric Darken. The result is a huge library — 11 CD-ROMs of 24-bit drum and percussion tracks, four CD-ROMs of 16-bit stereo (premixed) files, one CD-ROM of individual drum and percussion samples, and two audio CDs containing all the tracks for easy auditioning. The stylistic range covered is broad, ranging from rock and pop to alternative and R&B, from hip-hop and funk to country. In total, there are 33 "songs," each containing eight tracks: mono kick and snare drums, and stereo toms, overheads, and room mics. In addition, there are up to eight percussion tracks; tambourine, cabasa, chimes, church bell, tympani, rain stick, and tons more percussion instruments playing both loops and individual hits.

DISCRETE DRUMS SERIES TWO

MANUFACTURER: Discrete Drums, P.O. Box 361, Villanova, PA, 19085. Tel: 800-387-5720. Web: www.discretedrums.com.

SUMMARY: Take a world-class drummer, put him in a world-class studio, and make multitrack recordings of him playing cool beats in a number of styles. Add percussion loops and samples. The result is a huge library of useful drum loops that can be mixed and matched as you see fit in your own arrangements.

STRENGTHS: Powerful drum sounds. Great feel. Loops are acidized. Multitrack approach allows you to edit, mix, match, EQ, and process as you see fit. Good variety of fills, intros, and verse/chorus variations provided.

LIMITATIONS: Most loops are only provided at one tempo. Extensive bleed between mics/tracks may make editing loops tougher in some situations.

PRICE: Full library, $549. Series Two 16-bit stereo WAV files; two 2-CD-ROM + audio CD sets, $114.50 each, or $229 for all four discs. Series Two sample CD, $99 (available soon).

Fig.1. Discrete Drums Series Two, like its predecessor, contains multitrack loops of a real drummer playing intros, beats, fills, verses, choruses, and endings. Series Two also adds up to eight percussion tracks such as tambourine, chimes, dumbek, and much more to the mix.

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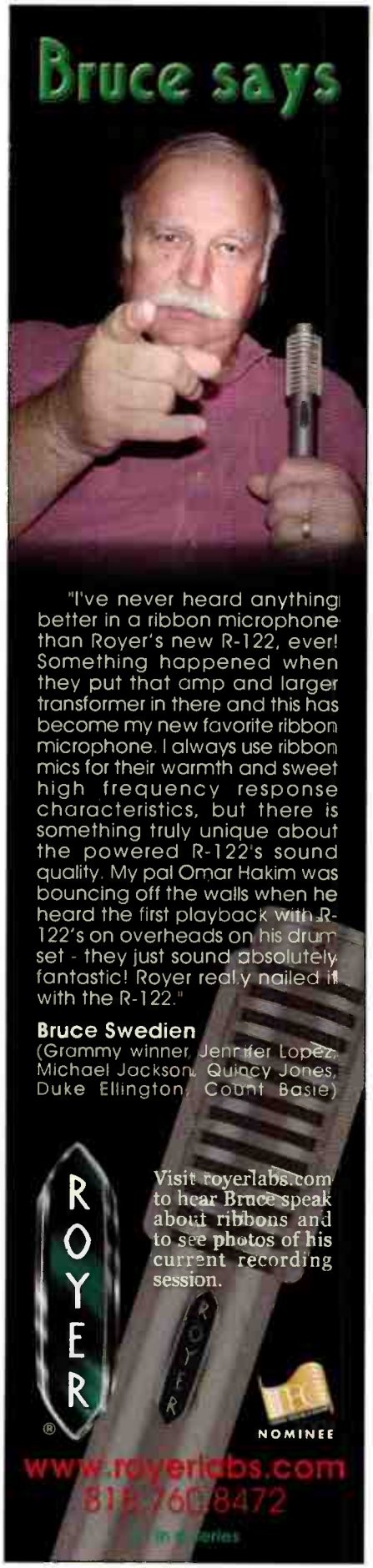

Getting Filthy

If you ever have the opportunity to meet my friend and coworker Craig Anderton, you'll surely be impressed by what a nice, charming, articulate, gentle soul he is. So how it's possible for him to have come up with the thrashing, ripping, often angry-sounding mutated beats in Discrete Drums Turbulent Filth Monsters loop library is a true puzzle — perhaps it's his hidden dark side coming out? Whatever the source of these mixes — described by the company as "Hardcore Techno Twisted Turbulent Filthy Tortured Disturbing Scary Remixes" — the results are impressive. What Craig's done here is take the loops from Discrete Drums Series One, and processed them to death using every trick he could think of...some of which were described in our processing techniques story in the November 2002 issue.

Since Craig is Executive Editor here at *EQ*, I can't in good journalistic conscience offer a real review of this product. (Besides, if he gets a bad review, he might stop writing so many cool articles for me....) But — totally off the record, just between you and me — if you're into mutilated audio with a strong beat, Turbulent Filth Monsters will get you there....

The loops are supplied in WAV file format, so they're compatible with most all multitrack DAWs and digital audio sequencers. The files are acidized, so if you're working with a program that supports that format, you're golden for tempo changes. If you're working in a program that doesn't support acidizing, then you'll have to change tempos the old-fashioned way, using time-/pitch-stretching. In general, the files are only supplied at one tempo, although a few are provided at slow and fast tempos. This may or may not be a problem, depending on how far you have to time-stretch to get to the desired tempo, and how good your software is at performing the stretch.

The drums and percussion are all recorded extremely well; the sounds are solid, thumping, and present. Being able to add in as much room ambience as you want using the stereo room mic tracks is a nice bonus; as good as we all know digital reverbs to be, there's still something about a real room....

But there is a lot of mic bleed between the various tracks — nothing was gated during the production of the files. In most cases, this is cool, since it sounds quite real. But if you're going to go in and try to edit the tracks to modify the beats or to finely customize them to match your arrangements, the amount of bleed may cause you difficulties. On the plus side, using the bleed may provide you with new creative options. In a song I created (see Figure 1), for one section I dropped out everything except the kick and snare and brought in chime and church bell loops. In dropping out the tom, overhead, and room tracks, the ambience — and even the tone — of the drums changed radically. It was the perfect contrasting effect along with the additional percussion tracks.

Discrete Drums Series Two picks up right where Series One left off, offering more styles, percussion tracks, acidizing, 24-bit dynamics, and more. Definitely a great-sounding, highly usable drum library providing amazing flexibility and realism for those who don't have access to a great drummer or a room to record drums in. ■

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Gefell microphones are still hand made in Germany with the care and precision that one can only equate with old-world craftsmanship and a commitment to excellence. From the early days with Georg Neumann, through the relocation of the factory during the 2nd World War, and the many years separated behind the Iron Curtain, Gefell has remained true to its roots. And these roots run deep...

From the 1st generation multi-pattern UM57 to the fabulous UM92.1S, Microtech Gefell continues the tradition with the legendary 'tube sound' that is only possible with the original M7 capsule. That's right, the original M7, with gold sputtered PVC, hand made in the Gefell factory.

(Left to Right) Tube mics: Original UM57 (1957), UM57 V.E.B. (1972), and today's Gefell UM92.1S

That's not to say we have rested on our laurels... Since the beginning Gefell has set the pace for microphone innovation and continues to elevate the bar: The Gefell UM900 Phantom, the world's only 48V phantom powered tube mic; the Gefell M930 Compact, a large-diaphragm studio condenser with optical isolation and the lowest self-noise in the business; and now the Gefell MV230 digital for better than 140dB performance. But wait, there's more...

Today, Gefell measurement microphones lead the world in metal diaphragm technology. For those 'in the know', nothing compares to the precision of an ultra-thin 0.8-micron pure nickel membrane for true, full bandwidth performance. This incredible technology is now available with the new Gefell M295, a low profile cardioid that will absolutely blow you away.

Of course there are lots of mics to choose from and for the average person, a mass-produced copy is just fine. But if you want something truly special and a cut above, visit one of our exclusive Gefell Dealers and listen to the difference that quality, tradition and pride can make. You may be surprised at how good a hand-made microphone can truly be.

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World Radio History

By Steve La Cerra, slacerra@uemedia.com

Grace Lunatec V3

Microphone Preamp and A/D Converter

Grace scores with a battery-powerable preamp/converter

The Lunatec V3 from Grace Design is a compact, portable microphone preamp with built-in analog-to-digital conversion. Occupying merely 6x8.5x1.6 inches, the Lunatec features two transformerless mic preamps with phantom power and low-distortion 24-bit A/D converters that can output digital audio at sample rates from 44.1 to 192 kHz. In addition to an external power supply, the V3 may be powered by a battery such as the Eco-Charge BP-50 (not included).

The Lunatec V3's front-panel controls include gain, trim, high-pass and phantom power for each channel; dual LED meters, sample rate selector with LED indicator, and buttons for peak reset, power, and ANSR. (Analog Noise Shaping word length Reduction; Grace's dithering technology for maintaining the highest audio quality when connecting to 16-bit devices.) Around back are XLR mic ins and analog line outs, S/PDIF and two AES digital outs (enabling dual-wire operation at high sample rates), a BNC word clock out, and a power supply receptacle.

My Lunatec V3 was shipped with an Eco-Charge BP-50, which can power the V3 for roughly six hours. Tests verified this, though battery life varies when the A/D is in use; the sample rate selector has an "off" position that extends battery life when only the analog outputs are required. Another feature intended to conserve battery power is the way the LED meters work: Rather than showing a solid bar, the meters operate in "dot" mode — lighting only the peak signal level LED. A very important characteristic of the Lunatec V3 is that there's no sonic difference between AC and battery operation, even when the low battery indicator is flashing.

Both the battery and the AC adapter cables attach to the preamp chassis with a locking collar, preventing pulling the cable out accidentally. I suggest connecting the power cable first, as the locking collar is a bit difficult to turn when the nearby connectors are in use. Another safety feature: The frequency select button must be held in for a second before the sample rate changes — smart.

I tried the Lunatec V3 on location and studio recordings, using both the analog and digital outs. Acoustic guitar recordings were made with the BP-50 and a pair of Neumann TLM103 mics, which require 48-volt phantom power. The combination was dead silent; this was particularly appreciated when the guitarist began fingerpicking very gently. Timbre of the guitar was natural, with uncolored low-end and transparent highs. In this case, low-end extension was a bit of a problem because the bottom end peaked the preamp. Switching the V3's filter to the "1" position cured the problem. At the factory setting this filter is 6 dB/octave at 100 Hz (position 2 is 50 Hz at the same slope). Internal jumpers allow the slope to be changed to 12 dB/octave, and the cutoff frequencies to be changed to 75 Hz and 125 Hz. On an ENG-type voice recording, the V3's filter nicely reduced handling noise from a hand-held mic.

With a pair of Audio-Technica AT4050's for overheads on drums, the V3 demonstrated that dynamics and headroom need not suffer when using battery power. This combination captured plenty of wallop from the kit and the cymbals were clean and clear.

The Lunatec V3 is a great microphone preamp with plenty of capabilities. For example, an internal jumper configures the V3 for M-S stereo mode, where channel 1 input accepts the mid signal, channel 2 input accepts the side signal, and outputs 1 and 2 provide the sum and difference signals. Another internal jumper switches the V3 from 6- to 12-volt DC operation for easy integration with other gear in a portable recording rig. Most important, the audio quality of the Lunatec V3 is up to par with what you'd expect from Grace Design — which says quite a lot. ■

GRACE LUNATIC V3

MANUFACTURER: Grace Design, P.O. Box 204, Boulder, CO 80306-0204. Tel: 303-443-7454. Web: www.gracedesign.com.

SUMMARY: Compact, portable mic preamp with 24-bit A/D converter for location as well as studio use.

STRENGTHS: Excellent audio quality. Quiet signal path. Well-constructed. Outputs sample rates from 44.1 to 192 kHz.

LIMITATIONS: No word clock input.

PRICE: PRICE: $1,395; (Eco-Charge BP-50: $85).

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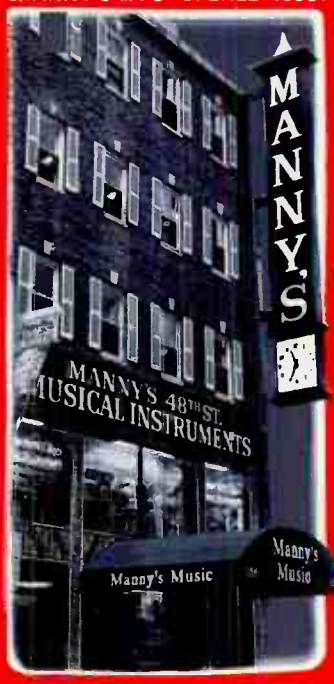

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World Radio History

By Emile Menasché, emenasche@rcn.com

Apogee Electronics Mini-Me A/D Converter With Microphone Preamp

I shall call him Mini-Me....

Apogee is well known for quality A/D conversion, and many a professional studio uses Apogee boxes such as the AD-8000 to feed their DAWs. With laptops and other portable computers gaining in power, the market is ripe for a small footprint, portable front end that offers high-end specs and pristine sound.

The Apogee Mini-Me fits the bill nicely, though at a price that puts it squarely into the professional ranks. But for your money, you're getting a three-headed monster, with a feature set that belies it size.

APOGEE ELECTRONICS MINI-ME

MANUFACTURER: Apogee Electronics, 3145 Donald Douglas Loop South, Santa Monica, CA 90405. Tel: 310-915-1000. Web: www.apogeedigital.com.

SUMMARY: A small footprint, portable front end for your digital gear that offers high-end specs and pristine sound.

STRENGTHS: Direct connection to computer via USB. Clean sound. Very flexible I/O. Can be battery powered. Built-in compressor/limiter. Built-in UV22HR word length reduction. Great OS X support. Hardware monitoring eliminates latency when used with computers.

LIMITATIONS: Headphone jack is on rear panel. No word clock input.

PRICE: $1,495, $1,295 without USB option.

INPUTS, OUTPUTS AND CONTROLS

For a unit of its size, the Mini-Me sports plenty of I/O. All connections are on the rear of the unit. You get two combo XLR/1/4-inch jacks that are designed to handle mic, instrument, and line inputs; two digital outputs (XLR AES/EBU and RCA S/PDIF), which can run in parallel to feed two separate destinations; a stereo 1/8-inch jack for headphone or other monitoring (I would have liked to see this on the front panel), a connection for the 12-volt power supply (can accept 6-16 volts), and a USB port. People who take the Mini-Me out into the field will appreciate the security clip for holding the power supply in place. Note that the Mini-Me can be powered by an optional battery pack, and there's an optional carrying case. For fixed installations, up to three "Mini" series units can be mounted to an optional rack tray.

All controls are on the front panel, and these include the power switch/phantom power switch, channel gain knobs, four-segment gain meters for each channel, settings for the onboard compressor/limiter, resolution and sample rate select for the A/D conversion, and level and mix controls for the headphones monitor.

INTERFACING

There are two ways to use the Mini-Me: as an A/D converter feeding the digital input of your mixer or workstation, and as a USB computer interface (we'll touch on this in more detail below). From the Mini-Me's point of view, there's no difference in operation between the various output connections — you don't have to switch modes on the unit itself. In essence, once you plug in your inputs, set levels, and choose sample rate and resolution, the rest of the transaction is handled by your destination device — mixer, tape deck, or DAW. Note, though, that because the Mini-Me doesn't have digital inputs, it must be the clock master in any setup.

As a straight A/D for other digital gear, setup is easy — simply plug the Mini-Me into the destination, set the clock to the appropriate sample rate and use it as you would any other piece of hardware. In my tests, I was impressed with the audible difference the Apogee made in the quality of the signal going to disk.

USB operation is a little more complex. The Mini-Me can operate under ASIO in both Mac (pre-OS X) and Windows, though performance can be a little spotty in some software environments. Windows seemed to present the most problems — the Mini-Me doesn't support native Windows drivers — but after installing the appropriate drivers, I was able to get good performance out of Cubase SX under ASIO. On the other hand, the Mini-Me works exceptionally well in OS X 10.2.4 under Core Audio. There's no setup at all — simply plug the

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unit in. When tested with Logic Audio Platinum 5.5, it offered very low latency and jitter-free performance on an old bronze Powerbook G3.

The Mini-Me's onboard monitor mixing feature is extremely useful because it lets you set higher buffers in your software (thus reducing strain on processor and disk), while monitoring the input signal, without latency, directly from the Mini-Me. At times, I heard hiss in the headphone output; this seems to have been due to my software, however — various changes I made in the audio driver settings affected the hiss, and with Logic at a reasonable buffer setting, there was none.

Apogee reports that older Mac's have USB implementation that can affect the Mini-Me's performance. They also recommend against plugging the Mini-Me into a USB hub.

IN USE

Whether as an A/D converter or as a computer interface, the Mini-Me is offers excellent audio performance, and is easy to use.

Signal routing is very flexible. Each input is controlled by a knob that acts as a mic/line switch and input gain control. With the knob in the most clockwise position, the channel is in line input mode. Once there, you can calibrate the line input for your source by using a screwdriver to adjust a trim post just below the knob. This lets you set and forget optimal line levels, and still use the gain controls for mic levels when needed, without having to recalibrate the line ins. Nice.

Turn the gain control clockwise to activate the mic pre. The mic preamps offer plenty of gain — up to 65 dB. I tried it with everything from dynamic mics to large diaphragm condensers on sources including voice, electric guitar, and percussion, and found that it handled all of them quite well. The mic pre is very clean and has the kind of headroom you need to capture the depth and detail of the source, and would be worth using even without the Mini-Me's USB interface features.

One of my favorite features was the onboard compressor/limiter. The circuit can operate in either compressor/limiter or limiter-only modes, and employs Apogee's new Push-IT technology, which is designed to add extra punch to the signal while protecting against digital overload. You can use the limiter with or without Push-It, and can also engage two different compression curves.

The Mini-Me operates at 24 bits and lets you select among 44.1, 48, 88.2, and 96 kHz sample rates. It also outputs digital clock information without sending digital audio to the outputs. You can output audio at 16- and 20-bit (44.1 and 48 kHz) using the UV22HR dithering algorithm.

FINAL OUTPUT

If you're going to use Apogee's Mini-Me as a front-end for your computer, you'll want to — as with all computer peripherals — test the unit with your computer/OS before buying. However, most computer users, especially OS X users, will be able to plug it in and go.

But the USB performance tells only part of the story: The Mini-Me shines as an A/D converter, mic preamp, clock source, and overall great sounding front end. Both in the studio and in the field, this is a powerful tool. ■

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ANGELA TAYLOR

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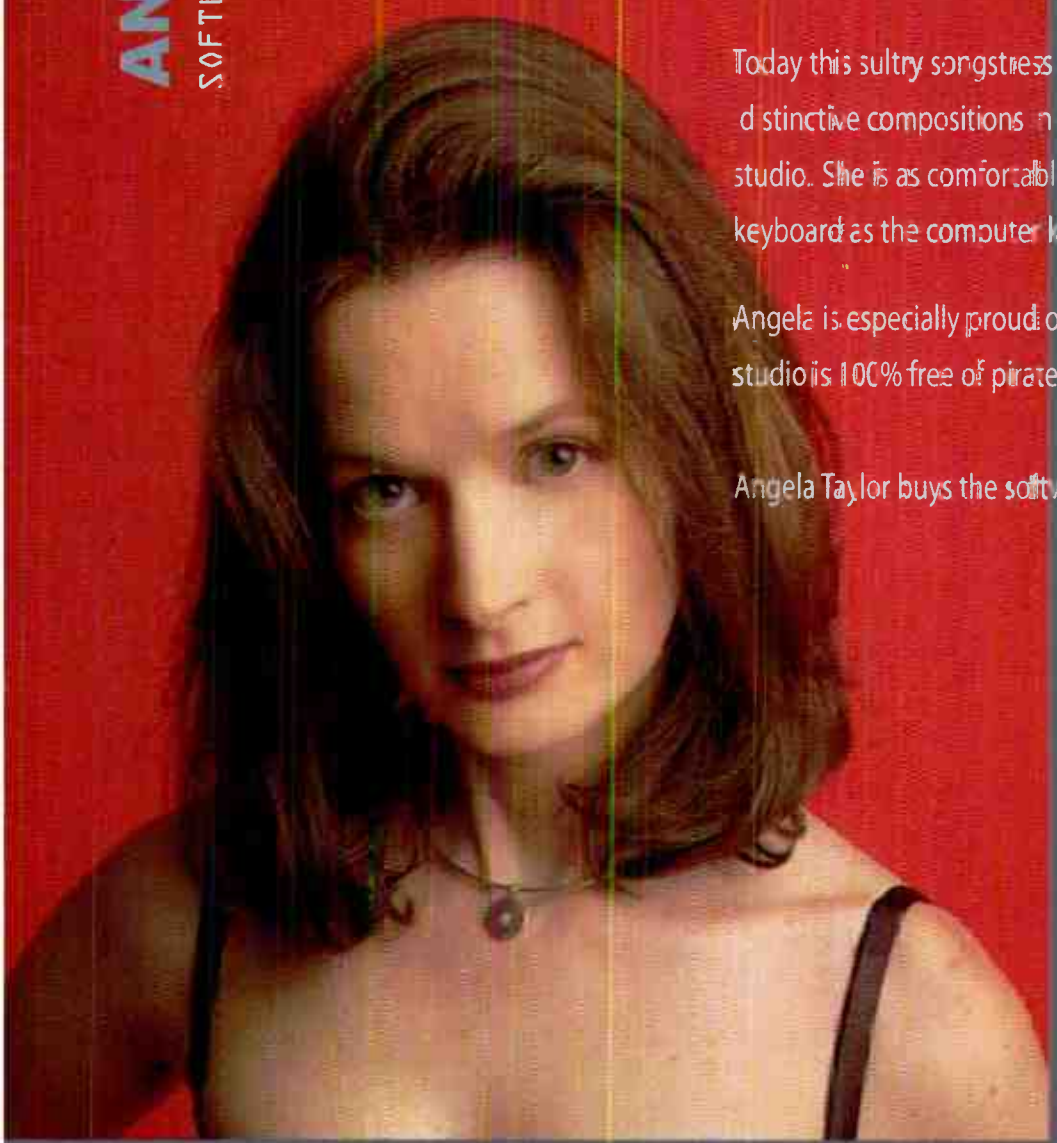

Angela has been making music as long as she can remember.

She has memories (at age 3) of standing on top of the furniture with any available "microphone" in hand, singing at the top of her lungs.

She also started to play the piano at this tender age, at first preferring her own twelve-tone compositions to the works of the masters.

Today this sultry songstress records her earthy, distinctive compositions in her basement project studio. She is as comfortable in front of the piano keyboard as the computer keyboard.

Angela is especially proud of the fact that her home studio is 100% free of pirated software.

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World Radio History

By Emile Menasché, emenasche@rcn.com

Mackie Control and Baby HUI

Hardware control surfaces

Control Central for your DAW-based studio

It's no secret that mixing with a mouse is about as efficient as typing with your big toe, and about half as much fun. A hardware control surface is the final element that transforms a computer-based DAW from computer program to multitrack recording studio.

Mackie was among the first to the table, so to speak, with the 1997's HUI. Originally a front end for Pro Tools users, the elegant HUI later gained support from developers such as MOTU, Steinberg, and Soundscape. But thanks to an explosion in the hardware controller market, the HUI found itself near the high end of the price scale, looking down at an array of more affordable competition.

Enter the Mackie Control and Baby HUI, two cost-effective MIDI devices that provide tactile control for a wide range of DAW software. Both have motorized faders, rotary controls, and transport buttons, as well as tools for accessing your DAW's edit windows, and more. However, there are many important differences between them, including size, edit functionality, and software support.

MACKIE CONTROL

The Mackie Control is very similar to the Mackie-designed Logic Control, which was reviewed in the September 2002 issue. It offers extensive mix, edit, and transport control for an array of applications, including MOTU Digital Performer, Steinberg's Cubase SX/SL and Nuendo, Soundscape 32 and Mixtreme, Cakewalk Sonar, Syntrillium Cool Edit Pro, Magix Samplitude and Sequoia, RML Labs SAWStudio, and more on the way. At press time it was announced that Mackie Control would support HUI emulation, allowing it to work with Digidesign Pro Tools and Emagic Logic.

With such a wide array of supported products, implementation can vary depending on the software you're controlling. I tested the Mackie Control most extensively with Digital Performer 3.11 and with Nuendo 1.6 (as well as its brand-mate Cubase SX 1.05), and though there were many common features, there were just as many differences in the way the Mackie Control accessed

MACKIE CONTROL AND BABY HUI

MANUFACTURER: Mackie Designs. 16220 Wood-Red Rd. NE. Woodinville, WA 98072. Tel: 800-898-3211. Web: www.mackie.com.

SUMMARY: Mackie's two new control surfaces give you a choice of broad dedicated software support with a comprehensive feature set (Mackie Control) or a fast, easy-to-use compact controller that will fit almost anywhere (Baby HUI).

STRENGTHS: *Mackie Control:* Broad software support. Lexan overlays and program-specific manuals. Easy set-up. *Baby HUI:* Compact size. Extremely easy to use. HUI emulation.

LIMITATIONS: *Mackie Control:* Edit and mode switches don't feel solid. *Baby HUI:* Harder to set short faders exactly where you want them.

PRICE: Mackie Control, $1,299. Baby HUI, $799

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various parameters. Fortunately, Mackie provides free Lexan overlays that indicate the specific assignment function of the various controls for each application. Each supported program also gets its own manual, available via download from Mackie's website.

CONTROL LAYOUT

The Mackie Control has three main sections: transport; mix controls; and function keys/modifiers. The transport offers the usual array of controls. In addition, it lets you scroll through markers, set punch points, and more. The onboard counter can display a number of different time formats, including bars/beats and real time.

Setup was universally easy — simply load the appropriate profile and set two-way MIDI communication between the computer and the MIDI ports on the Mackie Control.

The mix control section includes nine 100 mm motorized faders (one is designated as Master), which can be assigned either to channel faders or "flipped" to control individual parameters — very useful for certain types of editing. You can scroll through the channels in your mix in two ways: The bank switch takes you through groups of eight; the channel switch moves you one channel at a time. If you disdain the idea of scrolling through fader banks, the Mackie Control can be expanded in units of eight faders via the satellite Mackie Control Extender.

Channels one through eight also offer buttons for mute, solo, and record arming. Just above these you'll find eight rotary controls, or V-Pots, each with a segmented LED display showing the current knob position for it respective parameter. Depending on the edit mode, V-Pots (which also

Feature Comparison

	Baby HUI	Mackie Control
Faders, type	(8) 60-mm motorized touch sensitive	(9) 100-mm optical motorized touch sensitive
Potentiometers	(8) Rotary encoders w/push select	(12) V-Pots w/LED indicator ring, push select
Channel Metering	Channel signal LED	Signal LED, LCD display metering
Expansion Options	Two or more on multi-port MIDI interface	Mackie Control Extender and Mackie Control C4
Automation Modes	Write, read, touch, off	Write, read, touch, trim, off
Automation Arming	Faders, mutes, pans, send levels	Faders, mutes, pans, send levels
Window Open/Close	Edit, mixer, transport, memory locators	Edit, mixer, instruments, returns, busses
Editing Controls	Undo	Cut/copy/paste
Currently Supported Applications	Digital Performer, Nuendo, Cubase SX, Soundscape 32, Mixtreme, Pro Tools, Ableton Live (Q2, 2003)	Digital Performer, Nuendo, Cubase SX, Sonar, Cool Edit Pro, Soundscape 32, Samplitude, Sequoia, Mixtreme, Pro Tools Logic
Height	3.4" (86 mm)	3.8" (96 mm)
Width	14.6" (371 mm)	17.5" (444 mm)
Depth	10.1" (257 mm)	17.4" (441 mm)
Weight	7.6 lbs (3.4 kg)	14 .57 lbs (6.61 kg)

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COMING IN THE *MAY ISSUE* OF *EQ* MAGAZINE

ON THE COVER

Frank Zappa's studio enters the new millennium! Step inside the Utility Muffin Research Kitchen for an exclusive tour with Dweezil Zappa of the room reborn and an inside look at the gear to be found there.

ZIGGY FLIES SOLO

Ziggy Marley, eldest son of the legendary Bob Marley and a respected recording artist in his own right, releases his first solo CD. EQ has the scoop on how the album was created using mobile gear installed in a rented house overlooking Los Angeles.

PLUG-IN EXTRAVAGANZA!

If you're using a DAW or digital audio sequencer, then you're using plug-ins. Our special plug-ins section will provide you with tips, techniques, and creative approaches to getting the most from software processing, as well as reviews of some of the hottest plug-ins to hit the market.

PLUS

New products, First Looks, Room with a VU, Session File, DAW World, Roger Nichols' Across the Board, endless tips and techniques, and much more!

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MPN

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double as push-buttons) can control a single parameter for a number of channels (like Pan) or a range of parameters for a single channel (such as EQ settings). A display strip just above the V-Pots indicates channel assignments as well as the active edit mode of each pot. At the Frankfurt Musikmesse tradeshow Mackie announced the Mackie Control C^4 expander, which provides for greater control over plug-in and virtual instrument parameters (see sidebar, page 98).

The specific job of each fader and knob is determined by the mode, function, and modifier keys that reside in the center of the board. Many of the modes are self-explanatory: Pan sets up the basic channel strip, with V-Pots controlling pan position; EQ accesses the built-in EQ (in Nuendo) or assigns and accesses an EQ plug-in (in Performer), and you control one channel at a time. Plug-in mode accesses various plug-in parameters, etc.

IN USE

Overall, the experience of using the Mackie Control was good, though it never let me feel like I could totally chuck my mouse or keyboard. The faders felt responsive, and the V-Pots worked as expected. I liked the fact that you could set up automation modes directly from the unit.

As for editing, sometimes I found the knobs beneficial when setting up pans and sweeping through EQ. At other times, I thought the old mouse method more efficient, as when loading effects plug-ins. Mackie Control lacks a numeric keypad for inputting individual values, but functions such as save and undo are supported.

IT'S IMPORTANT TO NOTE THAT THE DAW DEVELOPERS CREATE THE PROFILES FOR MACKIE CONTROL IMPLEMENTATION, SO THE DIFFERENCES IN IMPLEMENTATION ARE THE SOFTWARE'S RESPONSIBILITY.

On the negative side, the edit and mode buttons are a little "clicky" feeling, without the solidity I would have liked. Still the number of functions they can access is impressive. There's even a port for an external foot controller, which can be assigned to any number of functions (including punch-in recording). It would be nice to "latch" the modifier keys — hit them once and have them stay active until deactivated. As it stands, you must hold down multiple keys to access some features, and it can be a little awkward.

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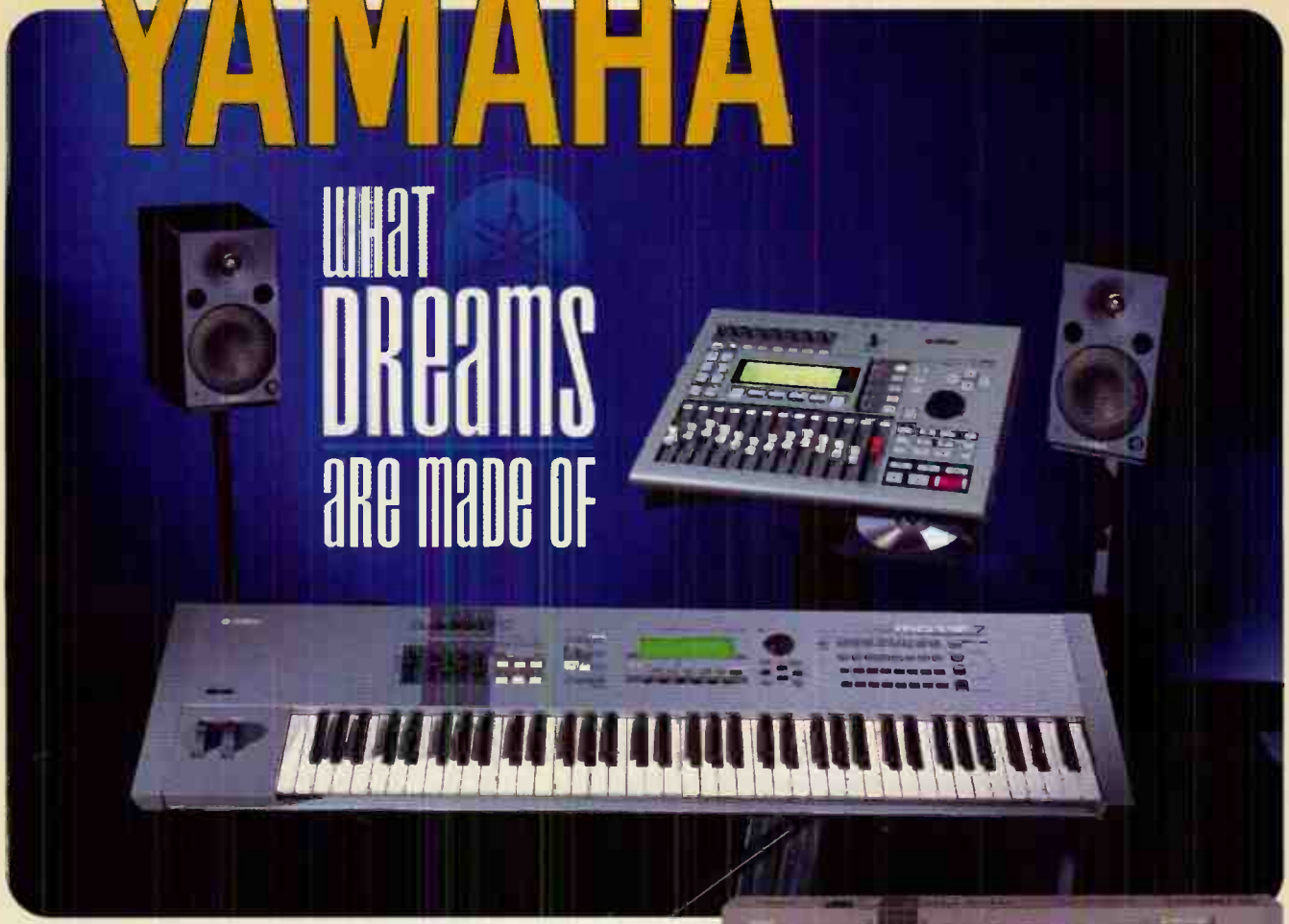

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In my tests, implementation on Digital Performer seemed deeper than that of Nuendo. I particularly like the way Digital Performer's screen responded to the Mackie Control: the onscreen mixer scrolls along with the Mackie Control's banks, and you have the option of opening individual plug-in windows on screen when you access them, giving you the best of both — hardware control but the computer's superior visual interface. The scrubbing and zooming functions were also very welcome.

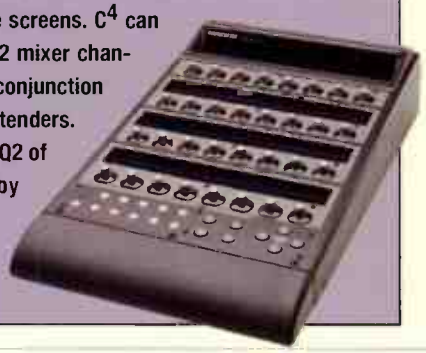
With Nuendo, the highlight was the ability to assign faders to control virtual instrument parameters, and to assign the Function keys to up to 16 operations of your own choosing. The transport and mixing functions worked well, as did individual channel editing, though I would like to see Nuendo offer the same window synchronization as Performer.

It's important to note that the DAW developers create the profiles for Mackie Control implementation, so

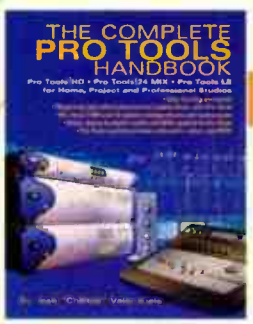
Breaking News

The advancement of music technology never comes to a halt...if anything it seems to be occurring at an ever-accelerating pace. Announcements at the recent Musikmesse trade show, held in Frankfurt, Germany, certainly proved this to be true. Look for a complete report on all that was new in an upcoming issue, but there were two announcements that were of interest in the context of this review: First, Mackie announced that Mackie Control will now have HUI emulation beginning in Q2, 2003. (A firmware update will be made available for current Mackie Control owners.) The addition of a HUI mode means that Mackie Control will now be compatible with Digidesign's Pro Tools platform, as well as Emagic Logic, which also now has HUI compatibility.

Second, the Mackie Control family has expanded with the addition of the Mackie Control C^4. The C^4 is designed to support hands-on control over plug-ins and software synthesizers and samplers. It features four full-size displays, each accompanied by eight V-Pot rotary controllers with push-button select. This allows the user access to as many as 32 separate parameters without having to scroll or bank switch. Function buttons under the displays and knobs select the arrangement of the parameters and how they show up on the screens. C^4 can also be used to control volume and pan for 32 mixer channels, and can be used independently or in conjunction with Mackie Control and/or Mackie Control Extenders.



Mackie Control C^4 is scheduled to ship in Q2 of 2003. At release time, C^4 will be supported by MOTU Digital Performer and Emagic Logic. Support for other software platforms will follow. —*Mitch Gallagher*



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the differences in implementation are the software's responsibility. (For a detailed idea of how each program supports Mackie Control, go to www. mackie.com/record/-mackiecontrol, and check out the respective owner's manuals).

BABY HUI

Though dwarfed by the Mackie Control in both size and feature set, the Baby HUI is a powerful little device — and may be a better fit in some circumstances. First, it's HUI-compatible (in fact, to use the Baby HUI, you must load your software's HUI template). It works with Pro Tools as well as Nuendo/Cubase, Digital Performer, and Soundscape; Logic also now has HUI support.

The controls are divided into two sections: the eight channel strips each sport a 60 mm fader, solo and mute buttons, and a rotary encoder similar to the Mackie Control's V-Pots, though minus the LED readout. These can be assigned to pan, or up to four effects sends. They also double as pushbuttons, and can be used to arm tracks for recording, select tracks for automation editing, and select tracks in your DAW for channel editing (though this last is accomplished with your DAW's controls, not the Baby HUI's).

Faders are grouped in banks of eight. You can scroll by individual channel, but up to 99 banks are available.

In addition to typical transport controls, the Baby HUI has dedicated return-to-zero and end buttons. You'll also find controls for setting automation modes (touch and writer are supported), calling up your DAW's transport, mixer, edit, and marker/memory location windows, and for specifying which parameters will be automated in any given pass.

IN USE

The Baby HUI is extremely easy to operate. It may not offer the 100mm faders and editing prowess of the Mackie Control, but its and compactness can be an asset — especially if your work area is cluttered with a hardware mixer, MIDI controller, and computer keyboard and mouse. I liked using the Baby HUI for fader moves and didn't mind using the mouse and keyboard for what they do best — editing audio and MIDI, calling up plug-ins, and setting parameters graphically. ■

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By Craig Anderton, canderton@musicplayer.com

ART DPS Digital I/O Preamp System

Analog preamp meets digital connectivity

I can just imagine the design meeting at ART: "Well, the tube preamps have been a big success. What do we do next?" To which some engineer replied, "Hey, let's see how much we can fit on the front and back panels of a single-space rack unit!" And thus began a fierce internal competition to cram the dual-channel DPS with as many jacks, switches, and connections as humanly possible, while retaining enough space to ventilate the internal 12AX7 tube.

Let's talk I/O: front-panel XLR/phone, balanced/unbalanced combo jacks; the 1/4-inch phone input has 1MΩ input impedance suitable for guitar. The rear panel has balanced XLR I/O and separate unbalanced phone outs, and dual TRS 1/4-inch insert jacks (useful for sending signals directly into the A/D converters). For digital, there's optical I/O (ADAT or S/PDIF), coaxial S/PDIF out, and BNC word clock in. And no wall wart — there's an IEC-compatible socket.

ART DPS

MANUFACTURER: ART, 215 Tremont St., Rochester, NY. Tel: 585-436-2720. Web: www.artproaudio.com.

SUMMARY: Tube preamp, with variable voicing and effect output limiting, meets digital/analog connectivity for a melding of the old and the new.

STRENGTHS: Lots of analog and digital interfacing. Word clock in. ADAT I/O. Insert jacks. Voice circuitry is a useful adjunct. Phantom power. 24/96 operation.

LIMITATIONS: Tight spacing on the digital controls. OPL pumps when pushed excessively.

PRICE: $319

Front panel digital controls include a pushbutton to choose the sample rate (44.1/48/88.2/96/ADAT/external), another to choose the digital output (one of the four ADAT channel pairs, all ADAT channels, or S/PDIF), *and* a digital output control for each channel. Although the manual seems to imply that ADAT-compatible devices can slave to the DPS only when it's set to 48 kHz, 44.1 kHz tested out fine as well.

Audio-wise, the front panel has (for each channel) phase reverse, phantom power, and +20 dB boost switches, along with gain, illuminated retro analog VU meters, analog output level, and voicing controls (more on voicing later). Yes indeed...it slices! It dices! It converts! It amplifies! It's a direct box! *It's purple!*

By the way, the DPS also gets my award for the world's sneakiest pilot light: you can see the tubes behind the front-panel vent, but apparently the glow wasn't sufficient, so someone at ART with a sense of whimsy added two orange LEDs behind the tube.

FINDING ITS VOICE

A main point of differentiation compared to other preamps is each channel's 16-position voicing switch, with gentle EQ optimized for vocal, guitar, bass, electric keyboard, electric guitar, percussion, etc. There are four neutral settings, four warm settings, four neutral with the quite effective OPL (output protection limiter) to prevent overload, and four warm with OPL. Although in most cases I'd rather just have discrete controls, I must admit ART's voicing switch is a time-saver, and helps compensate for the fact you can't store presets — these are the presets.

As to the overall sound, yup, it sounds like a tube. The warm positions don't really sound any more distorted, but just a bit, well, warmer. The OPL works best if you don't push it too hard; it keeps distortion under control even with excessively high levels, but you'll get major pumping — nonetheless, this can be a cool effect with drums. And here's a tip: try vocals with the guitar voicings.

There are a zillion preamps out there, and picking any one over the others is not easy. I think the DPS target audience is someone who likes both subtle and more obvious tube coloration (although it's more of a "clear" tube sound than a "creamy" one), needs digital interconnectivity including ADAT optical, doesn't want to spend a lot of money, and would rather save time by using the voicing presets than have more knobs to twiddle. Golden ears types might think you can't get all that much for the relatively low price, but the DPS scores major points on functionality, sound quality, and cost-effectiveness. ■

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By Craig Anderton, canderton@musicplayer.com

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MANUFACTURER: Sonic Foundry, 1617 Sherman Ave., Madison, WI 53704. Tel: 608-204-7703. Web: www.sonicfoundry.com.

SUMMARY: This is the *ne plus ultra* of Red Book audio CD programs, combining standard features as well as extended mastering and editing options.

STRENGTHS: Full roster of features and functionality. Support for USB and FireWire CD burners as well as IDE/ATAPI. Accesses DirectX plug-ins for individual events or mastering. Excellent crossfading and assembly options. Pre-burn warning if potential distortion is present.

LIMITATIONS: No label-printing functions. Unable to load "wrapped" VST effects.

SYSTEM REQUIRMENTS: Windows 98SE/ME/2000/XP, 400 MHz processor, 128 MB RAM, audio interface.

PRICE: $299.95; $209.97 as a download, and $239.96 for boxed product direct from Sonic Foundry.

First, a history lesson. Sonic Foundry's original CD Architect acquired a well-deserved reputation as a superb CD-burning program for Red Book audio applications. Its drag-and-drop operation, automatic crossfading, easy editing, and aversion to creating coasters garnered legions of fans. Many Windows fans found the combination of Sound Forge and CD Architect irresistible.

But then suddenly, Sonic Foundry dropped CD Architect, instead building a less capable disc burning function into Sound Forge 5.0. Users were outraged, and while something very much like CD Architect eventually appeared in Vegas Video, that only added fuel to the fire: What was the program doing wrapped inside a video-friendly editing/recording program? *Where was the CD Architect we knew and loved?*

Well, it's back. But it's *really* back, exceeding expectations and poised to reclaim its position as the top Red Book CD-burning program for Windows. You can get the details on the Sonic Foundry web site, so let's take the broad view of why its return is so welcome.

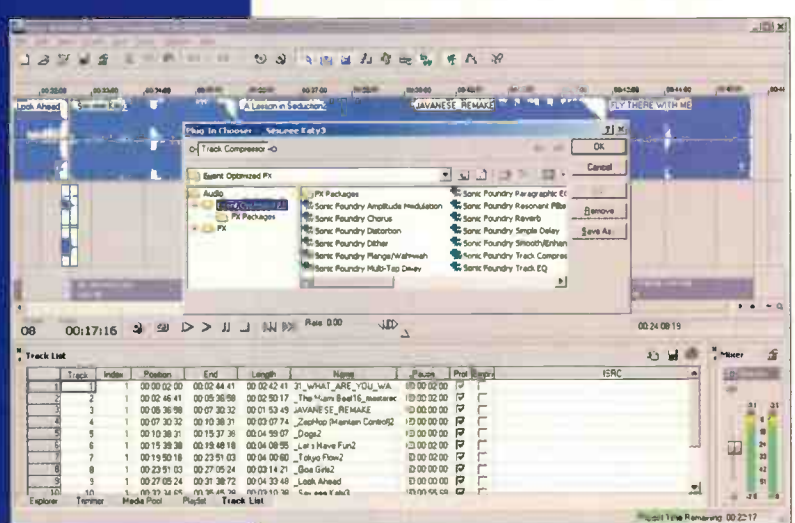

Fig.1.One of CD Architect's new features is the ability to layer audio. Here, a small piece of audio as been added as a transition between two tracks. In the middle, note the Plug-In Chooser, where plug-ins can be added to individual "events" (cuts) or as master effects that process the entire CD.

THE LAY OF THE END

CDA is essentially a one-screen affair, with the traditional "learn one, learn 'em all" Sonic Foundry interface. The top "time line" pane is where you drag and drop or otherwise import the audio to be burned. Below right has level faders with peak-hold output meters. The lower left window has five tabs:

Explorer (locate files, then drag to the timeline)
Media pool (shows files in use)
Playlist (represents time line info as text; you can normalize, rename, and rearrange events)
Track list (similar to playlist, but with different functionality: adjust pause time, set protection and emphasis, edit ISRC data, etc.)
Trimmer (trimmer lets you load a file, trim parts of it, then drag them over to the time line. A great use is to drag a live recording into it, take out the bad parts, assemble the good parts, and *voilà* — instant "live-in-concert" CD.)

CDA writes in Disc-at-Once mode, the preferred method for writing audio CDs, which writes the CD in one continuous pass. CDA also lets you "cheat" and crossfade cuts without having the standard two seconds of silence between cuts. Many consumer-oriented CD creation programs have no way to defeat this, leaving a nasty gap with crossfaded tunes.

MORE SUPPORT

Perhaps of greatest importance is support for today's facts of life: USB and FireWire burners, high resolution audio (directly import up to 32-bit, 192 kHz source material — CDA does resampling and dithering), dual monitor support so you can see most (if not all) of your CD layout at a glance, and the ability to import MP3/AIFF/Windows Media/Ogg Vorbis formats.

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Sweetwater Sound	800-222-4700	www.sweetwater.com	118-119
Tannoy North America Inc.	519-745-1158	www.tannoy.com	73
TASCAM/TEAC America	323-726-0303	www.tascam.com	11
T.C. Electronic	805-373-1828	www.tc-helicon.com	51
Technology Institute for Music Educators (TIME)		www.ti-me.org	103
True Systems	860-434-5220	www.micpreamp.com	96
Waves	865-546-6115	www.waves.com	17
Yamaha Corporation Of America	877-YAMAHA5	www.yamaha.com/proaudio or www.yamaha-mg.com	9

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CDA can also import audio from Red Book CDs, so in addition to creating CDs of your own masterpieces, you can put together "greatest hits" CD for your own amusement. One of the best uses I found for this was consolidating all the samples I use from audio CD sample libraries into a couple of "greatest sample hits" discs. This way I only have to shuffle through a couple CDs looking for the samples I like to use.

PLUGGING IN

Included plug-in effects are chorus, multi-tap delay, pitch shift, reverb, delay/echo, time compress/expand, graphic dynamics, graphic EQ, multi-band dynamics, noise gate, paragraphic EQ, parametric EQ, amplitude modulation, distortion, flange/wah-wah, gapper/snipper, smooth/enhance, vibrato, track EQ, track noise gate, and track compressor. These can be inserted within individual cuts, or as master effects; a plug-in chooser lets you access other DirectX plug-ins installed in your computer.

While the included plug-ins don't knock me out as much as, for example, the Waves plug-ins for mastering, they have their uses. You'll still want to buy a decent level maximizer, though.

Unfortunately, CDA doesn't seem to like wrappers — I wasn't able to use any VST effects running under Fxpansion's VST-DX Adapter 4.2, which is pretty foolproof with other programs.

You can also do time- and pitch-stretching, but be careful: crossfading with non-stretched material produces an effect that sounds like comb filtering. For crossfaded material, you're probably better of stretching first in an external digital audio editor, then crossfading.

EDITING GOODIES

CDA offers ripple editing on/off, so if you remove a cut from the timeline, either the other cuts can "close up" around it (or "push away" if you're inserting a cut) or you can elect to leave a space. You can also scrub, or play the tracks at faster or slower speeds.

One of my favorite options is the ability to open up a second audio layer, where you can add more audio, then create complex crossfades — perfect for creating DJ-type mixes. For example, in Figure 1, I added a short transitional figure between two songs by taking the tail of song, copying a small portion, adding extreme EQ so it sounded very filtered and distant, then had it butt up right against the next cut. I couldn't have done this in the timeline because of the need for very specific volume curves and fades, not just a general-purpose crossfade with the existing audio. The second layer is fantastic for these types of applications.

Interestingly, CDA crosses over into "collage" compositional territory: you can bring in snippets of audio, layer them, add envelopes, do processing, automate levels, loop them, and more. As such, along with being a top-flight pro CD-burning program, it has major implications for DJ and groove applications. Overall, CD Architect 5.0 is a fluid, versatile, easy-to-use program that makes the CD burning process about as painless as possible. ■

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There's no denying that audio gear is very sexy. But even a rack full of great equipment won't help if you can't hear what you're mixing. Most studios and control rooms have a large number of peaks and dips throughout the entire low frequency range. This makes it difficult to get a proper balance and nearly impossible to create mixes that sound the same elsewhere. Low frequency response variations as large as 20 dB. are common, especially in smaller rooms. Worse, the peaks and dips change around the room—the sound is thin here, too bassy over there—and nowhere is the response even close to flat. This is where REALTRAPS can help.

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www.jlsc.com

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- **Completed and signed entry form (or photocopy). All signatures must be original.**
- **CD(s) or audio cassette(s) containing one song only, five (5) minutes or less in length.**
- **Lyric sheet typed or printed legibly (please include English translation if applicable). Sheets not required for instrumental compositions.**
- **Check or money order for $30.00 per song (U.S. currency only) payable to John Lennon Songwriting Contest. If paying by credit card, $30.00 per song will be charged to your account.**

Entries must be postmarked no later than September 28, 2003.

Please read all rules carefully, and then sign your name in the space provided. If entrant is under 18 years old, the signature of a parent or guardian is required.

1. Each song submitted must be contestant's original work. Songs may not exceed five (5) minutes in length. No song previously recorded and released through major national distribution in any country will be eligible. Entries may have multiple co-writers, but please designate one name only on the application. **Contestant may submit as many songs in as many categories as he/she wishes, but each entry requires a separate CD/cassette, entry form, lyric sheet, and entrance fee. One check or money order for multiple entries/categories is permitted.** (Entrance fee is non-refundable. JLSC is not responsible for late, lost, damaged, misdirected, postage due, stolen, or misappropriated entries.)
2. Twelve (12) Grand Prize Winners will receive $2,000 in cash, $5,000 in Yamaha project studio equipment, a $5,000 advance from EMI Music Publishing. One (1) Grand Prize Winner will receive $20,000 for the "Song of the Year" courtesy of Maxell. Thirty-six (36) Finalists will receive $1,000. Seventy-two (72) Runners-up will receive $100 from MusiciansFriend.com.
3. Contest is open to amateur and professional songwriters. Employees of JLSC, their families, subsidiaries, and affiliates are not eligible.
4. Winners will be chosen by a select panel of judges comprised of noted songwriters, producers and music industry professionals. Songs will be judged based upon melody, composition and lyrics (when applicable). **The quality of performance and production will not be considered.** Prizes will be awarded jointly to all authors of any song; division of prizes is responsibility of winners. Void where prohibited. All federal, state, and local laws and regulations apply.
5. Winners will be notified by mail and must sign and return an affidavit of eligibility/recording rights/publicity release within 14 days of notification date. The affidavit will state that winner's song is original work, and he/she holds all rights to song. Failure to sign and return such affidavit within 14 days or provision of false/inaccurate information therein will result in immediate disqualification and an alternate winner will be selected. Affidavits of winners under 18 years of age at time of award must be countersigned by parent or legal guardian. Affidavits subject to verification by JLSC and its agents. Entry constitutes permission to use winners names, likenesses, and voices for future advertising and publicity purposes without additional compensation.
6. CD's, cassettes and lyrics will not be returned. Winners will be announced on January 15, 2004 on the contest's website **www.jlsc.com**.

I have read and understand the rules of the John Lennon Songwriting Contest and I accept the terms and conditions of participation. (If entrant is under 18 years old, the signature of a parent or guardian is required.)

SIGNATURE DATE

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By Craig Anderton • canderton@musicplayer.com

Sample CD Reviews

RETRONICA

PowerFX (www.powerfx.com)

Reason is a great all-in-one production tool, and PowerFX has come out with all-in-one refills designed to exploit that talent for specific musical genres. Joining Clubtronica (dance music), Ambiotica (soundscapes), and Synthotica (lush textures), Retronica specializes in retro, funk, and jazz styles. Raw materials include 151 MB of REX files (12 upright bass, 153 drum loops from 80 to 125 BPM, 33 electric piano, 16 vocoder) and 238 MB of sounds (160 NN-19 patches, 75 SubTractor patches, and 11 ReDrum patches). It's convenient the refill is compatible with both Reason v1 and v2, but that also means no NN-XT or Malström patches.

The sounds are the genuine article: funky (and slightly lo-fi) drum loops, greasy electric pianos and clavs, fun synth patches with lots of wah and some burbly sound effects, and the like — a nice mix of retro and some electronica for spice. However, this refill's distinguishing characteristic is that the sounds complement each other well. When I first listened to individual components, they were okay...but when I started putting them together, they locked into something greater than the sum of the parts. Within minutes, my speakers were vibrating with the kind of groove that makes you smile. You can seemingly layer anything with anything; they sound as made for each other as plastic surgeons and Hollywood.

Granted, this is a fairly specific application. But I'm always looking for well-coordinated samples that allow putting together soundtrack material *fast,* without having to search through dozens of CDs. For those retro/funk kinda grooves, Retronica is indeed a one-stop shop. (one CD-ROM, refill and REX files, $89)

CREATIVE ESSENTIALS FOR REASON

Zero-G (www.soundsonline.com)

Speaking of Reason, this refill is *exceptional* value for money: two CDs are jam-packed with NN-19 instruments, live & sequenced riffs, and vocals, while a third CD adds Dr. Rex drum loops, grooves, and construction kits, plus NN-19 percussion, ReDrum kits, and ReDrum samples.

The 7.9 GB of source material (Propellerheads' lossless compression scheme for refill packing enables it to fit on three CDs) is drawn from Zero-G's 31 Creative Essentials CDs, and includes rhythm guitar, brass, diva vocals, bass loops, strings, woodwind and brass, world music, house construction, ethnic, trance, etc. You'll find sitars to flutes, nasty porno-wah guitar to reggae brass...as well as some instruments I've never even heard of, let alone know how to pronounce.

With so much material it's hard to choose favorites, but the variety of percussion and ethnic Dr. Rex loops have served me well. That's just a tiny part of the picture, though. From *bhangra* to jungle, you'll find it. Chinese flutes? Done. *Cabasa* loops? Sure. Strummed acoustic guitar? Right here. Acoustic bass? Synth pads? Organ? Arpeggios? Annoying metallic sounds? Rhodes? Zerps and bleeps? Dial 'em in, load 'em up.

Be aware that some of the NN19 patches really stretch the samples, and as expected, the sound gets gritty if you go too far down and tinny when

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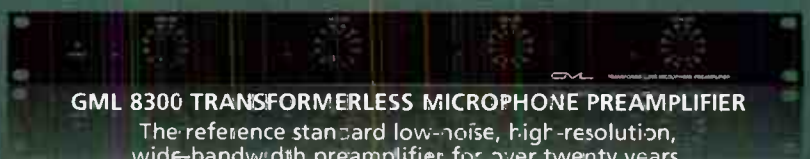

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* 2002 *Mix Magazine* Tec Award, 2001 *Pro Audio Review* Excellence Award, 2000 *EQ Magazine* Blue Ribbon Editor's Choice Award.

World Radio History

transposed up too far. Strums become s t r u m s in the lower ranges and strmz up high, but the "sweet spot" is usually wide enough to cover your needs. (Although frankly, some of the "out of spec" sounds are weirdly useful in their own way.) I also found the ReDrum kits a bit trebly for my tastes, but a quick trip to the mixer's treble control squashed that objection.

At this price, you can't go wrong. For production work, it's the kind of refill where if you need just one or two more cool sounds to complete a track, with a little rummaging around, you'll find it...or more likely, in the process of rummaging, you'll find something else that works even better. I suppose I could be curmudgeonly and bitch that some of the sounds aren't state of the art, but that would be sort of like being treated to a 52-course Indonesian dinner, then complaining that the napkins weren't folded right. If you use Reason, it seems certain you would find more than enough in here to justify the price. (three CD-ROMs, Reason format, $149.95)

BUN E. IN A BOX

Q Up Arts (www.quparts.com)

Yes, *that* Bun E. Carlos — the guy from Cheap Trick with the glasses and surgically precise drumming. You get sampler-friendly drum kits (I reviewed the HALion version), and 238 MB worth of loops. Four kits, spread over a two-octave range, are made up from 60 MB of individual samples: 31 cymbals, 11 hi-hats, five kicks, 87 snares (including some tasty flams and rolls), and 18 toms. A fifth kit, snares, is four octaves of ultra-expressive snares and can be surprisingly useful.

It's not an orgy of multi-sampling — many hits have one sample, and only a few have two or three — but the sound is plenty expressive. I think part of that relates to the recording, done by Steve Albini on analog tape with just a hint of tasty room ambience. The drums have a presence, depth, and tightness that cuts through a track not by being strident, but by sheer power.

Loops are handled in a novel way. There are 25 folders of loops; 16 of them consist of eight groups of loops in two versions — "natural tempo" (cut up pieces of performances) and "gridded" (generally shorter loops whose timing is more "quantized"). Folders have anywhere from one to 26 loops (I'd say the average is around five), mapped to white keys only. You can put together some good arrangements with these, and they get to the heart of the "Bun E. in a box" concept. Unfortunately, there's no loop acidization (although Q Up plans to do a CD of just the loops as acidized WAV files for $59).

By today's standards the price isn't cheap, but then again, Bun E. Carlos, Steve Albini, and the work necessary to do good sampler mapping isn't cheap either. The bottom line: these are drum sounds with meat and bite, recorded by one of the best. If you've heard the drumming on a Cheap Trick record and are familiar with Steve Albini's spare, powerful production style, you know exactly what to expect. (one CD-ROM; 16-bit EXS/HALion/Giga $199, 24-bit $249, 16- to 24-bit upgrade $49; audio $99; 16-bit WAV $149, 24-bit WAV, $179) ■

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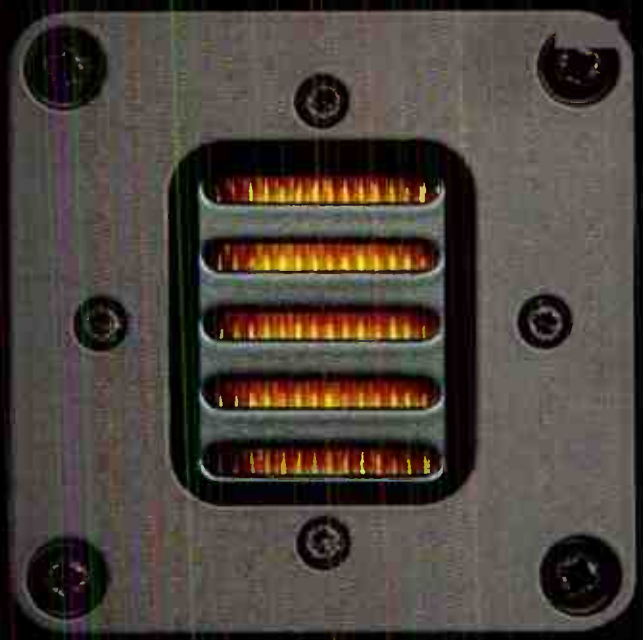

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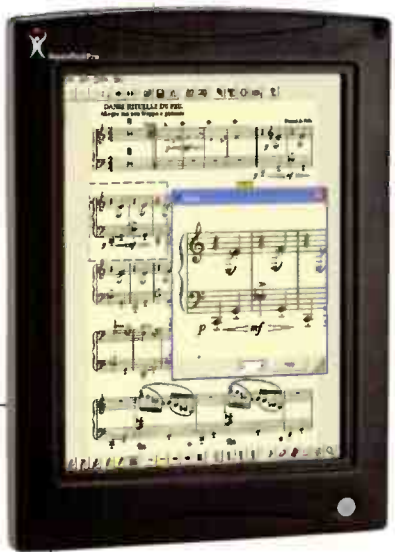

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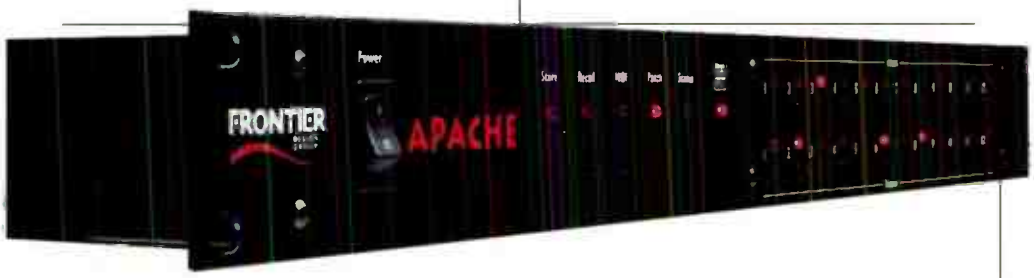

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World Radio History

▶ continued from page 120

- Advanced Mixing I
- Control surfaces for music
- Synchronization basics
- Intro to surround for music

Pro Tools 210P, a two-day course, focuses on completing 200-level training with a post-production focus. Concepts and skills learned in 201 are reinforced with post-specific examples including:

- Advanced file formats, including OMF
- Advanced Post Editing I
- Advanced Mixing I
- Synchronization
- Digital picture integration
- Control surfaces for post
- Introduction to surround for post

Pro Tools 310M, a three-day course, focuses on the advanced operation of Pro Tools TDM systems for music production. This course is replete with audio and MIDI production examples commonly found in real-world scenarios involving music-related Pro Tools sessions covering:

- Advanced Music Editing II
- Advanced Mixing II
- Advanced control surface techniques
- Software instruments
- Plug-ins
- Collaboration, including DigiStudio

Pro Tools 310P, a three-day course, focuses on the advanced operation of Pro Tools TDM systems for post-production. Speed, efficiency, and flexibility are all stressed in this course. Examples of TV and film production are featured in exercises that prepare individuals to efficiently manage deadline-driven, TDM-based Pro Tools operations covering:

- Advanced OMF applications
- Advanced Post Editing II
- Advanced Mixing II
- Extensive key command focus
- Synchronization, including troubleshooting
- Editing tools focused on Avid picture
- Advanced control surfaces for post
- Collaboration, including DigiStudio

The 200-level and 300-level courses offer certification and require passing on-line tests. Once you reach the 300-level, there will be little need to call someone else for help in the middle of the night. All of your friends will be calling you.

Oh, yeah, I almost forgot: At the training class we decided to start a Pro Tools police force to enforce proper session documentation. We call ourselves the Beat Detectives. Those who violate the rules will be locked behind eight bars....

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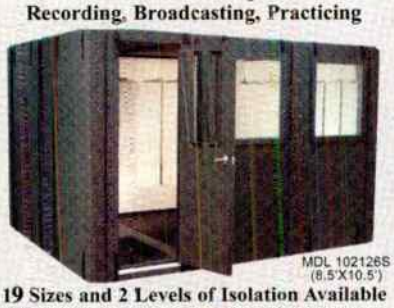
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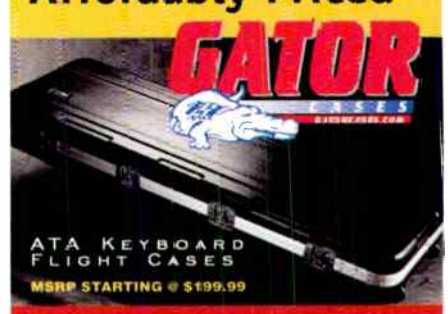
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Mackie Control and UAD-1 Powered Plug-ins Version 3

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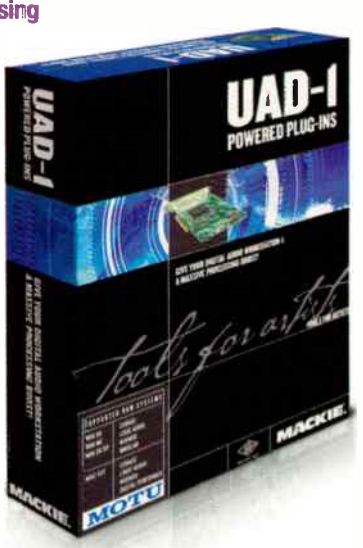
UAD-1 Version 3 is here, with multi-card support and many other enhancements. Run dozens of sophisticated effects plug-ins inside Digital Performer without bringing your Mac to its knees. What's the secret? UAD-1 is a custom DSP-equipped PCI card. It's like adding an extra $20,000 worth of effects gear to the dozens of native plug-ins included with DP. UAD-1 ships with a growing list of powered plug-ins, including Nigel, a complete palette of guitar tones combined with every effect a guitarist could ever need. Authentic vintage sounds include the Pultec Program EQ, a stunningly realistic recreation, and the1176LN Limiting Amplifier and Teletronix LA-2A Leveling Amplifier, two more analog classics reborn inside Digital Performer. Apply liberally with host CPU cycles to burn.



THE MOTU STUDIO CALL SWEETWATER

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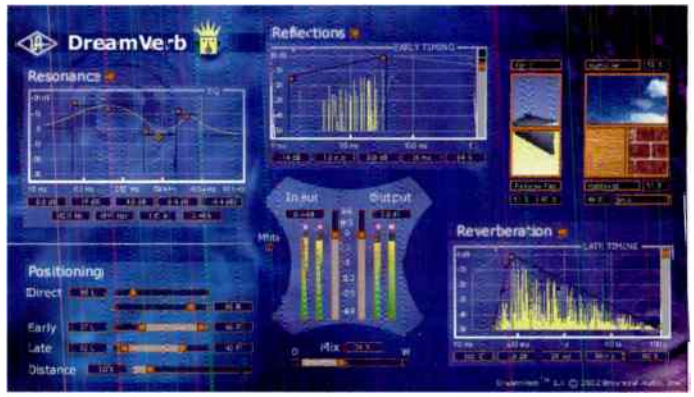
Universal Audio Cambridge EQ for UAD-1

Add smooth British equalisation without taxing your CPU

The Cambridge EQ, with its surgical precision, is the perfect complement to the warm, musical Pultec. In addition to its five-band fully parametric EQ, Cambridge features high and low cut filters with a wide variety of filter types and curves, and switchable shelving filters for each EQ band. Cambridge uses complex lattice filters and a special algorithm to achieve a warm analog sound without oversampling. An A/B function allows for quick comparison of two different settings. Cambridge also features a graphic display of the EQ curve, which has "edit handles" for click and drag control of the EQ parameters, plus editable text displays for parameter values. A must-have addition to your Digital Performer plug-in arsenal.

Universal Audio DreamVerb for UAD-1

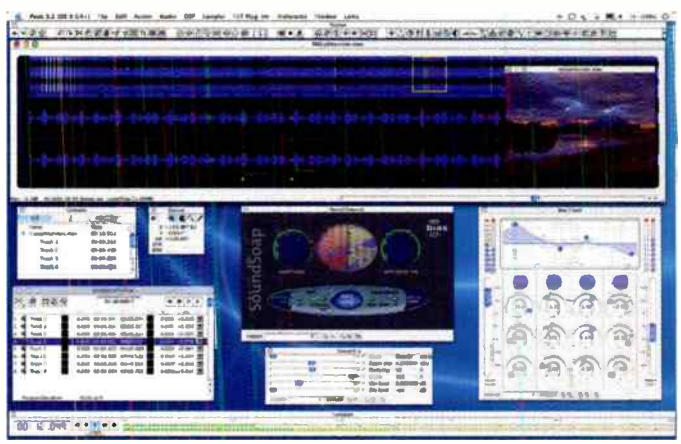
New flagship reverb for DP from the gurus at Universal Audio



DreamVerb's unparalleled flexibility, power and intuitive interface allows you create any acoustic space inside Digital Performer using a huge list of different materials and room shapes. Blend or "morph" different room shapes and surface materials, adjusting the effect of the room materials on the sound space, and even varying the density of the air to simulate different ambient situations. With flexible 5-band active EQ and unique level-ramping for the early and late reflections, you can create sounds ranging from ultra-realistic dynamic room simulations to lush reverb effects. Universal Audio's proprietary smoothing algorithm lets you adjust parameters in real-time with no "zipper-noise" or other undesirable artifacts.

BIAS Peak 3.2

The ultimate waveform editing companion for Digital Performer



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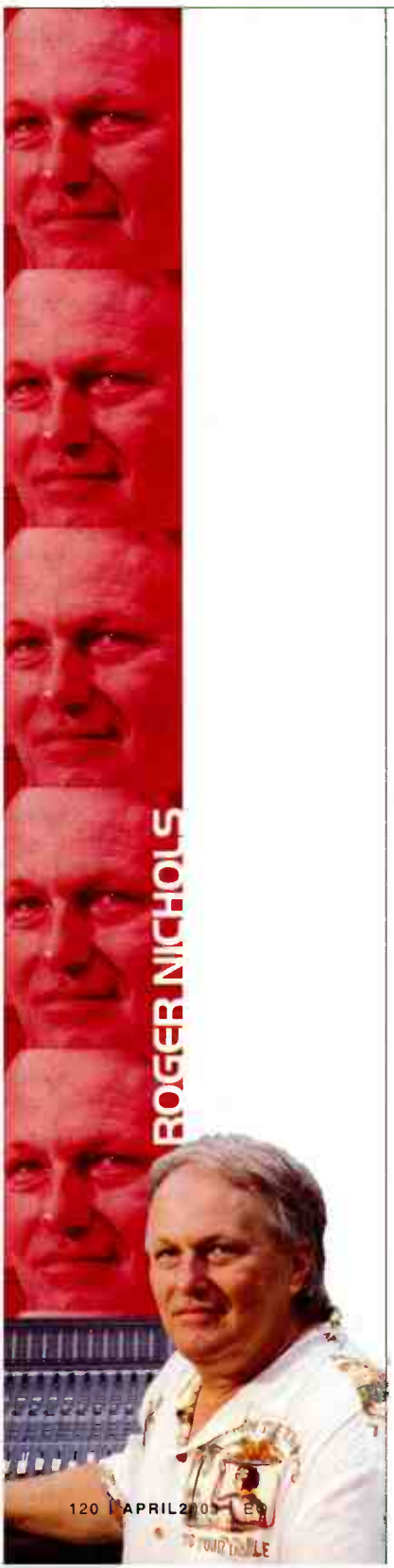
Roger Nichols becomes certifiable

Crash Course



Over the years I've enjoyed traveling around the world to present master classes and seminars about recording, mixing, and digital audio. In 2002 I held master classes in Miami and participants flew in from all over the U.S., Canada, and Mexico. I got hundreds of e-mails from people who couldn't make the trek to Miami and requested that I offer the master classes in different cities around the country so they could more easily attend. So, the planning is done, the jet is packed with Twinkies, and the 2003 Roger Nichols "Crash Course-2: Mixing" is under way. For more information you can visit http://crashcourse.rogernichols.com.

DIGIDESIGN CERTIFIED INSTRUCTOR TRAINING

Although I've used Pro Tools almost every day since 1989, there are some aspects of the program that I've never used and shortcuts that I didn't know. Since the Crash Course uses Pro Tools to show mixing techniques, I'm often bombarded with as many Pro Tools questions as mixing questions. Often I had to find out the answer from someone else during the lunch break. Not any more.

I just finished a weeklong Certified Pro Tools Instructor course at Digidesign headquarters. Now I can answer the questions, and help Crash victims work more efficiently in Pro Tools. I no longer have to be on a "phone call only diet" during the lunch breaks.

THE DIGIDESIGN COURSES

Pro Tools has grown quite a lot from the two-channel Sound Designer recording software that was first offered in 1989. After 15 years the Pro Tools system has become a complex system that can adapt to both audio post and music work environments. Okay, so you knew all of that, but what you might not know is the extensive training program that Digidesign has implemented to help both new and experienced Pro Tools users.

There are three levels of courses available right now, with more planned for the near future.

Pro Tools 101 is a three-day course that focuses on the foundational skills needed to learn and function within the Pro Tools environment at a basic level. The aim of this course is to help individuals start working on their own projects in Pro Tools, including:

- System capabilities
- Hard disk basics
- Pro Tools file system
- Navigation and display basics
- Recording modes and techniques
- Selection techniques for audio regions
- Basic editing skills
- Importing audio files
- Using fades
- Basic mixing examples
- Using AudioSuite (file-based) plug-ins
- Introduction to MIDI in Pro Tools

Pro Tools 201 is a three-day course that focuses on the skills needed to competently operate a Pro Tools TDM system in a professional environment, including:

- Overview of Pro Tools workstations
- Pro Tools session management concepts
- Editing features and techniques
- Session navigation and control
- Recording modes/techniques
- In-depth plug-in usage
- Pro Tools automation modes and techniques
- Introduction to Digidesign control surfaces
- Final mixdown and layback, including dither

Pro Tools 210M is a two-day course that focuses on completing 200-level training with a music focus. Concepts and skills learned in 201 are reinforced with music-specific examples including:

- Advanced Music Editing I
- MIDI, including soft synths and samplers

▶ continued on page 114

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Michael Giacchino
Film / TV Composer
ALIAS (ABC)

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Learn more at www.motu.com

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'ALIAS' Digital Performer project courtesy of Michael Giacchino

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