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JANUARY 2004

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World Radio History



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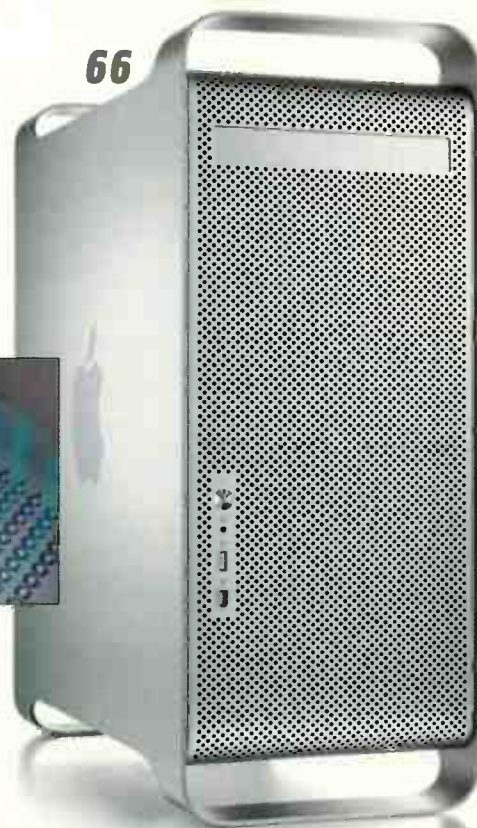
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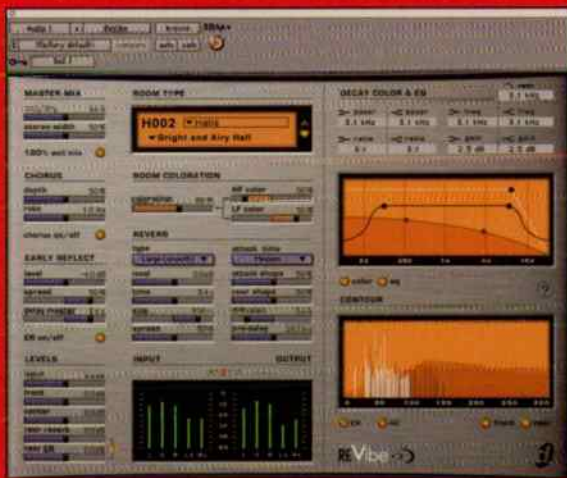
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Talk Box



Vol. 15, No. 1
January 2004



FOURTEEN

With AES in the rear view, and with the corks popping on a New Year, it's time to turn our attention to Winter NAMM, which takes place from January 15–18 in Anaheim, California. America's largest gathering of musical instrument manufacturers is second only in girth and awe to the massive Frankfurt Musikmesse. It's gear-hound heaven, as many manufacturers use this event to launch their new product lines for the year.

As we've done for over a decade, the *EQ* team will be in Anaheim *en masse* to comb the aisles, talk our throats raw about music and recording technology, and take in as many press conferences, product demos, panel discussions, and after-hours concerts and happenings as possible. To name one key event, NARAS hosts their inspiring Grammy Producers SoundTable at NAMM, which is always a highlight. We'll be bringing details of this and dozens of other *EQ*-worthy NAMM items to you soon. To all *EQ* readers attending the show, be sure stop by the Music Player booth and say hello.

So about that headline above. . . . Effective with the issue you're holding, *EQ* enters its 14th year of publishing. Flipping through a bound legacy set of *EQ*s, I was reminded of (and humbled by) the many passionate writers/musicians who have poured their hearts into this magazine over the years: from the debut editorial crew of Phil Hood, Brent Hurtig, and others, to the New York team of Paul Gallo, Marty Porter, Tony Savona (to name a few), Roger Nichols, to the current team listed on the masthead at right. It's our privilege and honor to carry the torch.

And speaking of magazine longevity, *EQ* sends a sub-octave salute to our sister mag *Bass Player*, who turns 15 with its January 2004 issue. Bravo to Bill Leigh and his ace bass crew.

—Greg Rule

Executive Editor: Greg Rule, gregrule@musicplayer.com
Editor: Mitch Gallagher, mgallagher@musicplayer.com
Managing Editor: Debbie Greenberg, dgreenberg@musicplayer.com
Technical Editor: John Krogh, jkrogh@musicplayer.com
Editor at Large: Craig Anderton, canderton@musicplayer.com
Contributing Editors: Gerry Bassermann, Dan Brown, David Frangioni, Steve La Cerra, Jerry McPherson, Gary Mraz, Roger Nichols, Kevin Owens, Lisa Roy
Art Director: Doug Gordon, dgordon@musicplayer.com
Staff Photographer: Paul Haggard, phaggard@musicplayer.com
Publisher: Valerie Pippin, vpippin@musicplayer.com

Associate Publisher/Northwest Advertising Sales:
Dan Hernandez, Tel: 650-513-4253, Fax: 650-513-4646; dhernandez@musicplayer.com
East Coast Advertising Sales: Joe McDonough
Tel: 212-378-0492, Fax: 212-378-2158; jmcdonough@musicplayer.com
Southwest Advertising Sales: Pete Sembler
Tel: 650-513-4544, Fax: 650-513-4646; psembler@musicplayer.com
Northeast/Europe Advertising Sales: Gary Ciocci
Tel: 603-924-9141, Fax: 603-924-9209; gciocci@musicplayer.com
Sales Administration Manager: Lauren Gerber
Tel: 650-513-4528, Fax: 650-513-4646; lgerber@musicplayer.com
Manager of Specialty Sales: Joanne Martin
Tel: 650-513-4376, Fax: 650-513-4646; jmartin@musicplayer.com

THE MUSIC PLAYER GROUP
Vice President: Louise Rogers
Group Publisher: Valerie Pippin
Editorial Director: Michael Molenda
Financial Analyst: Cheri McElroy
Credit Manager: James Wallace
Production Manager: Amy Santana
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Circulation Manager: Heather Harmon
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Assistant Circulation Manager: Maribel Aleman
Imaging Technicians: Joe Ging, Martin Ruiz
Reprint Coordinator: Karen Jacobs
Administration Support: Sandra Pollard

WWW.EQMAG.COM
Web team: Matt Dula, Joe Gero, Coral Xu, I Hsun Huang, David Pak, Greg Rule

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Please direct all editorial and advertising inquiries to:
eq@musicplayer.com

Please direct all subscription orders, inquiries, and address changes to: Rosario Perez, 650-513-4308, F: 650-513-4642, rperez@musicplayer.com

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The BAND STAND

What are some of your most memorable NAMM moments?



Greg Rule, Executive Editor
I once bumped into a very tall, black-trenchcoated man at the Hilton bar — the unofficial NAMM after-hours spot. The bumpee turned out to be rock legend (and slightly agitated) Gene Simmons. *Gulp.* . . . Another memory: Watching in horror as a pipe broke above the Kawai booth, pouring stagnant, stinking water down upon the grand pianos below. The incident became known as *Bridge Over the River Kawai*.



Mitch Gallagher, Editor
New gear may be the draw at NAMM, but after-show events make for some amazing moments I've had the chance to see so many great performances Eric Johnson, Tony Bennett, Steve Morse, Les Paul, Elton John, George Clinton . . . but my number one musical memory? Has to be Spinal Tap literally rocking the house down — the show was so loud the hall's lighting fixtures were falling off the ceiling!



Craig Anderton, Editor at Large
Many summers ago at the Chicago NAMM show, there was a funky card table set up in a tiny 10 x 10 booth, hidden next to the stairs. One guy was at the booth, with a little mixer that he was going to sell really cheap. I figured the parts alone cost almost what he was charging, but he assured me he could be successful even at that price. It was a CR-1604, and the guy's name was Greg Mackie.



John Krogh, Technical Editor
Perhaps it was the in-booth go-go cage or hot tub — whatever the case, I can't quite recall what new gear Gemini was displaying at NAMM [grrr], but I can remember spending a lot of time at their booth, nonetheless. I also recall an Alessi NAMM party where Herbie Hancock was hired to play. Can you imagine trying to do the "industry shmooze thing" while one of your idols is playing the cocktail set?

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Circuit Board Designer MIKE POORMAN stands behind Mackie compact mixers... and on them.

* After considering a number of headlines including "Take a Stand," "Stand and Deliver," "Get Up, Stand Up," and "The Streets of Stand Francisco," we went with the above. The point is that Mike is actually standing on a Mackie mixer. Can you stand it?

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MACKIE



Punch-In

Tips & News You Can Use
BY GREG & CRAIG

News Industry Blotter

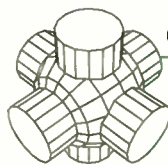
■ The Summer 2004 **NAMM** convention and expo will be the last one held in Nashville. 2005 will take the show to Indianapolis, IN, and 2006 to Austin, TX. The problem: lack of space. Nashville's convention center isn't getting any bigger in the foreseeable future, but Summer NAMM continues to grow.

■ **Steinberg USA** has moved into a new office facility in Burbank. Their new mailing address is: 3500 W. Olive Ave., Ste. 300, Burbank, CA 91505; www.steinbergusa.net.

■ **Native Instruments** has announced a new partnership with the **Berklee College of Music**. Berklee will install NI's complete line of software instruments on all college-owned computers. Kontakt, Reaktor, FM7, Absynth, and other NI virtual tools will be placed throughout the campus for use by faculty and students. According to Dan Brown, General Manager at Native Instruments USA, "Our partnership will provide Berklee students with experience using the latest in audio tools, while simultaneously providing Native Instruments with real-world insights critical to maintaining our position." Also of interest: Berklee is now requiring all entering students to have a Macintosh laptop computer to support their music education and coursework. For more information on Berklee, browse to www.berklee.edu; product information from Native Instruments can be found at www.nativeinstruments.com.

News EQ's Ozzie

Over 2,000 entries piled into the Ozzie and Eddie Awards headquarters this year, making 2003 the most competitive year on record for *Folio*, the host of the annual publishing-industry awards. A distinguished panel of 90-plus judges participated in the evaluation process this year, narrowing the entries to three finalists in each category. As reported last month, *EQ* made it into the final round of the "Best Redesign" magazine category. *EQ* art director Doug Gordon attended the awards ceremony in New York, and proudly accepted the silver award on behalf of the *EQ* team. Congrats to Doug and all involved!



Gadgetphile

AR Guitar Can-plifier

In the pristine digital world we inhabit, it's not always a bad idea to tap into tools from the other side of the tech spectrum — the wonderfully lo-tech Can-plifier from AR Guitar, for example. Plug a mono source into the can's 1/4" input, adjust level with the mini trim, and bask in the *can-plified* output. The manufacturer can supply the can, or you can send one of your choice. Since not all cans are created equal, AR Guitar will reinforce those that are too thin. Get details by emailing info@arguitar.com.



tip

CD STORAGE WARNING

From Music-Player.com forum member Zeronyne:

"I'm a very diligent backup person. Consequently I have hundreds and hundreds of CD-Rs. Because I am running out of space in my safe, I switched from jewel cases to those CD wallet-type inserts. They have clear poly plastic jackets with some sort of fabric-like insert for the read side. You've seen them at a million computer and office supply stores.

"Well, this year I decided to reburn about 50 CDs that were getting a bit old (five years). I have some irreplaceable stuff that I wanted to secure, and I was going to consolidate them onto DVD-Rs.

"Much to my unpleasant surprise, those sleeves left a film on my CDs! The worst was one where I had inadvertently put the CD in upside down so it touched the plastic. It had a thick film on it. The ones that were 'properly' stored just had the fabric pattern on them. They were not squashed together, and the safe is temperature and humidity controlled. All of the CDs read okay, but it's back to jewel cases for me."

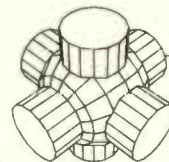


News

New-format Watch

Are we detecting a bit of momentum behind the DVD-A format? Here are a few of the recent DVD-A releases that crossed our path:

- Alicia Keys, *Songs In A Minor*, J Records
- Blues Traveler, *Truth Be Told*, Silverline
- George Strait, *Honkytonkville*, Universal
- Neil Young, *American Stars N Bars*, *Greendale*, *Hawks And Doves*, *On the Beach*, *Re-act-or*, Warner Bros.
- Outkast, *Stankonia*, Arista
- Peter Frampton, *Frampton Comes Alive!*, Universal
- Santana, *Shaman*, *Supernatural*, Arista
- Shania Twain, *Up!*, Universal
- Steely Dan, *Gaucho*, Universal
- Steve Forbert, *From The Front Row Live*, Silverline
- Teddy Pendergrass, *From The Front Row Live*, Silverline
- Usher, *8701*, Arista



Gadgetphile

Contour Showcase for iPod

As cool as the new iPods are, they're a bit less friendly than the previous generation when it comes to protective cases. The more densely populated button array and the need to dock the new units make case design a challenge to say the least. The best solution we've seen so far comes from Contour Design and their new Showcase for iPod. This sleek protective case opens like a book, making it a snap to pop the iPod out for docking. It also looks and feels great. Take it from a fumble-fingered writer (who has dropped his cell phone, PDA, and iPod a few too many times), gadget protection is more than a luxury. Contact Contour at www.contourdesign.com.

Forum Exchange

EQmag.com Posts of the Month

■ *I'm trying to figure out how that lead vocal effect was created on Earth, Wind & Fire's "Sing A Song." Is it a chorus effect? Is it a Harmonizer? Is it a modulated tape delay? Is it a combination of things? — Dan*

[Answered by George Massenburg]: "Sing A Song" was recorded about 28 years ago and I can't remember specifics about the session or the mix. I can tell you what kind of equipment I was using back then, because the list was short. Mics were KM-84s, C414s, SM-57s (a lot), Schoeps CMC-5s. Mic pres and EQs were either GML or API. The machine was a 3M M-79. It was mixed on a Bushnell (some API, some GML). We used two great live chambers (Hollywood Sound on Selma) — an old EMI plate. The delays were from a very old (perhaps one of the first) DDL. It wasn't very good. Mind you, this record was before good Harmonizers or, for that matter, almost all modern effects. The sound you heard on the vocals was undoubtedly little more than a couple of very short DDLs (15–40 ms). Not to mention the sound of the vocals themselves.

Reply: *EWf vocals have always had this airy compression sound to my ears — 1176?*

Impossible. Very nearly every vocal that I've done for some 30 years has been with a variation of the GML 8900 limiter, and never (until very recently when I worked on a mix here in town and they wanted to hear an 1176; they didn't use my mix, though).

Reply: *The vocal on "Sing a Song" sounds a bit detuned, which was probably applied to one of the delays George was talking about.*

Wrong again. If you can believe this, the vocals were done *before* Auto-Tune was available. The fact that they sound "a bit detuned" comes from double and triple passes where they simply — now get this — *have not been tuned to high heaven*. The vocals are simply "sung." Let me explain that this is an archaic term referring to a pre-modern (*i.e.*, pre-Clear Channel) technique where the "vocalist" or "vocalists" persist in "singing" (performing) until the resulting sound is pleasing and well-integrated with "instruments" (in the dim and distant past most often "performed" as well), rather than relying on manipulation of raw sounds by modern qualified experts (who haven't the slightest bit of "ear" or sense of musical quality or even good taste).

Reply: *There was mention of a possible de-tuner on the DDL. Did the DDL you used back then have such capabilities? Could this be part of the sound? Or was that not an option?*

It most certainly was not an option. Period. I know this partly because I got and used the first Eventide Harmonizers in, oh, it must have been 1977.

Reply: *I messed with some delays between 15–40 ms (without repeat/feedback, and even with), and it sounds more like the vocal was recorded in the shower than anything else when I do that. Those quick delays make it sound like small parallel walls (hence the "bathroom sound").*

1. You're using too much of the delayed signal.
2. Pick prime number delays and listen for the approximate *pitch* of the resonance.

tip

SONAR 3 / PACE FIX

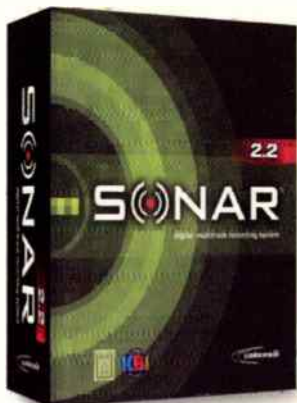
If you're using Sonar 3 in hyper-threading enabled systems and use plug ins with PACE copy protection, you may have encountered crashes and blue screens. However, Cakewalk's Ron Kuper has suggested a way to fix these issues by simply adding the following registry value. Note: Modifying the registry is not recommended unless you really know what you're doing!

1. Navigate to HKFY_CURRENT USER > Software > Cakewalk Music Software > SONAR Producer > 3.0.

2. Go Edit > New > DWORD Value and type in the name "EnableMultiprocHT" (don't type the quotes).

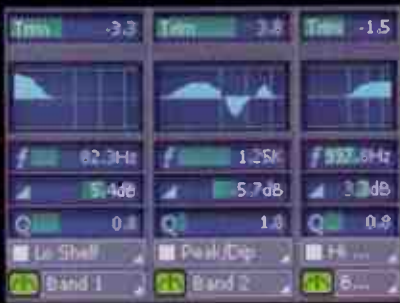
3. Double-click on the name, and in the Edit DWORD Value dialog box, enter a value data of 1 (decimal or hex can be checked, it doesn't matter).

4. Click on OK. This key instructs Sonar 3 to treat a hyper-threading processor as two processors; not doing so seems to cause problems with PACE.



SONAR3

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Confidence recording

Full plug-in delay compensation

\$719 MSRP



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www.cakewalk.com | 888.CAKEWALK | 617.423.9004 (outside the U.S.)



Bookworms



■ Are you flummoxed by the lingo, lies, tricks, and twists of the record industry? Now in its fifth edition, *All You Need to Know About the Music Business* by Don Passman (Free Press) is a must-read for all who want the inside track to navigating the trenches of the business. From royalties and copyright laws to contracts and distribution know-how, this 400-plus-page hardback has you covered.

■ Anyone who's met Bruce Swedien knows he's one of the nicest, most professional, and most artist-oriented engineers in the audio business. All of that comes through intact in his new book, *Make Mine Music* (published by Mia Musikk, www.mia.ng). Its 287 pages are a mix of education, tips, reminiscing, studio stories, and explanations of the processes behind making some of the landmark recordings of the 20th century. No matter how long you've been into recording, you'll learn something from this book — and be entertained as well.



Producer Spotlight Ed Cherney

Producer/engineer Ed Cherney recently checked into The Plant in Sausalito, CA, for mix sessions with Sonia Dada. While there, he took time out to chat with a group from the local chapter of NARAS, and to dissect some of his recent Rolling Stones 5.1 mixes. From Discmakers.com comes this timely tip from the man himself.

Do you compress your stereo mixes?

Cherney: "I sure do. We live in an age of volume, and, especially in the digital domain, you have the ability to finalize things and really get the most level possible. Nowadays, dynamics in music aren't that important, at least not in the pop music we listen to. That may change again as we get more into 5.1 and 96 kHz, 24-bit sampling.

"I came from an era where dynamics could be very important, but now we're in a time where competition on the radio is fierce. You have to make sure your song pops out of the radio speakers in a car while the listener is driving 90 miles an hour with the windows open. Currently, there are not a lot of subtleties involved in pop music. You get the music forward and you keep it forward and it better be as loud as the previous song on the radio and hopefully louder than the next one."

For the full interview, go to www.discmakers.com/pse/cherney.php.



Surfboard

As we peruse the inner recesses, nooks, and crannies of the web, we're constantly flagging sites, news items, and useful tidbits that we feel will be of interest to you. Such as:



■ <http://altiverb.daw-mac.com>
With convolution reverb quickly becoming the standard for plug-in ambience processing, impulse samples are a great thing to have onhand for fueling your engine. David Das has built an online homage to AudioEase's excellent AltiVerb processor, and loaded it with free impulse responses. Log onto the site above, and click the *Impulse Response Library* link on the homepage. Thanks, David!

■ www.patcharena.com

Looking for patches? Doing sound design? Want to swap patches? Interested in news about new sounds and programs? Patch Arena, which has downloads, forums, and news, serves as a resource for those who want to venture beyond the world of factory presets.

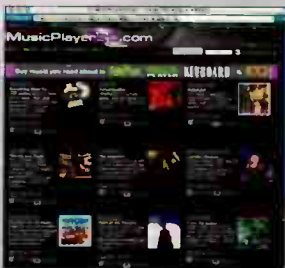


Registration is required for the forums, but not for downloads.



■ www.digido.com

Sure, this is the website for Bob Katz's mastering business. But click on *Articles*, and you'll find a wealth of information on compression, dither, jitter, and all those other vexing digital audio issues. Bob manages to sort out the fact from the fiction without condescension or pretense; and while you're there, you can order a copy of his excellent book, *Mastering Audio*.



■ www.musicplayercd.com

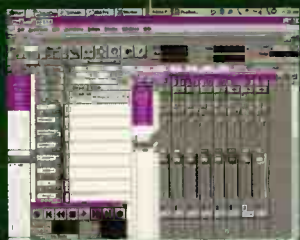
If you read a CD review in *EQ*, *Keyboard*, *Guitar Player*, or *Bass Player* magazine, and want to get your hands on a legal "hard" copy, go to MusicPlayerCD, where CDs can be drop-shipped to your door.

Left to right: engineer Paul Stubblebine, guest of honor Ed Cherney, NARAS chapter pres. Merl Saunders Jr., and Plant owner Arne Frager. [Photo by Lisa Jann, courtesy NARAS.]

FIREWIRE!

DM-24 with IF-FW I/O card

Now the DM-24 is also a *really* big 24-input computer sound card.



↑ DM-24 does **Pro Tools**®

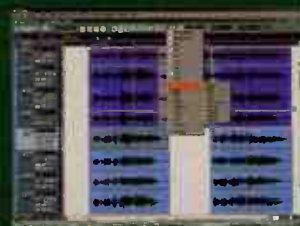
The DM-24's powerful internal DSP frees your computer CPU to run more processor-intensive plug-ins.

16 mic preamps, 16 balanced mic/line inputs on XLR and TRS jacks and 16 inserts.

Studio-quality compressor and 4-band parametric EQ on every channel. Gate/Expanders on channels 1-16.



↑ DM-24 does **Performer**™



↑ DM-24 does **Nuendo**®

HUI® control for Pro Tools®, Performer™ and Nuendo® includes external control of level, mutes, pans, track arming and aux sends.

Powerful built-in automation with LED ring encoders for hands-on "analog" adjustments of digital parameters.

100mm touch sensitive motorized faders.

60 input channels during mixdown

- 3 internal processors with reverb by TC Works™, spatial effects by Tascam and mic/speaker modeling by Antares™.
- 24-bit/96kHz compatible with 32-bit floating point internal processing
- 24 TDIF and 8 ADAT channels, stereo S/PDIF and AES I/Os come standard

Twenty-four inputs, twenty-four outputs plus MIDI for control and timing data. All thru a single FireWire® cable betwixt your computer and the DM-24 digital mixer.

NEW!



IF-FW FireWire® Card

Co-developed with SaneWave™, the TASCAM IF-FW I/O card includes two FireWire 400 ports plus MIDI In and Out.

The DM-24's V2.1 software adds over 20 new features including 5.1 surround panning and virtually unlimited signal routing.

Along with all the other way-cool features that make the DM-24 an incredible DAW controller.

Fire up a demo at a TASCAM dealer or visit our web site for more info.


TASCAM.




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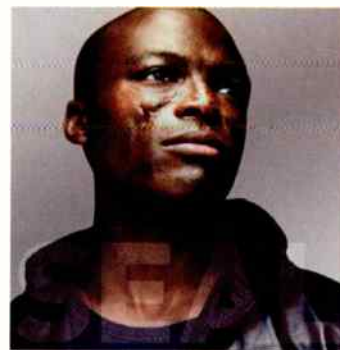
www.tascam.com


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They're a staple of MTV *Cribs* — studio walls lined with gold and platinum plaques. If you've paid your dues, and have a great release or two under your belt that deserves proper display on your studio wall (regardless of how many or few copies you sold), DejayGold can build a custom plaque to commemorate your achievement. Visit their website (www.dejaygold.com), peruse the showroom, then click into the Virtual Plaque Maker section of the site to create your masterpiece.



CD of the Month Seal

Seal IV, Warner Bros.

Seal's third CD, *Human Being*, was one of the most underrated records of the late '90s. It was a dark disc, to be sure, but was stuffed solid with excellent songs, performances, and productions. Trevor Horn, William Orbit, and Danny Saber were among the cast of all-stars at the production helm. Now Seal finds himself faced with making a "comeback" in the eyes of some.

Not surprising, his fourth and latest release, *Seal IV*, is a bit more radio friendly than its predecessor. Trevor Horn produced. "I want to give credit where credit is due," says Seal in his bio. "Trevor is a production genius of the old school variety. He reads music, knows theory, is a multi-instrumentalist, and has the invaluable social skills to motivate people to do what even they don't know they can do. He has the discipline and dedication to keep obsessively focused on a verse, a chorus, a whole song, or an entire album until it's absolutely the best it can be." Seal says he wrote a complete record, only to shelve it all, relocate from LA to London, re team with Horn, and begin again. *Seal IV* is off to a flying start, with the first soulful single "Waiting For You" climbing the charts.



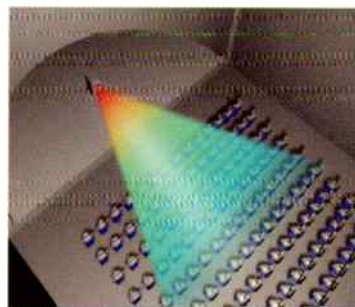
tech watch

Bose Cylindrical Radiator Loudspeakers

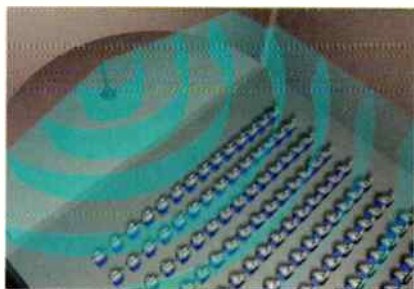
At first glance, they look like headless basketball goalposts, but these slick new loudspeakers defy their diminutive shape. Bose explains: "With conventional systems, volume levels diminish rapidly. Sound is concentrated in a narrow, cone-shaped beam. It sounds bright directly in front of the speaker, and dull off to the sides. Sound is projected to the upper walls and ceiling, contributing to unwanted reverberation."



With conventional systems, volume levels diminish rapidly. Sound is concentrated in a narrow, cone-shaped beam. It sounds bright directly in front of the speaker, and dull off to the sides. Sound is projected to the upper walls and ceiling, contributing to unwanted reverberation."



With the new Bose system, however, "volume levels diminish gradually, so the musicians hear what the audience hears. Sound is distributed in a wide, even pattern — nearly 180° — so everyone on stage and in the audience hears the same full, natural sound. Very little sound is projected to the upper walls and ceiling, greatly reducing unwanted reverberation. As a result, lyrics and instrument sounds are clear and distinct, even in the back of the room."



Intrigued? For the full Bose pitch, go to www.bose.com/musicians.

CORRECTION

The picture of the Line 6 Vetta amp in the Variax/Vetta II review (Nov. '03 issue) was unfortunately of the old-style Vetta I cabinet, not the Vetta II Combo amp (pictured here), which was the subject of the review.



Also, in the StudioVoodoo feature (Nov. '03), Ted Cohen's title is listed as A&R for EMI. His title is actually Senior Vice President, EMI Digital Distribution and Development. *EQ* regrets any confusion.

DON'T TAKE OUR WORD FOR IT...

Here is what the PRO'S are saying about the latest microphone from **MXL**:

The MXL V69M Mogami Edition large diaphragm, Tube microphone, has a classic sound that will enhance vocal and instrument performances in any recording environment. The extremely low noise FET output circuitry, wide dynamic range and warm, airy, tube sound makes the V69M a perfect complement to all analog and digital recording devices. The V69M is internally wired with Mogami cable and is supplied with Mogami Tube and low-noise studio microphone cables. All at a price that's unbelievable! Audition one today at your local music or pro-audio retailer. You will not believe your ears.

"It was detailed throughout the frequency spectrum, and from a near-whisper to a wail, the V69 caught every nuance. The Marshall MXL V69 Mogami edition is an excellent microphone, and when you factor in the low, low price, the price performance becomes downright amazing."

Scott Burgess, Pro Audio Review

"So, we tested the V69 against—count 'em—11 other popular condensers, ranging in price from \$169 to \$5,000 list.... both the engineer/producer and the singer picked the V69 over the other 11 mics. None of them had the same combination of classic tube warmth and top-end air of the V69."

Fett, Songwriter Magazine

"If you're looking for a mic that performs like it costs a bunch more, give the V69 a very close look. You'll be thrilled at how little money you have to shell out, and you'll be even happier at how well it does it's job."

Mitch Gallagher, Editor EQ Magazine

"Soundwise, I was very impressed that the V69 could hold its own against an industry standard like the U47. It struck me as very versatile and of higher quality than other budget tube condensers."

Pete Weiss, Tape Op Magazine



Tel.: (310) 333-0606
Toll Free: (800) 800-6608
www.MXLMics.com

Tool Box

BY KEVIN OWENS

Event Electronics Studio Precision 6 Direct field monitors

Designed to reduce ear fatigue and produce a broad, flat radiation pattern that doesn't require corrective equalization, **Event's bi-amplified Studio Precision 6 monitor (\$1,299 pair)** utilizes a 6.5" "mineral-impregnated" polypropylene cone low frequency driver with a neodymium magnet and a 1" soft-dome high-frequency radiator. The amplifier circuitry, which was custom-designed for the driver components, features low-noise semiconductors and audio-grade film capacitors, which result in lower noise and distortion, and an enhanced dynamic range. Other highlights include continuously variable input sensitivity, continuously variable high- and low frequency trim, a switchable, 80 Hz second-order highpass filter, RF interference protection, output current limiting, and balanced XLR and 1/4" inputs. (Event also offers an 8" model, the Studio Precision 8.)
Event Electronics, www.event1.com



RME ADI-4 DD AES/ADAT converter

The **ADI-4 DD (\$TBA)** is a simplified, and smaller, version of RME's ADI-88 DD AES/ADAT converter. Sharing the same



technology (minus sample rate conversion and TDIF ports), the half-rack unit features four AES-3 to double ADAT ports and double ADAT inputs to four AES-3 outputs. The unit also features RME's SyncCheck, which indicates if a signal is locked and if multiple inputs are in sync, as well as SyncAlign, a technology that prevents accidental errors of sample misalignment between the AES/EBU inputs.

RME, www.rme-audio.com

Core Sound PDAudio Handheld recording system

The PDAudio handheld recording system was designed to turn your Pocket PC or PDA into a high-resolution linear (non-compressed) digital audio recorder. By adding **Core's PDAudio-CF card (\$199)** and the **Mic2496 dual mic pre/A-to-D converter (\$499)** to your iPAQ or other similar device, you can record more than three hours of 24-bit/96 kHz audio to Compact Flash memory or hard disk that can be instantly transferred to your DAW.

Core Sound, www.core-sound.com





Yamaha Pitch Fix, Vocal Rack, and Final Master VST plug-ins

Yamaha released three new VST/AU plug-ins for Mac (OS 9/X) and Windows (98/SE/ME/2000/XP). The first, **Pitch Fix (\$299, pictured)**, features user scales, custom pitch-detecting algorithms, and pitch-correct rate control, and uses formant shifting to preserve the quality of the original signal without creating artifacts or distortion. **Vocal Rack (\$199)** is a vocal processing plug-in that features a highpass filter, a compressor, a harmonic enhancer, 3-band EQ, a de-esser, a gate, and a delay. **Final Master (\$199)** is an audio mastering tool featuring a multiband compressor/limiter with adjustable frequency control, three soft clipping models, and pre-peek look-ahead technology. **Yamaha, www.yamaha.com**

DPA Microphones IMK4061 Instrument microphone kit

Designed to facilitate the close miking of a variety of instruments, the **IMK4061 Instrument Microphone Kit (\$475)** consists of the DPA4061 miniature microphone, a MicroDot to XLR adapter, foam windscreens, and a selection of mounting accessories, including holders for attaching the mic to stringed instruments, universal surface mounts for use with guitars, wind instruments, drums, and percussion, as well as a magnet mount to attach the mic to drum rims and piano frames. **DPA Microphones, www.dpamicrophones.com**



ATC SCM12 Pro Passive monitors

ATC's new **SCM12 Pro (\$1,750 per pair)** is a high-performance, 2-way, passive monitoring system designed for nearfield applications that can be shelf- or stand mounted. Each monitor features a hand-built driver comprised of a 3" mid-range soft dome coupled onto a 6" cone for bass and midrange frequencies, and a 1" soft-dome tweeter with a neodymium magnet for high-end response. Standard finishes include cherry wood veneer or professional black; other finishes can be special ordered.

ATC, www.atc.gb.net, dist. by Transamerica Audio Group, www.transaudiogroup.com



Real Traps MicroTraps

Acoustic treatment panels

MicroTraps (\$99.99 each) are 2' x 4' x 1-1/4"-thick acoustic treatment panels made from rigid fiberglass and metal, and built with a dual-layer membrane. The affordable panels are ideal for general ambience reduction and echo control, for treating small vocal booths, and for placing on walls and ceilings to create a reflection-free zone in listening rooms. MicroTraps are available in either white or black, and can be wall-installed with just one nail or hook, or mounted on a microphone stand as pictured.

Real Traps, www.realtraps.com

Hercules 16/12 FW

FireWire audio/MIDI interface

The single rackspace **Hercules 16/12 (\$599)** is a 24-bit/96 kHz FireWire audio/MIDI interface for Mac and PC that boasts 16 independent ins (12 analog, one coaxial, and one optical) and 12 outs (8 analog, one coaxial, and one optical). Compatible with most audio apps, the 16/12 also features two mic/instrument preamps with switchable 48 V phantom power, two MIDI I/O ports, and word clock synchronization. It also ships with special editions of Arturia Storm, and Ableton Live.

Hercules Technologies, www.us.hercules.com



M-Audio Solaris

Large capsule condenser mic

The versatile **Solaris (\$359.95)** is a large-capsule condenser mic with an ultra-sensitive three-micron evaporated gold diaphragm, selectable polar patterns (cardioid, omni, and figure-8), a bass roll-off filter, and a switchable -10dB attenuation pad. Designed for just about any recording situation, the Solaris has a frequency range of 20 Hz–20 kHz, and comes with a shock mount and an aluminum case.

M-Audio, www.m-audio.com



STUDIOPHILE

The experts speak

"I choose the tools that best help me convert my ideas and imagination into music. That's why I'm using M-Audio's new Studiophile BX8 reference monitors. They sound absolutely brilliant—even after an exhausting 18-hour writing day. And what I hear in my studio comes across exactly as I intended, wherever my mixes go."

Jeff Rona (film composer; "Traffic," "Black Hawk Down")

"I'm surprised and excited by the tonality of the BX8s. Unlike most speakers I've checked out, they have a nice open middle quality to them—along with the bonus of a smooth low end and not-too-shiny top. I added M-Audio's subwoofer and was really impressed with what it contributed to the mix."

David Laibson (Grammy-winning producer; Paul McCartney, Sugar Ray)

"I have to go between analog and digital all the time and the BX5s have become my workhorse."

Tim Howerth (Grammy-nominated engineer/producer; New Order)

"Little package, big presentation. I wouldn't work a session without them."

Steven Berkian (Grammy-nominated engineer/producer; BT, Mariah Carey, George Benson)

"Music broadcasts differently on different networks. So this week, the final test of the music created and mixed on M-Audio monitors was listening to it on air. "Will & Grace" (NBC), "Good Morning Miami" (NBC), "Reba" (WB) and "Less Than Perfect" (ABC) all sounded great."

Jonathan Wolff (TV composer; "Seinfeld," "Will & Grace")

Studiophile BX8 | BX5 | SBX | LX4



Where do you want to take your music?

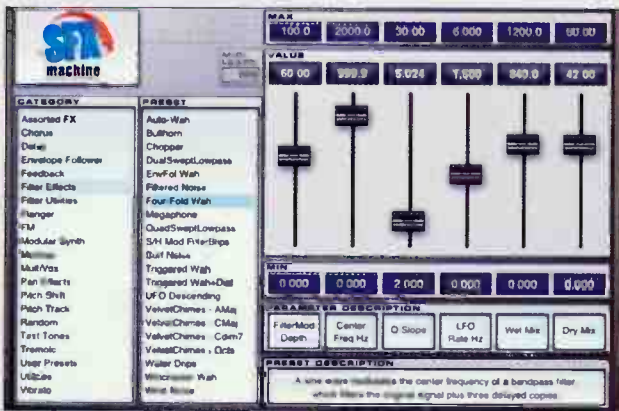
M-AUDIO

www.m-audio.com

Soundfield Surround Zone SADiE Series 5 plug-in

Surround Zone (\$1,495) is a new plug-in for SADiE Series 5 systems that decodes and processes the discrete, 4-channel, B-Format audio output from SoundField's MKV, SR250, and SPS422B surround microphone systems. SurroundZone offers a choice of three different 5.1 arrays, is adaptable to 6.1 and 7.1 delivery formats, and allows mixers to manipulate sound using Rotate, Tilt, and Zoom controls. The software also provides simultaneous stereo outputs alongside the surround signal with full control over the polar pattern and stereo width. A Nuendo-compatible version should be available by the time you read this.

Soundfield, www.soundfieldusa.com



The Sound Guy SFX Machine RT 1.02 Effects plug-in

The Sound Guy announced the release of **SFX Machine RT 1.02 (\$150)**, a realtime version of the SFX Machine audio effects plug-in. Available in VST format for Mac OS 8/9/X and Windows (as well as Audio Units for OS X), version 1.02 comes with hundreds of presets, many of which include a pitch tracker or envelope follower, allowing the effects to respond "intelligently" to the input signal. The update adds a Randomize button, which automatically adjusts the position of each of the non-volume sliders, giving the user an idea of the range of possibilities within each preset.

The Sound Guy, www.sfxmachine.com



TerraSonde Studio Toolbox Digital audio analyzer

The **Studio Toolbox (\$899)** is an all-in-one analyzer, MIDI troubleshooter, timecode reader, meter box, signal generator, and more. The handheld-sized unit features a graphical backlit LCD, an encoder input control, a microphone, a built-in speaker, balanced XLR and 1/4" I/O, and unbalanced RCA and MIDI I/O.

TerraSonde, www.terraSonde.com

Unmistakably Original.

ACID[®] Pro software forever changed the way music is made. Its daring technology blew open new doors to composition and creation. Its innovative interface simplified music production, and provided powerful, professional tools to musicians and producers worldwide. It started a musical revolution. Exciting. Compelling. Original. All words used to describe ACID Pro software. And the artists that use it.

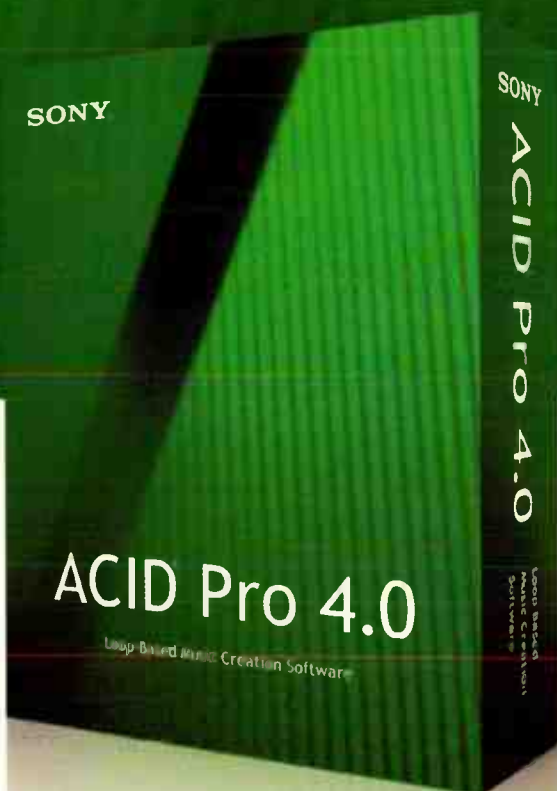
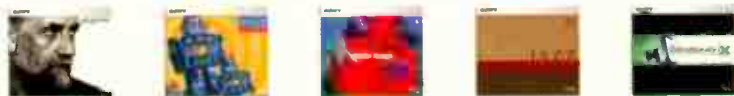
ACID Pro software is the original loop-based music creation tool for the PC. Nothing else lets you create and produce your own music for audio production, multimedia projects, broadcast music beds, Websites and DV scoring as fast and effectively. Anywhere you need original music, ACID Pro software delivers.

ACID software makes all this possible through:

- A streamlined, efficient workspace
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- Unlimited tracks of audio and MIDI
- Extensive audio effects
- 5.1 surround mixing
- Beatmapper[™] remixing tools
- MIDI piano roll and event list editing
- A video scoring track
- Hundreds of music loops, included with the application.

ACID Pro software, the perfect melding of cutting-edge technology and musical genius, of science and art. A truly original tool, for creating truly original music.

Our ever-expanding collection of sample libraries are optimized for use in ACID software, but are also completely functional in any loop-based music editor, on any platform. Use them to broaden your musical universe. Learn and hear more at: mediasoftware.sonypictures.com/loop_libraries.



To maximize your ACID experience, visit ACIDplanet.com.

Available worldwide, or on the Web at: www.sony.com/mediasoftware



SONY

Gefell M300 Microphone Package

Stereo mic set

The **M300 stereo microphone package (\$1,950)** is a boxed set that includes a stereo-matched pair of M300 pencil microphones, two heavy-duty nylon-insulated mic clips, and a combination ORTF and XY stereo bar. The M300 is a studio-quality condenser mic that features a 21mm gold evaporated Mylar diaphragm assembly with a temperature-constant ceramic housing to ensure a stable and uniform platform in various environmental conditions. It also uses a DC-to-DC optical converter that eliminates spurious electrical currents and typical 48 V phantom power noise.

Gefell, www.gefell-mics.com



SRS Labs Circle Surround VST Pro

Surround plug-in

Designed to work with any surround-capable, VST-compatible app for OS X, the **Circle Surround VST Pro Plug-In (\$495 VST, \$795 TDM)** is a surround encoding/decoding software suite that delivers up to 6.1-channel surround sound over any stereo transmission or storage medium. Features include up to 7-channel input and 2-channel output, a lowpass filter on the LFE channel, 44.1/48/96 kHz sampling rate support, and a selectable highpass filter on the main channels for control over low-frequency content.

**SRS labs, www.srslabs.com,
dist. by Wave Distribution, www.wavedistribution.com**

Carvin H400

Headphone Amplifier

The 4-channel **H400 headphone amp (\$149.99 direct)** allows four independent stereo or mono headphone mixes from three separate sources. Each channel has a master level that controls the level for Mix A & Mix B inputs — which are located on the back panel and feature both XLR and 1/4" balanced connectors — letting each performer hear only what they need at a volume that suits them. The front-panel Aux In is for any signal — a click track, for example — that's intended for just one performer.

Carvin, www.carvin.com



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The fact of the matter is that all the major music technology retailers, including Sweetwater, get the same great deals and charge the same low prices, so other companies will gladly agree to match a price that is within pennies of their normal price anyway.

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Laptop Studio

Laptops have a built-in appeal: The possibility to record, edit, master, and mix anywhere you like is very liberating, as is the light weight and low noise. What's more, today's laptops are more powerful than desktops that were considered pro-level just a couple of short years ago, which means complex and sophisticated music production is no longer the domain of well-appointed studio rooms. A laptop outfitted with a choice selection of music software and hardware lets you take a studio just about anywhere.

Finding the right tools for the job isn't as simple as hitting your local CompUSA or Apple Store, though. Knowing which components to choose and how best to configure a laptop recording system is critical to having successful and productive sessions. To get you sorted out, we've compiled a wide range of guidelines and sage user advice.

Whether the laptop will serve as your main production center or snap into a larger setup complete with a desktop machine, you'll find plenty of insight in our Choosing and Using the Ultimate Laptop Recording System, on page 23. And if you're an engineer on the go, you won't want to miss the Travel Tips on page 32. To satisfy the gear lust in all of us, we've included a mini Buyer's Guide of laptop audio-related products on page 46.

To jump-start the music making process, the Getting Connected guide (page 42) will demystify the connectivity options typically found on laptop computers. Of course we couldn't miss an opportunity to feature some of the sexier peripherals in the process. Looking for a sleek USB MIDI controller? You're covered. Functional-yet-stylish stands? Got those, too.

And finally, the human element: Informative laptop recording stories from the Musicplayer.com trenches. Enjoy!

By John Krogh & Craig Anderton

What you need to know to play, record, edit, and mix music with a laptop



CHOOSING & USING THE ULTIMATE LAPTOP RECORDING SETUP

by John Krogh

It's old news: Laptops can indeed be used for professional music and recording applications. The question you should be asking isn't whether you can take the studio with you on the go, but what kind of laptop can get the job done? The answer to this depends on several factors. Chiefly, what you expect from a laptop recording rig and how you intend to use your portable powerhouse.

Before we get into this, here's the obligatory disclaimer: Laptops aren't necessarily as functional or powerful as their desktop counterparts. But many portable computers made within the last year are capable of helping you pull off some serious production work, provided you have the know-how to choose and use your laptop and accompanying studio peripherals effectively. That's where we can help.

MAC OR PC?

This sticky subject has spurred many flaming forum threads. All of us at *EQ* are comfortable in both Mac and PC worlds, so I'll avoid making a hard and fast call on which platform is right for you. Instead, consider the following.

■ **Configuring the System.** The Mac OS has several things going for it when it comes to setting up a laptop for music. For starters, there's virtually no difference between working on a Mac OS tower computer and a laptop, which can make things easy if you're migrating from a desktop studio. Also, Macs are generally easier to set up than PC laptops, primarily because there's less to configure, hardware-wise, on a Mac.

Conversely, most PC laptops have a limited or restricted BIOS compared to PC desktop machines, which means some of those fun PC tweaks you've used to fine-tune performance on your P4 tower probably won't apply. In particular, the built-in sound capabilities of the laptop's motherboard might not be available to you from the BIOS. It's conceivable that other hardware components such as Ethernet ports or PCMCIA card slots are also unavailable, making it difficult to change their IRQ settings to allow for whatever

pro audio hardware you use to coexist peacefully with the rest of the PC's built-in hardware. For more details, check out "What's Inside Your PC" on page 26.

■ **Operating Systems.** Choosing an OS is partly a matter of personal preference and partly determined by the software you use. I prefer to use OS 9 on my Mac because several plug-ins I use will only run on this legacy system. I also know OS 9 better — it's been around longer, so of course I'm more familiar with it. There are some cool advantages to OS X, though, and I've officially added OS X to my studio.

It's easier to do cross-platform networking with PC machines under OS X, for example — handy if you're swapping OMF-exported files from Logic or Pro Tools with your buddy who uses Sonar. It's also been my experience that CoreAudio — Apple's OS-level audio interface driver protocol — is about as close to bulletproof as I've seen on a computer, Mac or PC.

On the PC side, I highly recommend using Win XP (home or pro) for several reasons: Setting up file sharing services is simple (in fact, it's actually called "Simple File Sharing" in Windows), and most music software developers and hardware manufacturers seem to be in agreement that Win XP is the OS to go with over Win

2000, 98, etc. The two years I've been using XP bears this out: Working with FireWire and USB devices, for example, has always been a relatively pain-free process. Not so with older incarnations of Windows.

■ **Processors.** If you're going to do serious audio work with your laptop, it's best to stick to the old adage: Buy the fastest and best processor recommended by your DAW's manufacturer. More than anything else, the processor will be the determining factor for how many plug-ins you'll be able to load and how smoothly the whole system will run, from latency to screen redraws.

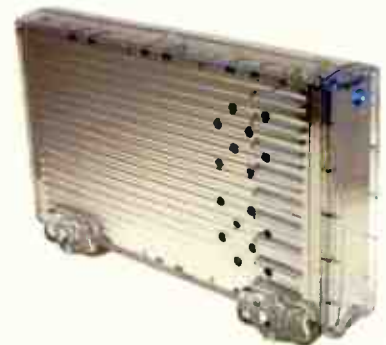
On the PC side, music technologist and laptop specialist Mike Prager recommends going with an Intel Pentium 4 or an AMD Athlon processor. "You want to make sure that you steer clear of the Intel Celeron processor," he warns, "as these will not give you the kind of DAW performance that you want."

If you're considering adding a laptop to a larger studio setup, you can probably get by with a slower or older processor, because you'll only require it to do one or two jobs such as process a stereo stream of audio through an effect plug-in or serve as a standalone software instrument. Keep in mind, even for these applications you'll still need to set the sample buffers small enough for the lowest latency possible, which will tax the processor more than a larger buffer.

■ **RAM.** Here again, it's best to go as large as you can. After the processor, RAM is a big part of the equation for running



Atek's Super Mini optical mouse can be connected via USB or PS/2.



FireWire hard drives, like the one shown here from Other World Computing, can provide fast enough storage for playing back lots of audio tracks.



lots of plug-ins, especially RAM-intensive software samplers. And as Cakewalk President and CEO (and laptop enthusiast) Greg Hendershott notes, "If you install plenty of RAM, the system will swap less to the hard drive. This helps any machine run faster, and saves drive bandwidth to use for your audio. I believe it also extends a laptop's battery life — the

extra RAM uses a lot less juice than the hard drive motor."

STORAGE

There are countless ways to outfit an off-the-shelf laptop for music production; one of the best investments you can make is in an additional storage device. Laptops usually come with a hard drive that runs at

anywhere from 4,200 to 5,400 rpm, which is fine for basic office tasks. But for audio applications this is considered slow. And because most laptops can't be upgraded with an additional faster internal drive, a separate drive is the solution.

■ **FireWire.** It's reasonable to expect a recent-generation laptop to be capable of playing 16 or 24 tracks of 16-bit/44.1 audio, but if you want higher track counts and/or 24-bit/96 kHz resolution, consider a FireWire drive.

There are many FireWire drives that run at 7,200 rpm or faster, and have sufficient sustained transfer rates (10 MB per second or better), which is important for achieving a high number of simultaneous playback tracks. Glyph makes several models, some of which are rack-mountable and designed to match the look of MOTU and Digidesign audio hardware — or any drive that has an Oxford 911, 922, or 912 chipset.

These chipsets (sometimes called "bridges") provide fast data transfer performance via FireWire — not all drives have bridges that are fast enough for audio applications. If you don't need to rack mount the hard drive(s), I highly recommend the Elite series from Other World Computing (www.macsales.com). I've been using their drives for the past two years and have had no complaints.

OWC's FireWire drives don't require special drivers to make them work with the computer, unlike some other drives such as those from LaCie and VST Systems. Some VST Systems drives, for example, use driver software that isn't even available for download. If you plan to transfer sessions to another facility, the last thing you need to worry about is installing software just to access your hard drives.

Recently, newer FireWire technology has started trickling into the market. Both the Oxford 922 and 912 chipsets effectively double the speed of the original 911 technology, which was designed to work with FireWire 400 devices. FireWire 800-equipped computers (such as the most recent generation of PowerBooks and the G5) paired with external hard drives equipped with newer chipsets will give you the highest possible track count.

However, Larry O'Connor (CEO of OWC) cautions users to be aware of the physical size of the FireWire drive(s) they choose: "There's no difference in

EXTENDING THE DESKTOP

Setting up an additional monitor with your laptop

Under WinXP:

1. Control Panel > Display > Settings Tab. Double Click the Monitor Identity.
2. A tabbed window should appear; click on the Displays tab.



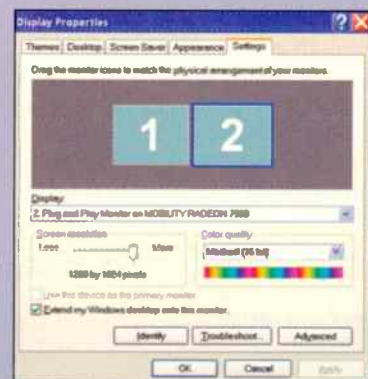
3. Enable the second monitor, then click Apply.



You can determine which screen — the built-in or the external monitor — will serve as display one and display two. I recommend keeping the

built-in screen as display one because there may be times when you're on the road and won't have the additional monitor. By keeping the built-in screen as the "default" display you won't have to go back into the settings and reconfigure.

Next return to the Display Properties window. From here you can drag the two screen representations to determine the arrangement of the built-in and external screens. You can also adjust the color and resolutions for each display. When you're finished orienting the monitors, be sure to check "Extend my Windows desktop onto this monitor" for the external display, otherwise the additional screen won't be activated. After you've set everything up, click Apply, then OK.



Under Mac OS X:

1. First connect the external monitor to the monitor out, then power up both devices. When the computer boots up, go System Preferences > Displays.



2. Drag the screens (1 and 2) to extend and arrange the desktop the way you'd like. That's all there is to it.

performance between a 2.5" FW400 and a 2.5" FW800 drive. Smaller drives aren't fast enough yet. However, there's a big difference between 3.5" FW400 and 3.5" FW800 drives — the improvement in track count is close to 30%.

"There's almost no purpose to setting up a [hard drive] raid array under FW400 because the drives are limited by the speed of the FW400 bus," O'Connor adds. "The drives in a lot of these FW400 cases are actually faster than what the original FW400 bus can handle. But with FW800 you can get more performance from the drives because of the 922 bridge. The drives aren't any faster than what might be in an FW400 case, but you should be able to get more tracks."

■ **USB.** Universal Serial Bus (USB) hard drives are perfectly fine for backup purposes or for shuttling files between laptop and desktop computers. But USB is much slower than FireWire — in short, don't expect it to perform well for audio.

Like FireWire, however, USB technology is evolving. USB2, which promises performance of 40 times faster than USB1, is starting to take hold in the market. It remains to be seen whether USB2 drives can actually perform well enough for audio.

■ **PCMCIA.** PCMCIA drives are somewhere between the functionality of FireWire and USB drives. I've been able to play back 16-bit sessions with 16 tracks, but I tend to use my 1 GB PCMCIA drive for transferring files between my PC and Mac laptops. The drive is readable by both machines; consequently I can move large files easier than I can with a FireWire or USB drive. There are no cords or power supplies to deal with — it's a simple matter of pulling the drive out of one computer and sticking it in the other.

AUDIO & MIDI I/O

There are about as many choices in audio and MIDI I/O hardware as there are choices in music software. A relatively small number of I/O devices are specifically

designed for laptop use; popular boxes such as the MOTU 828 mkII or Emagic EMI 6|2m (both of which combine MIDI and audio) are happy to work with desktops and laptops alike. Echo's Indigo series, however, is strictly for the laptop crowd. Be sure to check out our Laptop Studio Buyer's Guide (on page 46) for details about all sorts of related studio gear.

On the MIDI side, nearly every option available connects via USB. The bigger question is whether you need many ports or just a few channels for your setup. If your system is lean and mean, you'll be able to use a MIDI interface equipped with only one or two ports, and will likely be powered via the USB bus. For a larger MIDI rig, you'll need an interface that provides more ports; you can expect such a device to require a separate power feed.

The same applies for audio I/O — generally speaking, smaller USB audio interfaces can be powered from the USB bus. Larger interfaces, such as TASCAM's

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in Live, mangling stereo files with special sound design tools, and processing live input signals through Reaktor effects. At times the laptop has served as a remote recorder: I've taken it, along with a FireWire multichannel audio interface, to record drums and acoustic guitar at another home studio. I sometimes even test rough mixes in my car stereo using

the Titanium and a consumer cassette adapter that you'd normally connect to the line out on a portable CD player.

I've learned to work the laptops into my studio in a variety of ways, such as connecting the digital outs from a USB audio interface into the S/PDIF ins on my MOTU 2408mk3. In this scenario, the interfaces and software on both

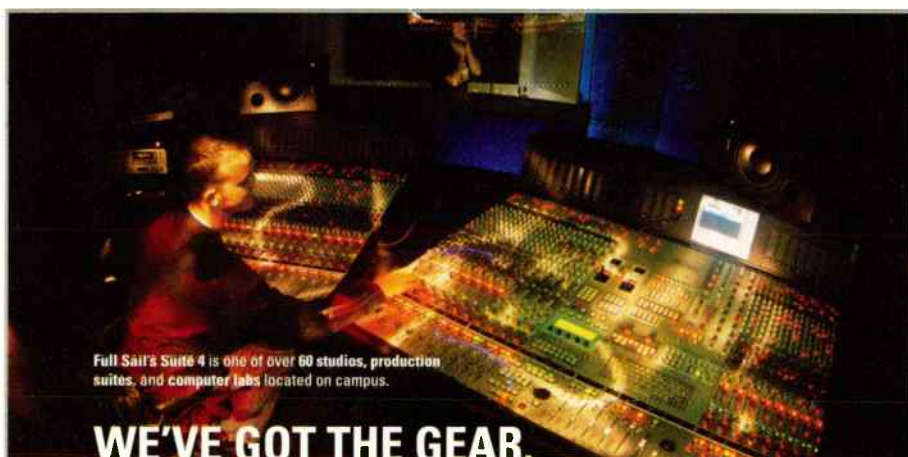
machines need to be clocked to the same source. I send sync out from the MOTU to the Emagic EMI6|2m's digital input, and sync the software accordingly.

Sync isn't any harder to set up than if you were working with a single computer and an external effects processor digitally connected to the audio interface. For example, if the audio hardware connected to your laptop and desktop has word clock I/O, you can sync everything through this.

The bigger issue is arranging the laptops so they're easily accessible and can be easily detached for remote sessions. After much experimentation, I've settled into a groove where my laptops sit on stands that clamp onto the desk's ledge. These stands are sold at Ikea for just under \$30; they have swivel bases and swinging arms, so I'm able to position them the way I want over the desk (even off to the side), and because they're lifted off the desk's surface, I gain more desk space than if I'd have the computers sitting on top of the desk or on "regular" stands such as the Griffin Technology iCurve. To sweeten the deal, the stands have fold-up arms on which I can rest a QWERTY keyboard, so when I'm not using the keyboard, it's also lifted off the desk surface.

If you're using a laptop as the center of your studio, it helps to use an extra monitor for added screen real estate. Most laptops can be connected to an external monitor, and setting the computer up to extend the desktop is a straightforward process. (For details, refer to "Extending the Desktop" on page 24.) This will enable you to display more information at once, such as a DAW's arrangement and mixer windows, so you won't have to switch between multiple screen sets as often.

One final consideration: Software license agreements. Some developers don't allow multiple installs of their software off of a single installer, so if you plan to run the same DAW or plug-ins on a desktop *and* a laptop, be sure you can do so legitimately. Developers such as Spectrasonics anticipate their users will want to run their software on multiple computers, and allow you to install and register it on several computers before you need to purchase additional licenses. Just be sure to check before buying your software. **EQ**



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BT'S LAPTOP SYMPHONY


by Francis Preve

Electronica legend, Brian Transeau — *a.k.a.* BT — has been trotting his *Laptop Symphony* around the globe since mid-2002. When it comes to Powerbooks, it's safe to say that BT has "been there, done that" in a very big way.

To help put a unique stamp on his performances, the star producer/musician teamed with software developers to create a custom VST plug-in specifically for performing with Ableton Live. What the plug-in does is quite unusual — and very "BT," to be sure. This as-yet-unnamed tool allows Brian to quickly and intuitively grab an audio segment, then retrigger or manipulate and repeat it in real time, with various parameters changing the duration and repetition rate. What's more, BT controls the plug-in with a custom MIDI controller that allows parameters to be tweaked by waving his hands about like a conductor — similar in practice to Roland's D-Beam technology. Better still, the proximity-sensing LED array glows an unearthly blue that's very dramatic onstage.

When asked about the benefits of performing with a laptop, Brian had this to say: "What I love more than anything is cabbaging the audience's heads — inspiring discussion and

challenging people's conceptions about musicianship and DJing. A lot of people think using a laptop is 'cheating,' until they realize what's happening. I mean, I've got six stereo tracks going on at once, all in perfect sync. And after performing with a single laptop for nearly a year, I've just added a *second* Powerbook. One setup handles [Ableton] Live, while the other runs [Propellerhead] Reason, which I play live from a keyboard. Live then takes a feed from the Reason laptop, and I loop and manipulate my keyboard riffs in *real time*. It's definitely *not* cheating."

Are there any downsides to gigging with a laptop? "I don't see one, other than trying to set up a rig in a DJ booth, which can be difficult at times, since they're all laid out differently with turntables and mixers and such. Getting my rig together without disturbing their stuff can be awkward sometimes. I think the worst experience I've ever had was having the wall-wart for my M-Audio Quattro fall out of the power strip — in the middle of a live set! But I get off on that seat-of-the-pants element of live gigging. That's what it's all about. Getting out there and in touch with your audience." 

BT'S FIVE RULES OF LAPTOP GIGGING

- 1. Bring your own power strip, and bring lots of gaffer tape. Always secure your wall-warts to the strip.**
- 2. Keep alcohol to a minimum during your set. Do not operate heavy machinery while under the influence.**
- 3. Go to the club beforehand to suss out the physical space. Where will your keyboard and laptop go? Ergonomics are everything.**
- 4. Bring redundant cables, especially USB and FireWire.**
- 5. Don't update any drivers or versions of OS or apps right before a gig. Test them for a while at home before you venture out with new software.**

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LAPTOP TRAVEL TIPS

by Craig Anderton and Gus Lozada

You're not only carrying a laptop — you may be carrying the next big hit song, the soundtrack for your client's new commercial, your band's master, setup details and room tunings for tonight's venue, or some really great lyric ideas. Given the laptop's importance, it's vital that you use it efficiently and securely . . . which brings us to this grab bag of tips (we'd also like to thank Dan South, Jeff Klopmeier, and Greg Hendershott for their contributions).

AIRPORTS AND FLYING

■ Need to find an AC outlet at an airport? Ask the custodial staff, as the outlets are used mostly for plugging in vacuum cleaners. Other guidelines: Look on posts, under hinged covers in floors near walls, and near ledges located next to windows. Don't assume the outlet is live; check your computer to make sure it really is charging. —CA

■ Given a choice between computer bags that offer equal protection, go for the one with the easiest access (less zippers, locks, etc.) so that getting the computer out of the case during security searches isn't a big deal. —GL

■ When going through the airport security line, put the laptop itself on the x-ray belt *last* — after any other carry-on bags, shoes, etc., and especially after the person in front of you has cleared security. This way, your other items will be examined while you're going through the x-ray machine. If the laptop comes off the belt first, it may be stolen while you're going through the metal detector, or being "wanded." —CA

■ If you're not in a hurry and want maximum protection against theft, you can ask security for a manual search. It's more time-consuming, but you'll always know where your laptop is. —CA

■ American Airlines has retrofitted their airplanes for more leg room in coach, which makes it far easier to extend your laptop screen. And if you're on American, look for a "lightning bolt" symbol on the overhead bin row — these are the ones with power port-equipped seats. —CA

■ Place your computer bag under the seat in front of you, rather than in the

overhead bin. Heavy objects in a bin can damage your computer if they slam into it. If you're sitting in a bulkhead row and don't have a choice, place the bag at the front of the overhead bin before takeoff, and at the rear of the bin prior to landing. —CA

■ Some airline passengers have found that they can plug a laptop computer AC adapter into 110 V/400 Hz airframe sockets, usually located under covers near the floor next to an exit door. *Don't do this.* Aside from the issue of running your adapter on 400 Hz, these outlets are intended for medical devices during flight. If there's something wrong with your adapter and it trips the circuit breaker, someone could literally die before the problem is corrected — the breaker is difficult to access because it's located below the main passenger deck. If you see someone using any outlets on a plane other than the approved laptop charging outlets, alert a flight attendant. —CA

■ Most airline laptop outlets require an EmPower plug, which is not the same as a car lighter plug. When buying an adapter, check if it has a convertible plug that works with both airline and car chargers. Also remember that power adapter cords have different tips for different models of laptops. Check carefully for compatibility before you buy. —CA

■ If you already have a power supply that works off a car's cigarette lighter connector, all you need to be airplane-ready is a laptop airplane adapter, available for \$10 from Laptops for Less (www.laptopsforless.com). —CA



Plug the cigarette lighter plug from your laptop power adapter into one end of the EmPower adapter, plug the other end into the plane's power port, and you won't have to worry about your battery dying on a long flight.

LAPTOP THEFT ISSUES

■ Rule #1: Any crowded public place, not just an airport, is a prime hunting area for laptop thieves. Twice, at two different companies I've worked for in the music/audio business, we had major laptop thefts at AES conventions, despite the presence of convention center security guards. The computer's cost is an excellent reason to be vigilant, however, the loss of

irreplaceable data can be far more damaging, be it business information or your latest mix. Which brings us to Rule #2: Before taking a laptop on the road, back up its contents. —JK

■ Avoid computer bags with a computer company's logo on it. No need for the case to scream "Hey! There's a computer in here!" Better yet, get a backpack for your computer instead of a computer bag. It's easier to take with you, and as it does not look like a computer case, might be less likely to attract thieves. —GL

■ M-Audio's Studio Pack backpack is designed to carry a laptop, keyboard, interfaces, etc. — ideal for players on the go. But if you're more into remote recording and need compartments for a video camera, CDs, MP3 or CD player, etc., check out the pricey, but capable, BP3 from www.boogbags.com. —CA



The Boog Bags BP3 backpack holds your laptop, stores lots of accessories, and comes in three colors.

■ Some hotels have in-room safes, although not all of these are big enough to accommodate a laptop. However, angling the laptop (place the end on some socks, coffee cup, or whatever) may allow it to fit. If there's no safe, carry the laptop with you. If you must leave the laptop in your room, place it somewhere inconvenient and not readily visible (like on top of a closet, where you would need to step on a chair to see it). I know one road warrior who places his laptop on the bottom of his suitcase, with dirty underwear on top; he doubts anyone will dig through the underwear to look for something. —CA

BATTERIES AND POWER

■ When buying a laptop, get as much RAM as you can afford. The more you can avoid using the hard drive as virtual RAM, the longer the battery life. —GL

■ To maximize battery life, minimize usage of CD and DVD drives, which suck juice. Also, your LCD's backlight consumes a lot of power, so use the minimum brightness you can handle. If the screen is too hard to read when it's dimmed, try switching resolution from 1024 x 768 to 800 x 600. The screen will likely be fuzzier, but the larger size graphics and type will be easier to read. —CA

■ Nickel-cadmium batteries need to go through an occasional deep discharge to prevent the "memory effect," where the battery fails to hold charges for very long. However, this is not the case for the nickel-metal hydride (NiMH) batteries used in much of today's electronic gear. Their life is shortened by deep discharges, so it's best to leave this type of battery's charge "topped up." —CA



another computer. A USB stick is quicker than burning a CD, works with all modern Macs and PCs, and doesn't require going online. —CA

USB memory sticks, such as Lexar's JumpDrive 2.0 Pro, make it easy to transfer files from your laptop to most other USB-equipped computers.

HARDWARE/ SOFTWARE HELPERS

■ For maximum flexibility, use cross-platform software. When you're on the road, you'll be able to interface with anything — desktop or laptop, Mac or PC. —GL

■ A USB memory stick (e.g., Lexar JumpDrive) is an invaluable travel accessory. I load mine up with MP3s in case I want some songs, but one of the main applications for USB drives is when you need to transfer data to

■ To accommodate large data transfers, make sure that your laptop has an internal CD or DVD burner. You'll often find that you need it for backups, sharing files with colleagues on location, offloading data files to free up HD space, swapping large files with desktop systems, etc. —DS

■ Attach USB copy protection dongles with a USB extension cord. I once broke a dongle that was attached directly to the chassis. Getting it replaced was a hassle, and I couldn't run Logic at all in the interim. —DS ▶

POWER IN THE SKIES

When you're booking a flight, how do you know which planes — and which seats — have laptop power outlets? Here's quick summary for the major US airlines with outlets. Note that different airlines have different rules about using chargers; for example, Continental does not allow charging batteries, and asks that passengers remove rechargeable batteries when using the power outlet. Interestingly, many airlines will not check laptops, and accept them *only* as carry-on baggage.

■ **American.** All Boeing 777, 767, 737, Airbus 300, Fokker 100, and most Boeing 757 and Boeing Super 80 aircraft have power ports. They're not available on aircraft with flight numbers 2800-2999. To find specific locations, go to www.americanairlines.com/content/aboutAA/ourPlanes/ourPlanes.html. Click on the plane, then on the seating chart to see where power ports are located.

■ **Continental.** Each BusinessFirst seat on Boeing 767-200, 767-400,

and 777-200 aircraft has a power port. In Economy class, on the Boeing 767-400 (H), laptop power is available in rows 10-15; on all other 767s, laptop power is available in rows 16-23, and on the Boeing 777, in rows 17-23.

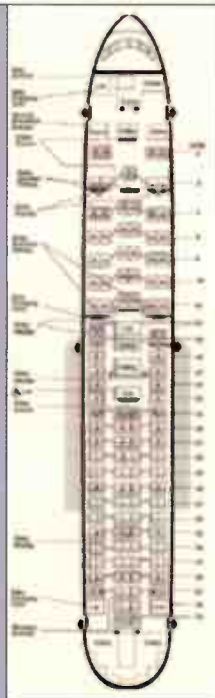
■ **Delta.** Available in BusinessElite, and all classes of service on Boeing 777, 737-800, and 767-400 aircraft.

■ **United.** Power is available on B767-300s, B747-400s, and B777s in United First and United Business class. Existing B757 and A320 aircraft are currently undergoing system installation.

■ **US Air.** All seats on Airbus A319, A320, A321, and A330 aircraft have in-seat power ports.

For more information on these and other airlines, check out the following airline compatibility charts:

- www.tarqus.com/us/notebook_air_linecomp.asp
- www.rentcomputerprojectors.com/sosair.html
- www.teleadapt.com/images/special/AirPowered_Seats_4.pdf



This chart from American Airlines shows where laptop power ports (colored in red for clarity) are located on their 767-200 aircraft. Like most airlines, the ports are more prevalent in first and business class than in coach.

power couple

power couple

[TrackPlug]

[MasterVerb]

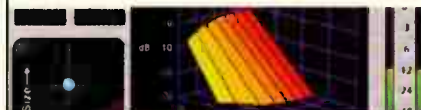
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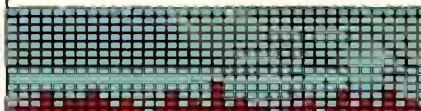
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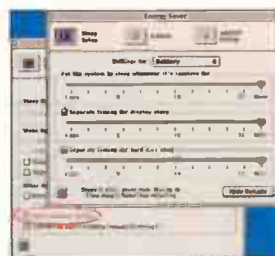
travel tips



■ Know where the ventilation holes are on your laptop, and avoid blocking them at all costs. Heat is a major enemy of all electronic devices. —CA

■ You can spend a bunch of bucks for foreign AC plug adapters from a laptop accessories company, and they'll come in a nice little designer package. But if you don't care about the packaging, you can pick up the adapters for a lot less at Radio Shack. —CA

■ Make sure all elements of your laptop system are mobile-friendly: Use bus-powered audio interfaces and MIDI controllers, and wireless Ethernet cards. This can prevent major headaches when traveling out of the US, as you will not require power adapters from 220 to 110 V (which may not always work properly) for your interfaces and controllers. Just plug your computer into the AC (most laptops have multi-voltage adapters) and *voilà*, you're ready to go. Bus-powered devices are



When doing battery-only remote recording or live performance, turn off any

power-saving features, like processor cycling (circled above for clarity) or automatic system shutdowns. The battery will discharge faster, but you won't have to deal with a more sluggish response.

also cool for live applications; if your show is a one hour gig or so, you can run it entirely with your laptop's battery and avoid unexpected power loss due to deficient wiring or too many onstage lights, as well as simplify onstage connections. However, you'll probably want to disable any special power-saving modes when running off the battery in live performance or while recording. —GL

■ If you need to print out lead sheets, chord charts, etc. while on the road, you might be tempted to go for one of those small, portable printers. But unless you really need high-quality printing or color, it's often easier to plug your computer into the hotel's phone line in your room, and fax what needs to be printed to the hotel — to your attention, of course. —CA

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World Radio History



LAPTOP TIPS & TALES FROM THE TRENCHES

by Andrew Harris, Craig Anderton, Dylan Walters, Bill Plummer, Pete Caigan, Andrew Mazzocchi, Michael Oster, Gus Lozada, and Shelton

Laptops are taking over the music industry. It started innocently enough; back in the mid-'80s, it was just acts using PAN (the first online service for musicians) to keep bands and crews connected while touring. But then Apple came out with the PowerBook, and musicians could take a studio — albeit a primitive one — on the road. As laptops became more powerful, people started doing mastering, composing, live recording, and a lot more in hotel rooms, airports, even on the beach.

My *Technoid Guitars* sample CD was mastered on an Apple "Pismo" G3 PowerBook while sitting in various hotels in Los Angeles, and several of the samples for the *AdrenaLinn Guitars* sample CD were recorded into the G3 after gigs in Germany. And like just about everyone else, Propellerheads' Reason and Ableton Live have permanent places of honor on my hard drive — I can't tell you how many riffs have fallen into place while flying at 30,000 feet.

But those are just baby steps compared to some of the ways people use laptops these days. So ladies and gentlemen, we present words of wisdom, and tales from the trenches, from a cadre of true laptop road warriors. —Craig Anderton

■ RECORDING AND MIXING, TOO!

A couple years ago I was hired to record Bhagavan Das and his group chanting in Woodstock, NY. I showed up at the club with an Apple PowerBook, a Digi 001, a Magma expansion chassis, and a PreSonus Digimax preamp. It turned out there was a misunderstanding, and I was expected to do the house sound also! I ran all the mics to my laptop rig, and used outputs 1–2 for front of house and 3–4 for headphones. It was a 2-hour show with no glitches, and no one even noticed the latency. —Pete Caigan

■ MAC MEETS PC MEETS LAPTOP

I do my main music work in Ableton's Live and Propellerhead's Reason on a desktop PC. Fortunately, as both programs are cross-platform, when going away from home I can fly my sessions from the PC to my Mac Titanium laptop, or back again. When tracking on the Mac, I use an M-Audio USB Duo and FireWire 410, which provides four channel inputs with mic pres, and ten output channels.

When working on my band's next CD, I was able to create music on the go (using Reason), then record my guitar player's tracks (he lives in a different city), get the takes right, and integrate the results in the PC.

For the mastering process, I just took my Mac to Santiago, Chile (I live in Mexico, though) to a friend's studio, fixed some problems in the mix within the Mac, and bounced the tune to my friend's Pro Tools system via my bus-powered multichannel FireWire Interface. And of course . . . my entire gig setup fits perfectly in a backpack, M-Audio Oxygen8 keyboard included!

It's wonderful to carry my studio literally on my back. Just a few years ago, I would have needed to use ADATs with the implied transfer problems, and bring along a mixer with nice preamps.

Besides my synth pop band, I have an acoustic duo with two guitars and two singers (lead and backing vocals). By combining the Duo and FW410 interfaces, I can get the four signals (using the four mic pres) into my Mac, and use Ableton's Live as both a realtime FX processor (thanks to its built-in FX, they are definitely cool enough) and as a mixer with separate multichannel monitor outs. I assign my Oxy8's eight knobs and master fader to control channel levels, monitors, and wet/dry FX assignments. There's no mixer required, and almost everything is bus-powered (even phantom power for the condenser mics). —Gus Lozada

■ DRIVE-IN AUDIO EDITING

True laptop experience: I edited a good portion of sounds for my latest Concept:FX release (which is now available) while I was at the car dealership getting my car's air conditioning fixed. I got a ton of work done, and a lot of stares too. I used an iBook with Digidesign's Mbox and a LaCie pocket drive. —Michael Oster [And I edited this article while at the VW dealership getting my brake light switch replaced! —CA]

■ THE LAPTOP REMOTE

When I record on my laptop, I use Samplitude 7.12, the RME Multiface w/cardbus, and an ATI 8MX2. The ATI has confidence mixing when fed by the RME totalmix software. But laptops have other uses. When recording to my TASCAM MX2424s, I'll use my laptop for remote control of the MX as well as making track and cue sheets (or receiving them via Ethernet).

Another great thing about the laptop/RME Multiface combo is DIGICheck w/Totalizer. This is a superb analyzer with phase meter and simultaneous RMS/peak meter. Even better, it's a free download and runs off of the RME cardbus DSP. —Bill Plummer

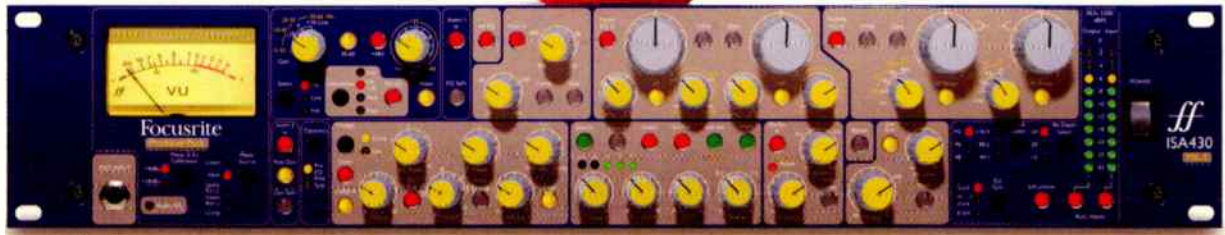
■ VACATION? WHAT VACATION?

I put together a mobile recording studio so I wouldn't have to worry about losing or forgetting ideas while away from the home studio. It's been wonderful for trips and vacations. An Apple 867 MHz G4 15" laptop, Sound Devices USBPre, Edirol PCR-30, and a couple of my mics fit nicely into a suitcase. I took my acoustic guitar on vacation this year and was able to "work" (play) the whole time. If I add a Line 6 POD and an electric guitar, I can do just about anything I want . . . I just wish I could find a collapsible, portable mic stand with no heavy base and a smaller footprint folded up than any current models I've seen. —Andrew Mazzocchi

■ LAPTOP LIVE CONTROL

I haven't been using the laptop to capture audio a lot lately, but we do use it quite a bit to control speaker processors. We run usually about 8–10 BSS Omnidrive Compacts on a standard

Oh, we forgot something.



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When we designed the original ISA 430 Producer Pack we wanted to include all the best features and circuits from the Focusrite ISA product family since 1985. And so we did! However, in the past three years we have had a few more great ideas. So the ISA 430 MkII is born. Have we forgotten anything? All we can think to add is a cherry on top!

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show, and control all the processing from a laptop at front of house. We can go in and adjust delay times for different cells within the array, or even delay specific components within a cell. We also have SMAART software running so we can see the room react.

Furthermore, I just purchased Sonic Foundry's CD Architect a few months ago. It comes in handy for corporate shows where I need to play tracks from a bunch of different CDs — walk up music for this CEO, walk out music for this presenter . . . that kind of thing. Now I just drop all the files into the laptop, edit them in CD Architect, and burn a CD for the show. —Shelton

■ DESKTOP AS LAPTOP?

Some desktop units are getting small enough to qualify for portable recording applications. Recently I've started using a Shuttle XPC (<http://us.shuttle.com>) for my portable recording needs; I looked at laptops, but found them too expensive and slow for the money.

The great thing about the Shuttle systems is that you can use a desktop processor, a fast 3.5" 7,200 RPM ATA hard drive, and any PCI audio card. Many laptop users are limited to using USB audio interfaces, and slow internal hard drives (usually 4,200 RPM) unless they shell out cash for costlier FireWire audio and hard disk solutions. I'd argue that the Shuttle systems

are just as portable as laptops if you factor in all of the external gear needed to make a laptop serious enough for audio recording. I use the SN41G2 model and it's been working like a champ. —Dylan Walters

■ EXTREME LAPTOP: MEET THE POTENTATE OF PORTABLES

I'm tour director/road manager/FOH engineer for the Wayne Wonder tour, which started on the east coast on November 11, then hit the west coast, midwest, and Caribbean, and finally will wind down in Europe in January 2004 (oops, there go the holidays). I couldn't survive without my laptop.

My current main laptop is an Acer Travel Mate Centrino, with 512 MB RAM, CDRW + DVD (I've been burning CDs on the road since 1995), 30 GB HD, USB2, FireWire, 14" display, SVGA out, LAN, wireless LAN + 56k, 4-in-1 card reader (Secure Disk, Smart Media, etc.), and a security card I never use. I can get about four hours of operation off the battery, but the best part is that it weighs in at 5.7 lbs. — even including the USB floppy drive. I bought it from PC connection (www.pcconnection.com) for \$1,220 with 256 MB RAM and a 3-year warranty. I also have a backup laptop with a Pentium Celeron, 256 MB, no burner, and no wireless; the battery lasts only 2.7 hours.

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One cool Acer feature is they have line inputs, so I can use my XLR to 1/8" cable converter to record right off the main PA outs every night. For about 5% of the shows, I take a TASCAM MX2424 and cables with me, which I monitor from the laptop using MX-View software.

I run *everything* off the laptop, and do get nuts with my setup at times (controllable cameras, wireless/wired Ethernet between front of house and production office, shared network resources, shared printers, and whatever else I can hang on

it). With the help of a silent partner (a sneaker manufacturer), I've created a slideshow of photos I took of the current act with which I'm working; I can project them from a standard projector, or from my laptop (via venue equipment or my projector) onto any decent screen/cloth/wall. I also travel with a Brother MFC 6800 laser black and white printer/scanner, fax, and copier.

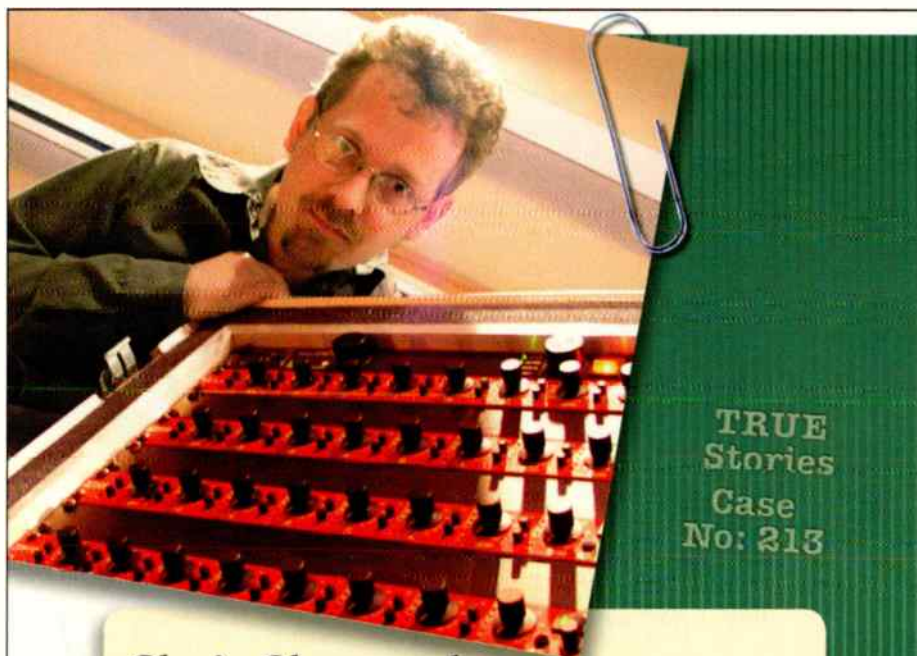
Because I have my digital camera(s) with me at all times, I can go from capture to display in minutes. Nothing tickles club

patrons more than seeing a slide of themselves walking in a venue, or being at the bar. Some get freaked out (in a good way), and some even want copies. I even do some low-level routine maintenance on the website (tour dates etc.) from the laptop.

My previous "great" laptop was an Acer Travel Mate 602 TER. It was one of the first laptops with CD-RW, and set me back \$2,500 with a 1-year warranty. It went belly up when a hungry background singer knocked it over on the way to our feed trough in Fukuoka, Japan in 2002. There was one cool story involving the Acer: I recorded an 8-show Japan tour but didn't have enough space left on the hard drive to save the last show. So I left the laptop on for the last day to keep the data in RAM, plugged it in at the airport in Tokyo, and put the laptop in suspend mode for the flight. As soon as I landed, I plugged it in again, which gave me enough juice to keep the laptop going until I got home to move the earlier shows across the network, then convert and save the file.

I also use the laptops for more than music. By day, I operate an IT services firm. Most of my clients are monitored via PC Anywhere, Terminal Services, or proprietary software . . . again, all on the laptop (and duplicated on the backup). When I'm on the road, I tap in from time to time via TCP/IP to make sure UPS units are healthy and that sort of thing. I get email notification on other events, like viruses and backups.

On any given tour, my crew and I have three or four laptops, a laser printer, and a speedy inkjet (for color), all of them networkable. Sometimes in the hotels, as I'm usually on the "executive" floors in a suite, I'll bust out the free high-speed internet to my peeps on floors below via wireless. On a typical tour, there's a grand total of five to ten laptops, depending on whom I'm working with. Never a dull moment!
—Andrew Harris **EQ**



Chris Shepard and the TRUE Precision8

"The TRUE Pre's are one of the best tools in my rack," says Chris Shepard, studio manager at Chicago Recording Company and the owner of Tour My Studio. "I've never heard anything like this. The noise floor is phenomenal. It's like the microphone isn't even plugged in!"

Check it out for yourself and hear what a difference the TRUE Precision8 eight channel microphone preamp can make in your audio chain.

Chris Shepard's engineering, mixing and production credits include The Flaming Lips, Wilco, Buddy Guy, Smashing Pumpkins, and KMFDM.



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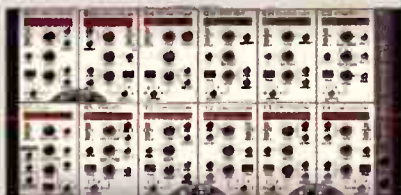
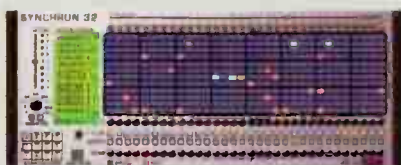
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The **Juice 70** is an AC adapter (100-230V, 50/60 Hz) and DC power adapter (11.75-16V) for airplanes, cars, RVs, and boats that works with a variety of computers (check for compatibility on the iGo web site). It's small (5.40" L x 2.15" W x 0.85" H), lightweight (7.5 oz), and provides up to 70 watts. Safety features include protection for over voltage, over temperature, and short circuits, as well as current limiting. You can add another adapter for recharging a cell phone or other peripheral while you're using your laptop. **\$119.99**, www.igo.com



Don't let the dim light of a red-eye flight keep you from getting a mix finished. Kensington's gooseneck **FlyLight** plugs into a free USB port and provides a directional beam that can be aimed at the QWERTY keyboard, your session notes, or whatever. **\$22.95**, www.kensington.com

Micro Innovation's **Hide-A-Hub** 4-port USB hub is a sleek option for adding more USB connectivity to a laptop. It supports simultaneous use of bus-powered audio and MIDI I/O devices, and can be stored in the PCMCIA slots of most PCs. **\$29.99**, www.mi-products.com

IKEA's industrial-looking **Signum stands** are durable and offer the advantage of mounting to the desktop, freeing up precious surface space in your studio. Best of all, these stands swing and swivel for optimum placement. **\$29.99**, www.ikea.com

TASCAM's Mac- and PC-compatible **US-122** combines audio and MIDI I/O and is powered via USB. Thanks to its two line and two mic inputs, the latter of which feature phantom power, you can track a variety of sources just about anywhere. **\$269**, www.tascam.com

ACQM FireWire drive



If your computer has a lock slot, invest in a security cable like the Targus **DEFCON CL** Notebook Computer Cable Lock. For \$35, you get a 6.5' cable that weighs a paltry 6.2 ounces, with a locking device that has 10,000 possible combinations. It won't deter a determined thief, but will keep casual pilferers at bay if you can find a suitable anchor to wrap the cable around. **\$34.99**, www.targus.com



Avoid cooking your thighs by picking up a **Laptop Desk** from LapWorks. Not only does it reduce heat build-up by 20%, the Laptop Desk can be used as a stand that offers five incline positions for ideal sight-line and typing placement. An optional mouse extender pad (**\$9.95**) is also available. **\$29.95**, www.lapworksinc.com



PCMCIA hard drives are a space-saving and convenient way to back up and store large music files. Toshiba drives (shown) can hold up to 3 GB of data, and can be swapped between Macs and PCs equipped with Type II card slots. Kingston, IBM, Simple Technologies, and Addonics all make similar drives in the **\$140–250** range.



M-Audio's **Studiopack** is specially designed to safely house a laptop, a small MIDI keyboard, and a variety of peripherals such as hard drives, headphones, cables, and interfaces. **\$89.95**, www.m-audio.com

Combining the functionality of a dedicated control surface and the hands-on tweakability of an analog synth, Novation's **ReMote 25** offers aftertouch and semi-weighted keys, plus it can be powered from battery, AC, or via USB. (A version with audio I/O — the ReMote 25 Audio, **\$999**, is also available.) **\$599**, www.novationmusic.com, U.S. dist. at www.eblitzaudiolabs.com



From left to right: FireWire, Ethernet, USB (x2), DVI video out, S-Video out, stereo line-in, modem. Tip: To connect an additional monitor, use the DVI out (you may need to connect a DVI-to-VGA adapter). For ideas on filling these ports with compatible audio and MIDI peripherals, check out the buyer's guide starting on page 46.



USB memory sticks are fast and convenient for sharing files between studio computers. Sticks can come in a variety of capacities from 8–512 MB.

Be prepared for the unexpected lost or faulty cable by keeping extras on hand.



SATELLITES OF THE MOTHERSHIP

Linking a Portable Digital Multitrack to Your Laptop

By Tim Tully

Why would you want to connect a portable multitrack to a laptop? Depending on the recorder's features, there are more reasons than you may think.

The most obvious benefit is to the composer who has access to a real recording studio, but occasionally needs to record in the boondocks. Out in the field, you can lay down tracks on the portable, then use them as scratch tracks — or even final tracks — in a production you build with the vast virtual-studio capabilities of the laptop. Whether files from your mini multitrack meet your standards as final tracks is your call, but some machines definitely have the specs to let you capture the brilliant performance you recorded at 4:00 AM somewhere off Highway 49.

But even if you want to take your piece all the way to CD with the portable, there are other ways to use a laptop with it. Applications such as Sound Forge or Peak, for example, let you do microsurgery on your portable's tracks, or mix and process them with greater ease and better quality than anything you can do on handheld hardware.

And don't forget file transfer in the other direction. You can transfer not only processed laptop tracks back to the portable recorder, but anything you've created from any source, so you can send essentially any sound from your laptop onto your portable's tracks.

We looked at four of the most popular portable devices, and found that the differences do matter.

BOSS BR-864

The BR-864 uses USB to communicate with a



Mac or PC (ME/2000 or later). The BR appears as a "Removable Disk" in the Windows Explorer and a "BOSS_BR-864" icon on a Mac. To send an audio file from the BR, connect the unit to your computer's USB port, and, with just a couple of button pushes, transfer the track of your choice as a mono or stereo WAV or AIFF file. The file

appears in the "USB" sub-folder, and you can drag it to your hard disk and use it like any other audio file.

Like the export process, importing audio into the BR is also simple: Drag an audio file to the USB sub-folder inside the BR-864 folder. You can also import Standard MIDI Files and individual drum samples to the BR to supplement its onboard drum sounds. SMFs come in just like audio files for tracks, with the exception that you use the "TONELOAD" and "SMGF" folders, respectively.

The BR-864 records at 16/44.1, the highest spec of these four recorders. If recorded with enough care, tracks can certainly be used in a final production.

KORG PXR-4

The PXR-4 also talks to Mac and Windows machines over USB, and is just as painless



to operate. After connecting the Korg to your computer, the PXR's SmartMedia card data appears on the desktop as a device from which you can drag files to your hard disk. You can also use a third-party card reader, which makes transfer even easier.

The PXR writes each track as a separate 16-bit, 32 kHz MPEG 2 (officially, MPEG 1 Audio Layer 2) file. If you convert these files to WAVs, by the way, they grow to a little more than four times their original size. Without any conversion, though, the files can be played by Win Media player, Sound Forge, Vegas, QuickTime and many other Windows and Mac apps. As the manual warns, however, some soundcards may not play audio files sampled at 32 kHz.

When you back up, the process also saves folders holding any effects settings you've made for further safety. The PXR-4 does not use MIDI files, however, as its rhythm patterns are all in ROM.

Korg offers a free Easy Start guide on their website, as well as other audio files and info. Check it out at www.korg.com > Gear > Digital Recording > PXR4.

TASCAM POCKETSTUDIO 5

The PocketStudio 5 connects to a computer



via USB, and can transfer MP3 and SMFs back and forth. You only need to connect the USB cable then turn on the PocketStudio 5 while holding its Enter button. File transfer to both Mac and Windows computers is equally straightforward. You upload and back up files by simply dragging them to and from the PocketStudio 5's various folders.

After you record to the PocketStudio 5, you can save any one or more tracks as an MP3 file to the unit's CompactFlash card. You can also record an input source directly to the CF card as a stereo MP3, bypassing the PocketStudio 5's multitrack "Song" format. This way, the PocketStudio 5 can be used as a portable recorder whose data can quickly be ported to computer.

The PocketStudio 5 uses SMFs to provide backup rhythm tracks. These tracks are not just drums, but rather an assortment of programmable drum, bass, and chord patterns. Even better, you can upload any SMF, just as you do MP3s. In a rhythm pattern, you can modify the rate at which chords change, the inversions of chords, and other elements of the files to match your song. You can choose the MIDI instruments that the PocketStudio uses to play your SMF, adjust instruments' level and pan position, transpose tracks, and add effects. You can also use the PocketStudio 5 as a tone module, driven via MIDI. (The PocketStudio 5 cannot, however, record MIDI sequences.)

ZOOM PS-04

As we went to press, Zoom was just releasing their new PS-04. We didn't get to test it, but its preliminaries



look interesting. Rather than USB, the PS-04 requires a SmartCard reader to transfer files to a computer. It will export WAV and AIFF files. EQ

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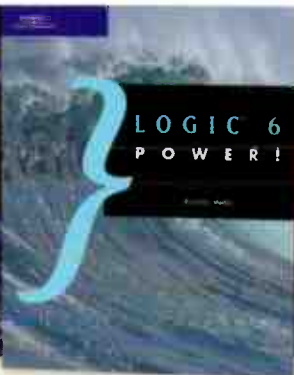
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mini buyer's guide: LAPTOP AUDIO & MIDI COMPANIONS

Compiled by Greg Rule

- **FireWire I/O**
- **USB I/O**
- **Combo Interface/Control Surfaces**

As slick as laptops are for music, they aren't much use if you can't get data in and out. Before the plug & play days, it was often a costly and bulky proposition to equip your laptop with pro I/O. But now, with one simple connection, your laptops are ready to rock — and the choices are plentiful.

Here's a look at some of the current USB and Firewire solutions. And for a batch of PCMCIA audio add-ons, be sure to visit www.eqmag.com.

FIREWIRE I/O

Digidesign Digi 002 Rack, \$1,295

Pro Tools LE native software now has a Firewire rack companion in the Digi 002 Rack — a 2U module that packs all the punch of Digi 002 (minus the control surface). The 002R is loaded with audio and MIDI I/O, and includes Pro Tools LE software and a suite of plug-ins in the bundle.



Hercules 16/12FW, \$799

An audio/MIDI interface for Mac and PC, the 16/12FW offers 16 independent ins, 12 independent outs, stereo optical and coaxial I/O, word clock sync, two high-quality preamps with phantom power, and 24/96 converters. The unit is housed in a sturdy 1U rack chassis.

M-Audio Firewire 410, \$500

Firewire 410 features two analog inputs

with two mic preamps (with phantom power) for 24/96 digital recording. Line level 1/4" TRS connectors are also provided. Eight analog line outputs allow surround mixing or 8-channel transfers to another device. The 410 also has optical and coaxial S/PDIF I/O as well as MIDI I/O. Two headphone outs with separate volume controls are provided.



Metric Halo Mobile I/O 2882 (\$1,495) and 2882+DSP (\$2,195)

This 24/96 audio interface offers analog balanced and unbalanced (mic, line, and instrument) inputs, S/PDIF, AES, ADAT optical. Eight line-level outputs and independent stereo headphone mix and output are provided as well. Wordclock input and output allows transparent professional interfacing of multiple units for larger systems. Also available with DSP for effects processing.

Metric Halo Mobile I/O ULN-2, \$1,195

ULN-2 means two analog and two digital channels of I/O, and Ultra Low Noise performance. With up to 73 dB of gain, an E.I.N. of -129 dBu, fantastic detail, and an ultra fast slew rate, the ULN mic pres are up to the most demanding recording situations. The ULN-2 also features balanced analog inserts, front panel controls, and the same FireWire connectivity, A/D D/A converters, and onboard DSP for mixing and routing.



MOTU 828Mk2, \$795

The 828mkII is a 1U 24/96 FireWire audio interface for Mac and Windows,

with 20 channels of input and 22 channels of output expandable to 80/88 channels. It provides 10 channels of 24/96 I/O on balanced 1/4" connectors, including two Neutrik XLR/TRS combo connectors with built-in mic pre-amps, ADAT optical digital I/O, S/PDIF, latency-free 20-input/8-bus monitoring, stand-alone operation, and a complete set of drivers for compatibility with all major audio software on both computer platforms.



MOTU 896HD, \$1,295

The 896HD provides eight quality mic preamps, pristine 192 kHz analog I/O, eight channels of ADAT digital I/O and stereo AES/EBCU. Expand your system by connecting additional 828 or 896 FireWire audio interfaces. The 896HD is equally well-suited for studio and stage, with or without a computer. As a computer interface, the 896HD provides 18 separate inputs and 22 outputs, including separate main outs and headphone out.

Presonus DigiMAX LT, \$999.95

The DigiMAX LT features the same 8-channel mic/line, dual-servo gain stage preamplifier as the original DigiMAX, but adds front panel phantom power buttons and insert points for every channel.

Presonus FireStation, \$999.95

Using Yamaha's mLAN FireWire protocol to communicate with Macs and PCs, this sleek silver interface offers audio and MIDI I/O, two dual-servo preamps with switchable tube circuit, two 1/4" instrument preamps, 48 V phantom power with -10 dB pad, balanced preamp sends, eight channels of analog I/O, eight channels of ADAT I/O, S/PDIF I/O, control room and headphone outs with separate volume controls, and an external recording punch input. The FireStation can also be used

standalone, and can be expanded to handle up to 48 channels of I/O.



USB I/O

Apogee Mini-Me, \$1,295

The popular Mini-Me features two channels of Apogee A/D conversion at sample rates of up to 96 kHz, two premium mic/instrument preamps, line level inputs, AES/EBU, S/PDIF, and Push-It, a unique new 3-curve stereo comp/limiter ideal for location recording. Mini-Me is equipped with optional USB for a direct connection to your laptop.



Digidesign Mbox, \$495

Mbox is the smallest and most affordable entrance into the Pro Tools hardware/software family. The 2-channel USB audio peripheral is equipped with Focusrite mic preamps, and comes with Pro Tools LE software.

Digidesign MIDI I/O, \$595

MIDI I/O includes ten MIDI inputs and outputs for a total of 160 channels, and features a programmable hardware thru mode, allowing you to patch any inputs to any combination of outputs without the need to access your computer. The unit connects to your computer via its self-powered USB connection, and includes support for the Digidesign Time-Stamping feature for superb timing accuracy and precision.



Edirol UA series, \$95 and up

Included in the USB family are UA-1X (\$95, RCA I/O, S/PDIF optical out), the UA-20 (\$215, 24-bit audio and MIDI I/O), the UA-3D (\$215, analog and optical I/O, plus 5.1 features), the UA-3FX (\$215,

with direct monitoring, direct input for mic, guitar, voice, and dynamic effects), the UA-5 (\$355, audio interface with phantom power XLR, 1/4", RCA, and S/PDIF in), and the flagship UA-1000 (\$945, the world's first USB 2.0 audio interface, with 10 ins, 10 outs, 24/96 converters, four preamps, phantom power, inserts, and ADAT, S/PDIF, Word Clock and MIDI I/O).

Edirol UM series, \$45 and up

These pocket-size USB MIDI interfaces are as slick and streamlined as they come. The line includes the 1x1 1SX (\$45), the 1x1 UM-1X (\$50, featuring Edirol's FPT technology to allow for low latency, low jitter MIDI transmission), the 2x2 UM-2 (\$85), the 5x5 UM-550 (\$240), and the 8x8 UM-880 (\$375).



Emagic A26 (\$399) and A62m, (\$399)

The A26 is a sleek and simple USB audio solution: lightweight and compact, approximately the size of a videocassette. It offers six analog outputs, two analog inputs, and stereo S/PDIF digital I/O at 16- or 24-bit resolution. The A26's big brother, the A62m, provides six analog inputs and two outs at up to 24/96 resolution. MIDI and S/PDIF I/O is provided as well. The A62m offers mobility and quality in one compact interface.

Emagic MT4, \$199

The MT4 is a MIDI interface for USB-equipped PCs and Macs. Two MIDI ins and four outputs, each with an activity LED, provide a total of 32 input and 64 output MIDI channels.

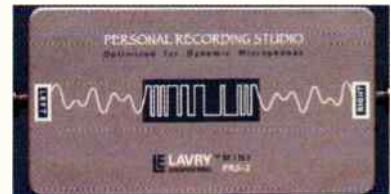
Emagic Unitor8 mkII, \$799

Unitor8 mkII is Emagic's flagship 8 x 8 MIDI interface for Logic-based studios that require comprehensive sync with external devices. Analog and digital audio and video recorders, or timecoded DATs can be locked to the Logic system via Emagic's AMT technology. In addition, the Unitor8 mkII features LTC and VITC I/O and an external Click input, allowing

the control of Logic via a percussive audio signal.

Lavry Engineering Mini-PRS-2, \$250

Lavry's new Mini Personal Recording Studio 2 is a small, road-tough USB recording solution. Connecting your choice of two dynamic mics to the stereo preamp inputs will send CD quality digital audio to your computer. The unit's ultra-low power drain (only .25 watts) makes it ideal for portable/laptop applications. The Mini PRS-2 is compatible with Windows 98 SE, ME, 2000, and XP machines. It also operates with Mac OS9 and OS X machines. The unit works with all software supporting WAV formats. Lavry includes user-friendly direct-to-disk recording software for recording CD quality or MP3 format on Windows machines.



Lexicon Pro Omega Desktop, \$529.95

Omega Studio is an integrated 24-bit USB-based recording system that includes the Omega 8x4x2 USB I/O mixer, ProTracks Plus 32-track recording software, and high-quality Pantheon Lexicon reverb plug-in. The mixer is a true mixer, not just a patch bay, with input, output, and monitoring controls, along with two dbx mic preamps with 48v phantom power and TRS insert points. (For more, see our feature on page 22 of the AES Report, December 2003 issue.)

Mackie Spike, \$419

The Spike package consists of the XD-2 audio/MIDI interface and recording software. The interface is a 2-channel, USB-compatible, cross-platform box. It supports 24-bit resolution and sampling rates up to 96 kHz, while folding in two Mackie mic pre's with gain controls, low frequency rolloff filter, switchable 48v phantom power, and 3-LED level meters. The preamps are claimed to offer the low noise and distortion characteristic of Mackie mixer mic pre's. (For more, see our Coming Attractions spotlight, page 94, November 2003.) ►



M-Audio Audiophile USB, \$249.99

This USB incarnation of the Audiophile has two analog ins and outs on gold-plated RCA jacks, S/PDIF and MIDI I/O, and a headphone jack. Operates at up to 24/96 resolution. Driver support: MME, WDM (Win 2000, XP), Direct X, PC-ASIO, EASI, Sound Manager, Mac-ASIO, OMS, Core Audio and MIDI (OS X).

M-Audio Duo USB, \$349.99

A 2x2 USB audio interface that can be used as a stand-alone mic pre and A/D converter, the Duo USB features 24/96 converters, two XLR mic inputs with phantom power, a 20 dB pad switch, and variable input level and two 1/4" balanced line level inputs.

M-Audio Midisport series, \$49.95 and up

The Midisport USB MIDI interface series comes in a variety of I/O offerings to suit a wide range of studio needs and budgets. Driver supports multiple units for easy expandability. Bus powered. Mac OS 9 (OMS included)/X and Win 98/ME/2000/XP. USB Midisport 1 x 1 (**\$49.95**), USB Midisport 2 x 2 (**\$89.95**), USB Midisport 2 x 4, (**\$179.95**), USB Midisport 4 x 4 (**\$199.95**), USB Midisport 8 x 8/s (**\$399.95**).

M-Audio MobilePre USB, \$249.95

This bus powered 16/48 interface is equipped with two mic/instrument preamps (with 48 V phantom power), two XLR mic inputs, a stereo mic in (1/8"), and two high-impedance instrument/line ins. A stereo 1/8" output, 1/4" TRS out, and 1/8" headphone output are included. Direct monitoring allows zero-latency performance.

M-Audio OmniStudio USB, \$599.99

The OmniStudio USB is a 4 x 4 audio interface with two high-quality mic/instrument preamps, and an onboard mixer complete with effect sends and return, and four stereo aux inputs.



M-Audio Quattro, \$349.95

Quattro is a 4 x 4 audio 24/96 interface plus MIDI in and out. Features include zero-latency direct monitoring and variable I/O levels. Driver support: MME, WDM (Win 2000, XP), Direct X, PC-ASIO, EASI, Sound Manager, Mac-ASIO, OMS, and Core Audio and MIDI (OS X).

M-Audio Transit, \$99.95

Small enough to fit in your pocket, Transit brings 24/96 quality to any USB-compatible computer. Its digital I/O lets you transfer pristine audio between your computer and other devices such as MiniDisc and DAT.



MOTU FastLane USB, \$79

Available in a variety of high-impact colors, this mini 2 x 2 MIDI interface features a thru button, allowing you to play your gear when your computer is turned off. A 1-input/3-output serial version is also available for older Macs.

MOTU MicroLite, \$149

MicroLite is a 5 x 5 MIDI interface that provides 80-channel performance, and is compatible with all Mac and Windows software. The MicroLite takes full advantage of USB, giving you high-speed MIDI throughput, sub-millisecond timing accuracy, support for "hot-swapping," and plug-and-play expansion. Removable rack attachments, as well as a custom center-joint fastener, are included and allow you to easily mount two MicroLites side by side in a standard rack.

MOTU MIDI rackmount series, \$249 and up

MIDI Express 128 (**\$249**) is an 8 x 8 MIDI interface that provides plug-and-play

connectivity to any USB-equipped Mac or PC. It provides 128-channel operation and compatibility with all Mac and Windows software. . . . The MIDI Express XT (**\$395**) takes the MIDI Express 128 and adds tape sync in all SMPTE formats. . . . The half-rack Micro Express USB (**\$295**) offers four MIDI inputs, six MIDI outputs, and 96 MIDI channels. It includes SMPTE/MIDI timecode conversion, MIDI processing, and expansion via any standard USB hub. . . . The granddaddy MIDI Timepiece AV (**\$595**) is an 8-input, 8-output MIDI/SMPTE interface/patchbay/merger with plug-and-play connectivity to any USB-equipped Mac or PC. Includes video, digital audio, and SMPTE-to-MIDI sync features.



Steinberg Midex 3 (\$150) and Midex 8 (\$499)

The sporty Midex 3 is Steinberg's latest USB MIDI interface. Its three outputs and one input can address up to 48 MIDI channels. . . . The Midex 8 features eight MIDI inputs and outputs. It incorporates Steinberg's LTB (Linear Time Base) technology, which provides sub-millisecond MIDI timing. The Midex 8 also features multi-client capability, an integrated MIDI cable test function, a MIDI Thru function, and the ability to stack multiple units.



TASCAM US-122, \$269

TASCAM and Frontier Designs team once again. The US-122 features two XLR-based, phantom-powered mic inputs. As one of the only small computer interfaces with analog inserts, you can use the US-122 to place hardware devices (compressors, etc.) into the recording signal chain. Two line-level inputs on balanced 1/4" TRS jacks are included, and are switchable to guitar-level for direct instrument recording into your computer. The US-122 also provides a dedicated control for adjustable zero-latency direct monitoring. Its two line-level outputs



provide control for levels, and a dedicated headphone output is also included.



Terratec Aureon 5.1 USB, \$249

An external 5.1 soundcard for laptops and USB computers, the Aureon 5.1 USB offers easy plug-and-play operation, and comes bundled with a comprehensive software package that includes Native Instruments Traktor DJ and InterVideo

WinDVD. Two analog inputs and six outs are provided, as is S/PDIF digital I/O.



Yamaha UW10, \$159

UW10 is a quality, compact USB audio interface with stereo S/PDIF optical I/O, two RCA analog inputs and outputs, and



a headphone jack. The UW10 is Windows 98, ME, and XP compatible and uses ASIO drivers. The built-in headphone amp provides quick and mobile monitoring. Yamaha's TWEplus wave editor for audio editing and MP3 conversion is included.

COMBO I/O & MIX/CONTROL SURFACES

Digidesign 002, \$2,495

Digi 002 pairs Pro Tools LE software with an integrated control surface to provide you with a finger-friendly music production environment. Record, edit, process, mix,



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and master your projects with hands-on efficiency, then tuck Digi 002 under your arm, take it to a gig, and use it as an 8 x 4 x 2 digital mixer, complete with EQ, dynamics, delay, and reverb with snapshots.

Edirol UA-700, \$595

UA-700 is a tactile USB audio and MIDI interface that boasts Roland's COSM microphone and guitar amp modeling. The UA-700 supports ASIO, WDM, and Core Audio drivers, and can accept, mic, line, guitar, phono, and S/PDIF input.

Edirol UR-80, \$545

The UR-80 features stereo I/O, phantom power, XLR, 1/4" input, RCA output, MIDI I/O, and 43 assignable controls capable of controlling up to 102 parameters per control map. Included is HQ Hyper Canvas editing software.



Event EZbus, \$749

EZbus is a combination USB computer audio recording interface, software control surface, and stand-alone digital mixer. It's equipped with mic, instrument, and line inputs, eight line outputs (including headphone out), 24/96 converters, ADAT optical I/O, S/PDIF I/O, dual MIDI ports, and word clock. Three-band EQ and compressor/gate is standard on each audio channel. Other features include four sends per channel (independently configurable pre-/post-fader), four returns, 32 scene memories, 32 programmable control surface configurations, built-in



HEADPHONE MONITORING

"In a small recording environment, it's important for each musician to create the right individual headphone mix in order for them to feel the rhythm and correctly play in the pocket. Every musician should have individual control over their headphone mix, because when you do, everyone can play off each other and create great live tracks!"

- Jack Casady



Jack Casady - As the bass player with the psychedelic-rock band Jefferson Airplane, Jack helped create the soundtrack for the flower-power generation. After Jefferson Airplane, Jack teamed-up with fellow Airplane expatriate Jorma Kaukonen to form the legendary Hot Tuna. In addition, Jack's bass playing is featured on some of the most highly regarded albums in the rock & roll canon, including Crosby Stills & Nash's eponymous debut and Jimi Hendrix's *Electric Ladyland*.



Check out Jack Casady's New Release "Dream Factor" on Eagle Records.



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transport controls for operating a variety of digital audio workstations, and preset control profiles for major DAWs and virtual instruments. PC Profile Editor included.

TASCAM/Frontier US-428, \$625

The US-428 is a USB control surface that supports up to four channels of audio input

and two channels of output simultaneously, all at 24-bit. It can also control an unlimited number of banks of eight software mixer faders. The EQ section can be used to control up to four bands of fully parametric EQ, plus four aux sends and a pan pot. Audio interfacing includes two XLR inputs, two balanced 1/4" TRS inputs, two unbalanced 1/4" inputs (switchable

to Hi-Z), and S/PDIF I/O. The US-428 also offers 32 channels of MIDI I/O that can be used to access MIDI instruments or to lock MTC-capable tape tracks to a computer. The US-428 comes bundled with a custom version of Steinberg's Cubasis VST audio recording/MIDI sequencing software and is PC and Mac compatible. (A scaled-down version of the 428, the US-224, is available for \$375.)

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The QTC1 is the most accurate recording microphone available.

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Earthworks QTC30 is the new more affordable little brother. They share most of the same valuable qualities...

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TASCAM FW-1884, \$1,599

FW-1884 is a pro DAW control surface and audio/MIDI interface that provides audio and MIDI interfacing to computers as well as control of DAW parameters via eight 100mm motorized touch-sensitive channel faders, one master fader, and controls for pan, solo, mute, and select functions on each channel. Tactile control for four bands of parametric EQ, a jog/shuttle wheel, and a variety of short-cut keys for various popular software applications are also included.



Yamaha 01X, \$1,699

This powerful new tool from Yamaha comprises a 28-channel moving fader digital mixer, eight mic preamps, 24/96 A/D converters, 3-band EQ plus dynamics processing on each channel, two effects processors, a multi-channel mLAN FireWire audio interface, a multi-port mLAN FireWire MIDI interface, and a DAW control surface that supports all of the major software platforms. Included are four VST plug-ins: 01X Channel Module, Vocal Rack, Final Master, and Pitch Fix. EQ



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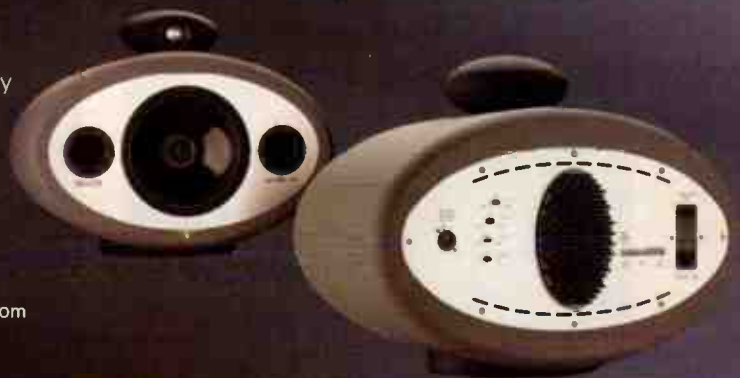
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CASE STUDY: STUDIO VOODOO, Pt. 3

Another nice thing about the Alesis system is the integrated monitor controller, which in its simplest form is a big volume knob that controls all six speakers simultaneously. Most monitor controllers offer additional features such as channel muting and soloing, system calibration, fold-down to stereo, and bass management. Having a monitor controller is nice but not essential, as the system's functionality is typically duplicated in the surround management setup parameters within your surround audio software application. If you decide to get serious about surround production, you'll eventually want to have a monitor controller, and there are several different units to choose from ranging in price from the SPL model 2380 Surround Monitor Controller (\$895) to the feature-rich Studio Technologies StudioComm Model 78 Surround Controller and Model 79 Control Console (\$2,799).

What if you only have a stereo master and want to include a surround version on your DVD? Our secret weapon to create instant surround tracks is the Gemini SP-1 Circle Surround Processor (\$399.95). Using SRS Circle Sound technology, the SP-1 takes a stereo input and converts it into a 4.1 surround mix with astonishing 3D imaging and panning effects. This unit is a great addition to any surround studio, not only for converting stereo mixes to surround, but also for creating realistic surround samples from stereo material.

When producing 5.1 surround sound for DVDs, you'll eventually need to take the six channels of your final mix and encode them into the final Dolby or DTS format that can be played on consumer surround sound systems. This step typically occurs during the DVD authoring process, as most of the popular DVD authoring programs that support surround also include the AC3 encoding software used to create Dolby 5.1 surround files. What you'll need to bring with you to the DVD authoring session are six WAV files from your 5.1 final mix that will ultimately be encoded and burned onto the final DVD as a single digital bitstream.

The last essential item before we start authoring our DVD is a plan of action. It's absolutely crucial to sketch out a "storyboard" on paper of what you want your final DVD to look like. This is important because it defines the DVD's structure and hierarchy, as well as the video, music, programming, and graphics content that will be required to complete the project. It's quite similar to designing a website where you develop the concept of how a user will interact and move among the various screens and menus. The final storyboard will serve as the blueprint from which the DVD will be constructed.

AUTHORING

Now that we've prepared our video and audio files and we have our blueprint for the final DVD, it's time to start authoring the project. To do this, you'll need DVD authoring software. There are dozens of excellent and user-friendly professional quality DVD authoring programs available for the Windows and Mac platforms, including Apple DVD Studio Pro 2 (\$499) for Mac, and Sony Pictures Vegas+DVD (\$999) and Adobe Encore DVD (\$549) for the PC. The Vegas+DVD suite also includes Vegas 4 video editing software as well as their DVD Architect and AC3 encoding software. Each of these programs offers the ability to easily drag and drop video and music files into place, and provides object-oriented tools for authoring your DVD while still maintaining the flexibility to add custom scripts when required.



SPL Surround Monitor Controller

For best results, all video files should be imported into the DVD authoring program in the DV-NTSC (U.S.) or PAL (Europe) format with MPEG-2 compression, and all audio files should be in WAV format. This ensures that the video images and audio tracks will maintain the highest video and audio fidelity throughout the production process. As mentioned earlier, if you're working in 5.1 surround, the six audio files will ultimately need to be encoded into Dolby or DTS format, but once encoded they'll still show up in your resource list as a single WAV file of a digital bitstream. (You can actually burn the bitstream WAV file to a CD and listen to it in your CD player, but all you'll hear is white noise.) When played in a DVD player, the surround decoder inside the DVD player listens to the audio and activates itself automatically when it hears the Dolby or DTS bitstream header.

Once the authoring process is complete, it's time to burn a master DVD. You'll need to have a DVD burner attached your computer. The authoring software will automatically organize the resources and render the final files for burning. When rendering your DVD, you'll typically have the choice of different DVD formats depending on the total size of your project. The three common formats are:

- DVD-5 (single sided/single layer), 4.37 GB data capacity, over 2 hours of video
- DVD-9 (single sided/double layer), 7.95 GB data capacity, about 4 hours of video
- DVD-10 (double sided/single layer), 8.74 GB data capacity, about 4.5 hours of video

If you'll be bulk duplicating the final project, you can output and deliver it to the duplicator as a DVD-R or on DL tape.

WRAP

So that's it. It sounds simple, and it truly is. For less than the cost of a decent drum machine you can get started authoring, burning, and selling your own DVD projects complete with music, video, and surround sound. Having this capacity has allowed us to create significant new opportunities for generating revenue and promoting our music. It's also a heck of a lot of fun.

We've enjoyed sharing our experiences with you, and it's our hope that we've inspired some of you to give it a try for yourself. There's no doubt that DVD is here to stay — and it's not just for movies anymore. **EQ**

For an example of a self-produced video using arKaos, go to studiovoodoomusic.com and navigate to the Downloads page.

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The Art of Recording: Delivery

One of the most-asked questions I hear from musicians is how to prepare audio files properly for mastering; after all, you want the mastering engineer to have the best possible raw materials. Following are some guidelines relating to the three most common issues: volume, resolution, and editing.

by Paul Abbott

VOLUME

A common mistake the well-meaning musician makes is attempting to get a mix as loud as possible. As far as I can tell, this is because most people don't know whether mastering addresses this issue (FYI, it does). Many artists — believing it's better to be safe than sorry — do one of two things: normalize their tracks, or send them through a compressor/limiter (or some sort of "finalizing" plug-in). Unfortunately, both degrade sonic quality and neither delivers the desired result.

Contrary to common belief, normalizing does not make tracks as loud as possible. The normalization process scans a digital audio file and looks for its peak volume, then moves that point up to digital zero. All other sounds in the file are adjusted proportionally. So, if the file's loudest point is a snare hit that registers one dB (decibel) below digital zero (-1 dBFS), normalizing will make the entire track one dB louder. This is hardly what most users of this function are trying to achieve. Furthermore, normalizing does nothing to address the *average* volume of songs — which is more crucial for the proper aural perception and flow of a good CD.

Another problem occurs when musicians add a "mastering" plug-in to the mixdown process. I receive a lot of files that have been treated this way and it creates two problems. First, the files may be so hot that they overload any process applied in mastering (equalizer, limiter, etc.). Second, the process's effects cannot be removed, so I have to pull every trick in the book to counteract the plug-in's negative effects. This turns mastering into an audio salvage effort, not a fine-tuning improvement process.

RESOLUTION

Always deliver the highest possible resolution digital audio files for mastering. If your hard disk recording setup offers 20-, 24-, or 32-bit — as well as 48, 88.2, 96, or 192 kHz — capability, it's to your advantage to utilize it. Even though your audio files will eventually convert to 16-bit/44.1 kHz for the CD's commercial release, editing done on the files before that point will be much more transparent-sounding when processed at a higher resolution. While it's okay to burn audio CDs to

reference your work, always make sure that what you deliver for mastering is the same resolution as what you used while recording and mixing.

EDITS

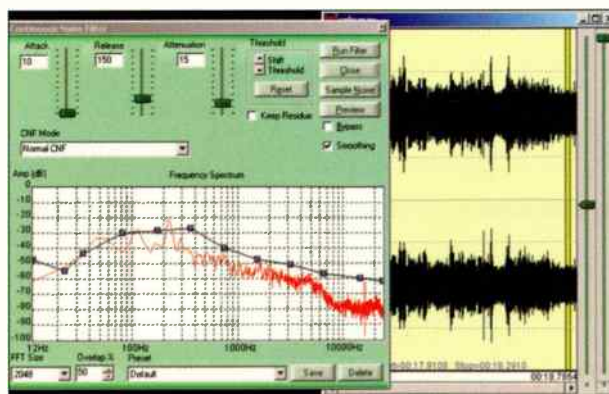
Another common problem comes from musicians who've already done intro edits and outgoing fades, because "the song only needs EQ and level treatment." Contrary to common lore, adding fades does not make the mastering engineer's job any easier, and in some ways it can make specific tasks nearly impossible. Consider a recording that needs to have some electronic hum or microphone hiss removed. To do this successfully, a bit of that noise must be taken from a part in the song where there is no music, so as to effectively isolate a digital "fingerprint" and create a filter (Fig. 1). Ironically, the best place to take this fingerprint is the few seconds before or after a song. If that space has been removed, it is much more difficult to get a good sampling of the problem noise.

If you need an exact fade or edit point in the recording, it's best to carefully document these requirements (H:M:S) on a song-by-song basis for the mastering engineer. Accuracy can be confirmed in the reference disc.

The next time you're working on a project, keep these concepts in mind. They will give your mastering engineer the necessary flexibility to bring out the best in your music, and result in a more professional-sounding product. **EQ**

Paul Abbott owns and operates ZenMastering (www.zenmastering.com), a full-service audio mastering company located in San Diego, CA.

Fig. 1. This narration example was recorded on location, and had severe camcorder noise. Fortunately, it was sent for mastering with the end untrimmed, thus making it easy to grab a piece of the noise (the yellow stripe toward the right) for use in the Diamond Cut 5 noise reduction program.



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Photos shown with optional AIB-8 analog input board.

D16XD

Welcome to the EQ Awards!



As announced last month, *EQ* is launching a new awards program — the *EQ* “Exceptional Quality” Awards — and it starts right here, right now! As you peruse the review section of this issue, you’ll see the *EQ* Award logo accompanying the products that earned this extra honor, along with a short overview of why we found them award-worthy. We feel that this month-by-month approach is the timeliest way to recognize merit, as you won’t have to wait until a year-end award roundup to learn what products had our jaws hitting the floor.

Before diving in and announcing the first set of winners, we’d like to make a few important points. Since the debut of *EQ*’s redesign in June 2003, the *EQ* editorial team has reviewed a total of 118 products (not counting the 11 in this issue). We felt it would be a shame to exclude these new-generation products from award consideration, so we decided to make the awards retroactive to the June 2003 issue.

Regarding power apps, we reviewed most of the major contenders in the past six months (Digidesign Pro Tools 6, Emagic Logic 6, Magix

Sequoia, MOTU DP4, Steinberg Cubase SX2) but as you’ll see, no *EQ* Awards were handed out in this category. Is it because they weren’t worthy? Absolutely not. Each of these apps has evolved and matured to such a high level that the field is just too close to determine a champion at this time (not to mention the fact that as soon as one app gets a leg up on another, it’s only a matter of time before the competition responds in kind — an endless game of leapfrog). However, we plan to put the DAWs head to head in a forthcoming issue, and will reveal our choices at that time. What better way is there to evaluate these programs than in side-by-side, up-to-the-minute studio tests?

In the future, it’s likely that in some issues we’ll hand out quite a few *EQ* Awards, while in other issues there may be few or none. Not until the end of each issue’s production cycle will the editors discuss that month’s crop of reviews, and determine which products (if any) have what it takes to merit an *EQ* Award.

And now . . . the winners from June to December 2003. (This month’s winners can be found in the product review section, which follows this feature.) Our congrats to all! **GREG RULE**

JUNE

Echo Indigo

This 24/96 PCM/CIA audio out interface is easy to use, puts out more level than your average built-in computer soundcard, and works with Macs and PCs. And did we mention it’s cheap? A version with inputs is also available.



eLab Ballistix

This top-tier title is one of many in eLab’s outstanding library of cutting edge loops. Packed with fresh construction kits and additional drum loops, *Ballistix* is a smash hit.



JULY

Røde NT1a

Amazingly low self-noise coupled with sonic performance way beyond its price point make the NT1a an amazing value for any level studio.



MOTU PCI 424 Interfaces

Up to four audio interfaces can be snapped onto the PCI 424 card, which is equipped with DSP for latency-free monitoring of live input signals. Best of all, any configuration of MOTU interfaces is possible.



The EQ Awards!

allowing you to customize the system to meet your studio's growing needs.

Toontrack Drumkit From Hell

No other multisampled drum kit has the flexibility, variety, and vibe of *Drumkit From Hell*. Thanks to its close, overhead, and room mic variations for each drum, it's possible to create ultra believable MIDI drum tracks.



AUGUST

Genelec PowerPak

It's a stylish, tank-tough 5.1 system that sounds exceptional. Genelec's new spiral sub design is innovative, and lethal.



AEA R84

An RCA-style ribbon mic for under a grand? For those looking for affordable vintage ribbon flavor, this is the one to buy.



Grace 901

The best headphone amp we've ever heard, combined with built-in D/A conversion and high sample rate support. Awesome.



Roland V-Synth

V-Synth is basically a digital audio editor with a keyboard attached, and capable of a huge range of wildly creative effects for sound design. No, it's not your sample workstation workhorse, but in the studio, it shines for being so much more.

Samson C-control

Samson's half-rack C-control offers the kind of control room monitoring and talkback facilities you'd expect to find on professional recording mixers, but for a price that's stupidly low.



SEPTEMBER

Massenburg Designworks MDW EQ plug-in

A super-smooth sounding EQ capable of both microscopic sonic surgery and broad tonal strokes, this Massenburg plug-in is nothing short of remarkable.



OCTOBER

MOTU 828mkII

Talk about bang for the buck, this 1U FireWire interface is loaded with features and I/O. It can also be uncoupled from the host computer and used standalone. ►



Grab Some Soul

"I think the MSS-10 sounds amazing. It's very hi-fi and open and sweet, but it's not sterile and boring. It's got fidelity, but it's got a lot of character and a lot of soul. It brings things forward in the track. Most of the music I tend to do is rock or alternative, so hi-fi can be a bad word that means characterless, but this is hi-fi with soul."

Joe Chiccarelli

Producer/mixer/engineer, Joe Chiccarelli loves the Natural Sound of the Martech MSS-10 mic preamp; *"I'm totally blown away by the realism and detail."* His recent use includes sessions with Elton John (vocals), Kronos Quartet (strings), Tim Easton (vocals, acoustic and electric guitars), and Tracy Bonham (drums).

Free Report: Discover why only Natural Sound truly captures the soul of the performance. For the full story on the MSS-10, call or visit us on the web and request report EQ23.



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World Radio History



The EQ Awards!

Apogee Big Ben

A central digital clock that offers so much more: The ability to re-clock incoming signals, support for tons of formats (including DSD), and clock distribution ring the bell for Big Ben.



Sony Vegas Video 4.0

For editing video on Windows, nothing beats

Vegas at this price point. Particularly noteworthy is the attention paid to audio — it handles plug-ins elegantly, and handles low-latency ASIO drivers for snappy audio response to picture.

NOVEMBER

M-Audio Luna

An attractive, well-built, solid-performing condenser mic. Road case and shockmount are included, and all at a rock-bottom price.



Line 6 VariAx

Nothing packs as many guitar sounds into a body that looks so deceptively simple as this. In the studio, it's not just the sounds, though; VariAx's ability to reject monitor noise, RF, and hum is welcome too. Even the price is right.



Ueberschall Nu Metal

Heavy rock sample libraries aimed at the drop-D crowd are few and far between. This one is the best we've heard, by far.



DECEMBER

Rode K2

A wonderful-sounding large-diaphragm variable-pattern tube mic that lists for under a grand, but is worth several times that much.



Focusrite ISA428

Four channels of reference-quality top-of-the-line mic preamp with switchable input impedance and optional 8-channel A/D conversion.



Ableton Live 3.0

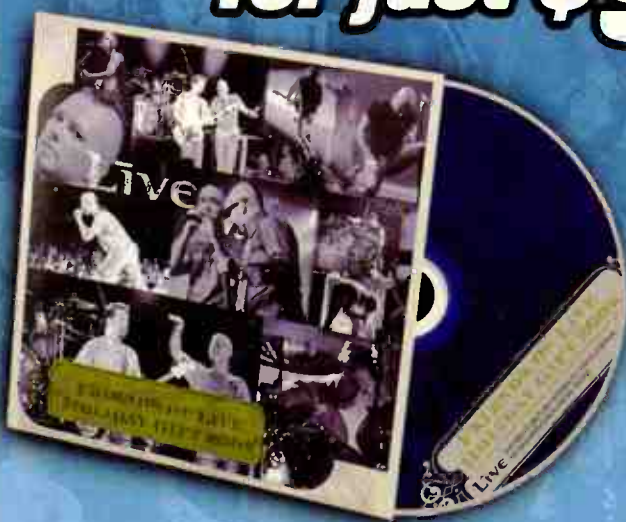
No other program melds live performance, Acid-style looping, audio manipulation, effects, and an ultra-clean interface into such a futuristic and easy-to-use cross-platform package. V3 takes the program one level higher by letting you get "inside" the loops.



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- Cardioid characteristic
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- Ultra low noise design 12-input 2/2-bus mic/line mixer with premium IMP "Invisible" Mic Preamps and 24-bit multi-FX processor
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GUITAR AMPLIFICATION

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EUROBACK MX2100E

- 10-channel mixing console with optional battery operation
- 2 mono channels with IMP "Invisible" Mic Preamps and inserts, 3 stereo channels with IMPs plus phantom power on all channels
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- Additional compressor/limiter (switchable pre/post) and EQ for stereo main mix
- Four simultaneously operable effects processors with dozens of first class algorithms, accessible from all 32 channels



ULTRAGAIN PRO-8 DIGITAL ADA8000

- Ultra high quality 8 channel 24-bit A/D & D/A converter for virtually any digital recording/mixing environment
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- Phantom power on all mic inputs
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- Original JENSEN™ 70-Watt 12" speaker
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- 2 x 1,200 Watts in 2 Ohm/2,400 Watts in 4 Ohm bridged operation
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by

Apple PowerMac G5

Type: desktop**Price:** starting at \$1,999 (build-to-order model) as reviewed**Contact:** Apple**Processor:** 1.6- or 2-GHz 64-bit PowerPC G5**Frontside bus speed:** 1.6- or 2.0 GHz**RAM capacity:** 1 GB (standard), 2 GB (optional)**Expansion slot slots:** 4 PCI Express, 2 PCI**Front panel connectors:** FireWire 800, USB 2.0, FireWire 400, FireWire 1394b**Rear panel connectors:** DVI video, AirPort Extreme antenna, FireWire 400 (2), FireWire 1394b (2), 10/100/1,000 Mbps Ethernet, internal modem**Audio I/O:** S/PDIF (optical), FireWire 800 (16- or 24-bit, up to 96 kHz), stereo audio line (24-bit, up to 48 kHz)**Video:** AGP 8x Pro, DVI-D, DVI-I, FireWire 800**Storage:** SuperDrive (DVD-RW), serial ATA hard drive (up to 1 TB), FireWire 800 external hard drive**Included accessories:** keyboard, optical mouse, mouse adapter**Operating system:** Mac OS X 10.4 (reviewed machine)**SPEED**

You want the fastest Mac ever? This is it (at least until the next generation is unveiled). I was consistently impressed with how much you could do at once on this machine, and how fast you could do it. Just the installation time for various pieces of software was amazingly fast.

You can run numerous software

synths and tons of plug-ins, all while playing back pretty much as many audio tracks as you want. I started slow, testing Digital Performer, Nuendo, Logic, Peak, and Pro Tools with a small number of native plug-ins . . . the CPU usage meters barely budged. Next I began using multiple software synths and samplers, which brings most computers to a crawl.

Not the G5. Running Digital Performer with Mach 5 and Stylus, Atmosphere, and Trilogy used only about 1/8 of available CPU power.

Curious just how much horsepower the beast could muster, I called out the heavy CPU hitter: AudioEase Altiverb. On my previous machine, Altiverb was definitely usable, but put a serious hit on performance. Not so with the G5. Using Digital Performer, Nuendo, Logic, and Pro Tools, a single stereo Altiverb barely tweaked the CPU at all — and that was at the “no latency” setting! I instantiated 20 no-latency stereo Altiverbs in one session, and was still using less than 50% of the available CPU power.

The G5 also ups the ante with faster FireWire 800 and Serial ATA drives. Multiple buses mean that data will flow more efficiently, which results in higher track counts.

Insider Tip: In the G5 Energy Saver control panel, there’s an option for setting the processor speed. It defaults to “automatic,” which basically means the minimum CPU speed setting. Change this setting to “Highest”; you’ll see as much as a 40% speed increase.

BOTTOM LINE

If you’re after the most Mac you can get, look no further than the G5. The dual 2 GHz machine I tested ran circles around every Mac I’ve ever used. For native application users, or for Pro Tools TDM users running lots of RTAS/HTDM plugs, this is the machine. If your studio life revolves around software synths, look no further. At this point, for Mac users, it doesn’t get any better than this. **EQ**

Strengths:

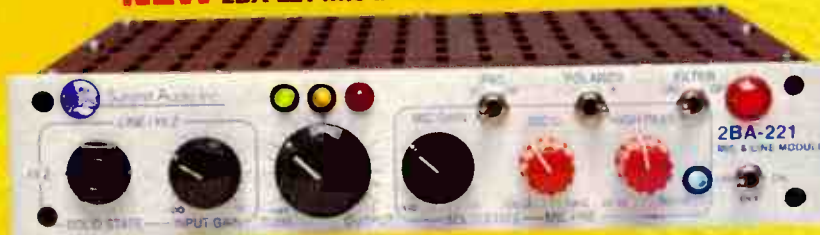
- The fastest Mac going
- Big horsepower increase over previous generation
- Built-in optical S/PDIF I/O
- Much quieter than previous models
- Easy expandability
- Easy networking
- Serial ATA and FireWire 800
- Separate buses provide better data throughput (more tracks)

Limitations:

- No power switch on keyboard
- PCI card installation is a tight squeeze
- A loaded machine is expensive
- Big and heavy

a little Summit for Everyone

NEW 2BA-221 Mic and Line Module



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.

3 YEAR WARRANTY



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Soft Knee Compressor



TD-100
Instrument Pre-Amp

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Whether you're working on your first demo or your fifth gold record, Omega has the performance to produce your masterpiece.

Maybe you don't have the coin to record in the city of Westminster on Abbey Road, but that's no reason your music shouldn't sound like it.

Visit your local Lexicon dealer today and see what Omega can do for your studio.



Omega 8x4x2 USB I/O mixer

Differentiating itself from standard computer I/O boxes which are typically based on a patch-bay paradigm, the Omega 8x4x2 USB I/O mixer is based on a mixer paradigm and includes input, output and mixing functions that support a variety of tracking/monitoring applications while requiring no additional mixing hardware. The I/O mixer is packed with professional features such as ultra-transparent, high resolution A/D converters, extremely low-noise mic preamps with 48-volt phantom power and active balanced line level inputs. MIDI and S/PDIF ports allow connection to a variety of digital equipment.

Pro Tracks™ Plus Recording Suite

Pro Tracks Plus is an easy-to-use, comprehensive 32-track recording suite that includes all the modules you'll need to track, edit, process, sequence and mix your masterpiece. Not only does it include intuitive non-linear editing, plug-in support, and acidized looping features, it contains a full featured MIDI sequencer with outstanding event editing and powerful automation features as well as soft synth support.

Pantheon™ Reverb Plug-in

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H A Harman International Company

World Radio History

by Mitch Gallagher

Korg D32XD

The extended definition of studio-in-a-box

Type: 32-track high-resolution recording studio

Price: \$3,750; 8-channel input card, \$350; ADAT I/O, \$175; 8-channel compressor card, \$400

Contact: Korg, www.korg.com

Recorder tracks: 32 (8 virtual tracks per track), stereo master track (with 8 stereo virtual tracks)

Mixer channels: 56 (32 recorder channels, 24 sub-mix inputs)

Sample rate: 44.1, 48, or 96 kHz

Resolution: 16- or 24-bit

Frequency response: 10 Hz–44 kHz ± 1 dB (@ 96 kHz)

Signal-to-noise ratio: 103 dB

Hardware inputs: eight XLR, eight balanced 1/4", S/PDIF optical, guitar input

Outputs: stereo master, stereo monitor, four aux, two headphone (all 1/4"), S/PDIF optical

Other I/O: MIDI in/out, expression pedal, footswitch, USB

Effects processors: 24 insert effects, two master effects, one final effect

Analog processing: eight compressors on inputs 1-8

EQ: 4-band per channel/track, 2-band per sub-mix channel, 8-band master

Storage: internal 80 GB hard drive, CD-R/-RW

Faders: seventeen 100-mm motorized

Number of songs: 100 per drive partition

Metronome/rhythm patterns: 245

Locate points: six per song

Markers: 100 nameable per song

The studio-in-a-box category of studio tools has really evolved over the past few years. It's truly gotten to the point where you can buy one of these boxes, match it up with a set of powered monitors and a mic or two, and turn out finished CDs.

The Korg D32XD (Xtended Definition) Digital Recording System is one such tool. It comprises a 32-track digital recorder with high-resolution audio support, editor, mixer, DSP processor, and CD burner all in one compact package. Rather than list every feature and spec, point your browser to www.korg.com/d32xd. In this review, we'll focus on what the D32XD provides, and how well it does what it's supposed to do.

GETTING AROUND

The D32XD has a 56-channel mixer controlled by seventeen 100-mm motorized touch-sensitive faders. Thirty-two of those channels are used for the recorder tracks. The remaining 24 channels (sub-mix channels) can

be used as external effects returns or for inputting things like sequenced keyboards. There are four fader and four mute groups available. As the unit ships, it has 10 hardware inputs (eight analog and stereo S/PDIF), but you can add an 8-channel analog input expander as well as an 8-channel ADAT lightpipe I/O expander for a total of 26 available inputs.

After several years of using touchscreens in various synths and other products, Korg seems to have the technology figured out. The flip-up D32XD screen responds well and reliably. It's fast and easy to read. A few of the buttons and knobs may be a bit small for the fat-fingered, but overall the touchscreen is very nice.

Admirable ease-of-use is found throughout the D32XD. The front panel is clearly labeled and easy to get around. Given how much it does, the unit is remarkably transparent and quick to learn.

In fact, I was quite surprised just how few hardware buttons there were on the front panel. Don't take this as a negative. Rather, take it as a sign of how efficiently Korg has designed the user interface.

The four soft knobs under the touchscreen are automatically assigned to parameter control where appropriate. Having dedicated EQ, aux send, and pan knobs to the right of the touchscreen is a Godsend. Whenever you touch one of these knobs, the touchscreen immediately jumps to the appropriate screen so that you can see what you're working on. Nice.

The only major problem I had with the D32XD is the way monitoring is set up. There are two balanced 1/4" monitor jacks on the back panel, controlled by a dedicated knob on the top panel — just as you'd expect. Beneath the faders, are two 1/4" headphone jacks, each with its own volume knob. So



GOT A PAIR OF MONITORS OR HEADPHONES AND A MIC? IF SO, WITH THE D32XD YOU HAVE A

COMPLETE STUDIO. THE TOUCHSCREEN MAKES FOR A QUICK AND CONVENIENT CONTROL SURFACE, AND THE DEDICATED EQ, AUX SEND, AND SOFT KNOBS AROUND IT MAKE ADJUSTMENTS FAST AND EASY.

Meet Little Brother

The D16XD features nearly the same capabilities as the larger D32XD. Here's a breakdown of the primary differences.

	D32XD	D16XD
Recorder tracks	32 + stereo master track (272 total)	16 + stereo master track (144 total)
Mixer channels	56 total	40 total
Buses	two effects sends, four aux, stereo solo, stereo cue, stereo monitor, stereo master	two effects sends, two aux, stereo solo, stereo cue, stereo monitor, stereo master
Insert effects	24 (maximum)	eight (maximum)
Faders	seventeen 100-mm motorized	seventeen 60-mm
Pan controls	one central knob	dedicated knob per channel
Automation	100 scenes, dynamic automation	100 scenes
Hard drive	80 GB	40 GB
Weight	40 lbs	26.5 lbs
Price	\$3,750	\$2,599

far, so good. The problem is the headphone feeds happen after the monitor volume knob. So when you turn down the monitor volume, the headphones also turn down. To complicate matters, there's no monitor mute switch. So there's no way to turn down the monitors without also turning down the headphones — a problem if you're using live mics in the control room. One solution is to turn off your monitors when you're using headphones, but this isn't very elegant.

Another complaint is that there's no way to set the D32XD to "auto-rewind" when you hit stop. You have to manually rewind or hit a locate button to go back to the top of your song. There are many cases where I'd prefer that the machine automatically jump to the beginning of the song or to a particular location as soon as I hit the stop button. One workaround is to use loop playback mode, but hopefully in a software update. . . .

TRACKING

Getting started with the D32XD is simple. Plug in your source, whether mic, line, or guitar. Make sure that the input you're using is assigned to the right track (the unit defaults to input one feeding channel one, etc.). Hit the channel's Rec/Play switch to enable recording, and you'll hear the source through your monitors or phones. Press the Record and Play buttons, and make music. Simple.

You can, of course, take matters further than that. For example, the first eight inputs come standard with built-in pre-A/D conversion analog compression. (An option board provides an additional eight channels of compression if you also have the analog

input option board installed.) The compressor sounds good, and you're given control over all parameters — you can even save the analog compressor settings to a library.

The D32XD includes metronome capabilities that far exceed a simple click track. You can program a tempo map for your song, and assign one of 245 internal drum/percussion/rhythm patterns to play as the metronome. The available patterns include a wide range of styles, from 14 types of simple clicks to clicks using clave, agogo, shaker, tambourine, etc., to drumsets playing rock, shuffle, funk, jazz, Motown, surf, twist, reggae, hip-hop, rap, house, techno patterns — even old standbys such as bossa nova, mambo, and salsa. Whatever style you're working on, there's probably a rhythm pattern that will fit.

But it doesn't stop there. When you create a tempo map, you can specify which rhythm pattern to play at any given measure. Some of the patterns include fill variations and intros, so you can semi-customize the rhythm to work with the arrangement of your song. Not quite as flexible as a true drum machine, but a *major*

improvement over a standard click and very easy to use.

Each "real" track in the D32XD has eight virtual tracks that can be used for alternate takes, alternate arrangement ideas, creating comps, or whatever. In addition, the stereo master track for each song has eight stereo virtual tracks allowing for alternate mixes of a song (see below for more on stereo master tracks). This brings the track count total in the D32XD to an impressive 272.

There are 16 levels of undo in the D32XD. Undo covers everything from edit to record to mixdown operations. The undo operations have to follow the timeline, though — you can't go back and change something two or three steps ago without also undoing everything in-between.

EDITING

Once you have your tracks recorded, you can go in and edit them to clean them up, make comps, etc. You can cut/copy/paste, delete sections, insert space, reverse, optimize (basically defragment the audio data on the hard drive), expand/compress, perform fades, and normalize, among other things.

Waveform display is provided; you can use the scrub

wheel to move through the track. With practice you can get in and do some pretty microscopic edits, although if you have much of this work to do, a computer is probably the tool for the job (see below). But for track clean-up and for comping performances, the D32XD's editing is fast and easy.

EFFECTS

A variety of digital channel insert effects are included; up to 24 channels can have insert effects active simultaneously (the number depends on sample rate and the complexity of the effects). These are divided into mono and stereo versions, and into five different categories: dynamics/filters, reverbs/delays, modulation/pitch, SFX, and Multi. In each category, you're given a selection of factory presets, as well as space for storing your own effect creations. This allows you to build up a handy library of presets that's neatly organized by effect type.

The SFX category includes an analog record (LP) simulator, a ring modulator, and, probably most interesting, mic and mic preamp simulation. There are nine mic models, ranging from solid-state to tube, as

Korg D32XD

well as control over preamp parameters such as gain, tube saturation, tube bias, and high and low filtering. The results are quite impressive, even on direct guitars — this processor can take a dry guitar, and give it life. I used it for some twangy Telecaster tracks; with the addition of a touch of reverb, and in a mix, it was hard to distinguish from a clean amp track. You can also change the character of any miked track after the fact.

If you're an electric guitar player, the D32XD has more treats in store for you: In the Multi category are modeled amps and effects. Call up a preset, and you're presented with a wah, compressor, mod effect, amp/speaker simulator, and delay. You're given a choice of amps ranging from Vox to tweed to blackface to modern monsters capable of sending even the aforementioned Tele into fits of over-the-top gained-out screaming.

Cabinets provided range from 1x12s to several types of 4x12s. The wah, compressor, delay, and mod effects can be independently turned on and off, and full

parameter editing is provided for everything. Sweet — and useful for more than just guitar processing. Will it replace miking up a real amp? For many applications, yes. Unless you're an amplifier purist, you'll find these models useful. And even if the amps don't do it for you, the modeled effect chain is useful in its own right. You can choose to record with insert effects, or add them later during mixdown.

In addition to the insert effects, there are two "master" effects, which live in send/return buses. These are stereo, and include four categories: dynamics/filters, reverb/delay, modulation/pitch, and SFX. As with the insert effects, there are factory presets, and you can store user presets. The variety of effects is good, ranging from nice 'verbs to "talking modulators" to rotary speakers to LP-record simulators.

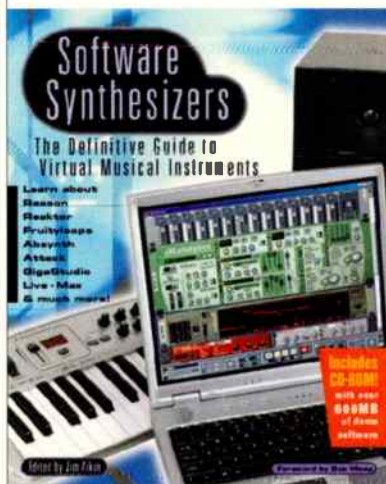
There's also a "final" insert effect available on the master output bus. These include the same types of effects as the master effects. The various compressors and limiters — I especially liked the "Tube

Compressor" — will probably find the most use here, although there are instances where an overall reverb or filter might be useful.

EQ is well represented on the D32XD. Each channel has 4-band parametric EQ (the high and low bands can switch to shelving) available during both recording and mixdown. Each sub-mix input has 2-band EQ with control over frequency and gain, and there's an 8-band fully parametric EQ on the master bus.

AUTOMATION

The D32XD offers three kinds of automation: scene, dynamic, and MIDI. With scene automation, you take a "snapshot" of all the mixer and effect settings at a given point in time. There might be a default scene that starts a song, a second scene when the verse starts, a third for the chorus, another for the guitar solo, and so on. You can store scenes either while the recorder is stopped or playing. When you play back, the scenes will be recalled automatically at



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World Radio History

Korg D32XD

the song time you stored them at — easy. You can also use MIDI messages to switch scenes.

MIDI controllers can be used to control mixer and effects parameters. In one example, I used the mod wheel on my Korg Wavestation (no, there's no need to use a Korg MIDI source for control; it's just what I happened to have plugged in at the time) to control the wah effect on a lead guitar track. You can use almost any MIDI controller message for this application: pitch bend, aftertouch, continuous controllers, pretty much anything.

Probably most important on the automation front is dynamic automation (Korg calls it Event Automation) or the ability of the D32XD to record and play back mixer moves as a song plays. You can automate fader and master fader moves, channel on/off, pan, aux send levels, effect send levels, and expression pedal moves. You can't record effect or EQ parameter changes, which is a drag. But you can automate those parameters using scene changes or MIDI controllers.

Recording automation moves is easy, simply arm the track's automation switch and choose what you're going to automate, then press Play and make the desired moves. A big plus is that you can edit automation event data. You can change automation type (fader, aux send 1, channel on/off, etc.), value, and the time the event occurred. You can also cut/copy/paste data.

FINAL OUTPUT

You've finished your masterpiece, and you're ready to send it out into the world . . . you'll be pleased to know that the D32XD incorporates an internal CD writer, which can be used to burn discs at your choice of 4-, 10-, or 16x speed.

Before you can burn a disc, you have to internally bounce each song down to a stereo file. Each song contains a stereo master track for this purpose, which basically taps the signal off the master outputs. Any effects, processing, edits, and automation moves in your song are included in the stereo master track. Once you've used the stereo master track to create a final stereo mix file, you can load the song into the CD burner as an audio track. If your original tracks were recorded at higher than 44/16 resolution, you can choose whether or not to use dither.

You can burn CDs in either of two modes: track-at-once, where songs can be

written to disc individually, or disc-at-once, which Korg calls an "Album CD Project." In the latter case, you go through and arrange the tracks in the order you want, and specify the time between tracks. Once you have everything arranged as you like, you burn the whole thing in one shot. With track-at-once, you can go back and add more songs later. With Album CD Projects, the disc is closed once you've written your project to CD. I had no problem playing D32XD-burned audio discs in any of my CD/DVD players.

You can also create what Korg calls a "Live CD," where you write one continuous performance to CD (without breaks between tracks). You can then add index points through the course of the continuous track. This is obviously useful for live concerts where you don't want breaks between songs, but could also be cool for larger, classical-style works, and for spoken-word or books-on-tape applications.

When you're finished with your tunes, the CD writer can provide data backup. You can choose to back up one song, all of the data on a drive, or user data.

You can import and export data as WAV files, and load imported WAV files into D32XD tracks. Exported WAV files can be stored to CD or to the D32XD's "PC drive," (see below) where they can be accessed by a computer. As a bonus, the CD writer can play audio CDs.

THE COMPUTER CONNECTION

The D32XD does computer interfacing in several ways. First, there's the old standby: MIDI. A computer running a sequencer can automate many of the D32XD's parameters via MIDI, as well as slave to or provide MIDI sync.

You can also export WAV files to CD-ROM using the D32XD's internal CD writer; the discs are written in ISO-9660 (PC) format, but can be read by Macs. I had no problems loading D32XD-created WAV files into applications such as Nuendo and vice-versa.

There's a 2-GB partition on the D32XD's internal hard drive that's designated as the "PC Drive." This can be accessed via USB by a Mac (OS 9.0.4 or later/OS X) or a PC (Windows ME, 2000, or later). I had no problems interfacing the D32XD with my computers. When you connect the USB cable for the first time, the D32XD automatically uploads a driver. After that, when you put the D32XD into USB Slave

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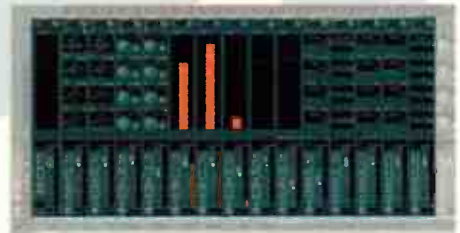
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- Automation that moves with the audio data
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Korg D32XD

Mode, the PC Drive partition shows up on the computer desktop and can be accessed like any other hard drive. This allows you to back-up data onto your computer, shuffle files back and forth for editing or processing, or whatever.

WRAP-UP

If your needs call for a complete studio in one box — less speakers and sound sources — you'd do well to give the D32XD a close look. It truly lives up to its "Digital Recording Studio" moniker, providing everything you need to take a project from tracking to CD burning.

It's not quite perfect; I was disappointed with how the monitor controls worked, and wished for a few minor features such as auto-rewind and effects parameter event automation. And in delicate recording situations, it might make a bit too much noise — I had trouble tracking myself playing finger-picked steel-string and classical guitar, for example. (You could set up farther away and use trigger mode to start recording or punch in with a pedal.) But for the majority of applications, it hits the nail square on the head, providing all the power and capability you'll need to make finished CDs.

If you add up what you'd spend on the individual components that make up the D32XD, it's an amazing value. Yes, you might be able to get into a computer-based system for around the same price. But computers aren't right for every application, and there's some beauty to having everything in one place, all "hardwired" to work as a single component.

There's a number of studio-in-a-box solutions out there, but with its feature list, excellent high-res audio quality, and exemplary ease-of-use, the D32XD is a prime contender for top choice. **EQ**

Strengths:

- All-in-one studio solution
- Built-in CD burner, effects, and rhythm machine
- Event automation
- Easy to use
- High-resolution support
- Expandable
- Interfaces with computer
- Excellent guitar effects

Limitations:

- No stock ADAT I/O
- No monitor mute switch
- Fan noise

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Steinberg Cubase SX 2.0

SX continues to mature

Type: MIDI sequencing/hard disk recording software

Platform: Mac, Windows

Price: \$799 (upgrade from 1.x, \$149; Cubase SL \$399; upgrade to SX2 from SL \$399)

Contact: www.steinberg.net

Minimum system requirements:

(PC) 800 MHz Pentium III or Athlon, 384 MB RAM, Windows 2K/XP.

(Mac) PowerMac G4 867 MHz, 384 MB RAM, OS X 10.2.5.

Copy protection: Synchronsoft USB dongle

Version reviewed: 2.01.10

Internal resolution: 32-bit floating point

Supported sample rates:

32/44.1/48/96 kHz

Driver support: CoreAudio (Mac), MME/ASIO (Windows)

ReWire mode: Host

Plug-in support: VST, VSTi, DirectX, MIDI plug-ins

Audio import formats: WAV, AIFF, AIFC, REX, REX2, SD2, WAV 64, MP3, MP2, MPEG, Ogg Vorbis, Windows Media Audio

Video import formats: AVI, Windows Media Video, Windows Media Video Pro, QuickTime, MPEG

Audio export formats: WAV, WAV 64 (long files), AIFF, MP3, Ogg Vorbis, RealAudio G2, Windows Media Audio, Windows Media Audio Pro, Broadcast WAV; all standard sample rates from 8 kHz to 96 kHz, if supported by format

OMF: Import and export

MIDI: Import and export

Sync: Receives MTC, ADAT sync, word clock; sends MIDI clock, MTC

NOTE THE MULTIPLE CONTROLLER LANES ON THE MIDI PIANO ROLL VIEW (UPPER LEFT), THE DIRECTSHOW VIDEO WINDOW TOWARD THE UPPER RIGHT, AND THE EXPANDED TRANSPORT ALONG THE BOTTOM. THE SPACE ABOVE THE MIXER FADERS LETS YOU SHOW INSERTS IN THREE DIFFERENT WAYS, EQ IN THREE DIFFERENT WAYS, METERING, OR JUST A BLANK PANEL, WITH NARROW OR WIDE CHANNEL STRIPS.

Cubase VST breathed its last breath at the 2002 Frankfurt show, and was replaced by Cubase SX — sleeker, more stable, and more straightforward. Although a few grumbled that some favorite MIDI features in VST hadn't made it into SX, and Mac fans weren't happy that the Windows version appeared first, SX nonetheless revitalized Steinberg's flagship sequencer. Presciently, Steinberg dropped all Windows support except for 2000 and XP, while also waving goodbye to pre-OS X Mac.

Now SX2 is here, and one has to wonder whether the changes are so dramatic as to merit a change from 1.06 to 2.0, with no intervening 1.1, 1.2, etc. For a variety of reasons it's indeed justified, but perhaps the most far-reaching changes are "under the hood," resulting in several differences at the surface level.

INSTALLATION

The package includes installation CDs for both Mac and Windows, driving home the point that aside from Pro Tools, this is the last of the cross-platform MIDI/hard disk audio sequencers. As a cross-platform kinda guy, I appreciate this.

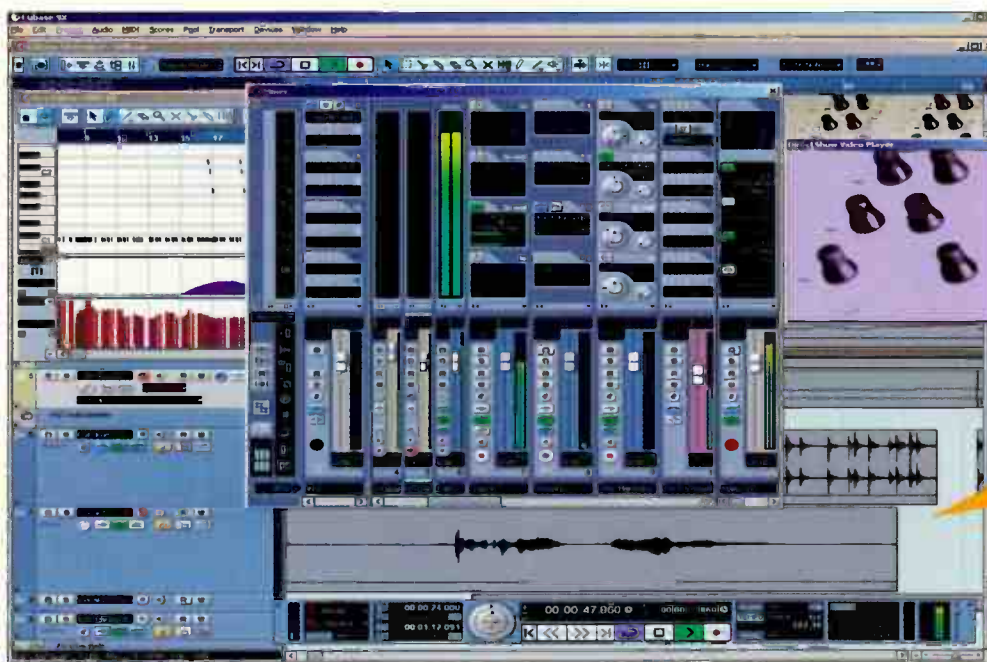
My introduction to SX2 was inauspicious. SX2 uses a Synchronsoft copy protection dongle, and as I already had SX installed, I tried to update it. But there wasn't a required authorization code. So I did a new installation, and followed the instructions — install program, restart computer, insert dongle, install dongle, launch SX2. However, I forgot to remove the SX dongle, and I assume because of that, a chain of problems ensued that involved trashing the Creamware Scope settings (luckily, it creates an automatic backup), made Yellow

Tools Culture insist it was a demo that needed to be re-authorized, hung while installing Windows Media services, and generally caused computer mischief.

I did a system restore, restored Scope's settings, ran the Copy Protection Drive Installer, installed DirectX 9.0a manually from the distribution CD, and after a bit of USB fussing, SX2 started loading. When it hit Culture, I gave it the previous response even though the challenge was different (it worked!), and finally, SX2 was up and running. Don't you just *love* computers?

WHOA! IT LOOKS DIFFERENT!

After the major interface change with SX, I wasn't expecting a new look. But SX2 is very Nuendo-like, with more shading and "rounding" on buttons and knobs. The new



metering has a more “fluorescent” look, the color themes are more customizable, and so is the mixer — there’s a new EQ view (curve) in addition to knobs and linear sliders, different ways to view sends, and you can replace the space for EQ, sends, inserts, etc. with a view of Mondo Big meters. I don’t know how useful they are, but they impress the daylights out of clients. And the mixer implements something sorely lacking in most other programs: different pan options. You can do the normal left/right balance, but a unique Dual Panner mode lets you pan the left and right channels independently.

The one downside of this somewhat busier-looking mixer is clutter. For example, if you’re showing effects sends in a channel, you can show a “shrunk” view of sends 1–8, or somewhat more detailed views of sends 1–4 or 5–8. If you’re only using one send, though, you still see the “shells” for the other sends. Then again, if you start getting “interface overload,” there are some easy solutions: Shrink the mixer so you don’t see the expanded view, or select a blank panel for the area

that normally shows EQ/sends/inserts (or set it to show the beautiful meters).

The transport now has a great jog/shuttle wheel, and allows show/hide of various elements. You can create presets of these combinations, just as you can create mixer presets, that are optimized for different tasks (recording, editing, mixing, and the like).

ENGINE

But those are cosmetic differences, and while welcome — mark me down as liking the new look — it’s what’s under the hood that makes this update fly.

With SX2, Cubase now runs on the same audio engine as Nuendo, which supports hyperthreading (Intel’s performance enhancement protocol for P4 and Xeon processors). The system-wide audio path is now six lanes wide, not two, to accommodate surround. Whether you deal with audio tracks, FX tracks, or buses, you always have the option to specify whether they’re mono, stereo, standard 5.1 surround, or a variant on surround.

For Steinberg, combining the code bases means far more efficient development;

for users, the result is more stable code. But it also means more confusion — what’s the distinction between Nuendo and Cubase? Musicians won’t see much difference between the two, because both have excellent MIDI, audio, plug-in support, and so on. But post-production people will see the extra features in Nuendo, such as more advanced surround and crossfade support. Bottom line: If you’re doing music, get SX2. If you eventually get more into video, there’s an upgrade path to Nuendo.

NEW BUSING

The bus structure, along with I/O, is also quite different. First, the VST ins and outs no longer have a separate window, having been integrated into the Device Setup menu. Buses are created in the Devices menu, under VST Connections. When you add a bus, you specify a configuration (mono, stereo, LCRS, 5.0, 5.1, or one of nine other variations), and ASIO Device Port (*i.e.*, your hardware outs). You can rename buses, and although the manual recommends creating templates for typical bus structures (surround, stereo, feeding external analog effects, etc.), you can add or remove buses at any time.

However, the structure is not as flexible as say, Sonar’s, in that buses are not objects. In general, you can’t create a bus that feeds another bus; buses are designed for interfacing with the outside world, not for interfacing within SX2, and therefore have no send controls. The one exception is that you can create “child buses” for surround situations; typically, you would do this so you could send a stereo signal to a specific pair of surround channels, like left and right.

On the plus side, the sends for individual channels aren’t limited to FX Tracks, as they can also feed any of the connected outputs.

PDC IS HERE

Finally, SX2 has full Path Delay Compensation for the delays caused by plug-ins inserted in the audio path.

This goes hand-in-hand with a new type of track, the FX channel track. This is essentially an effects return, but unlike SX — where you were literally sending to a (as in one!) send effect — here you can insert up to eight send effects, in any order. An FX Track is inserted as you would a MIDI, audio, folder, or group track.

The FX channel track also has an automation subtrack for automating the effects parameters. Better yet, as with the standard buses you can choose the configuration, allowing the insertion of surround effects (surround pan, dither, and mix6to2 are included). A pop-up menu lets you select the destination bus.

CYCLE RECORDING

Just about all apps have it, but until SX2, the most elegant implementation I’d seen was in Ensoniq/E-mu’s late, great PARIS system. What makes SX2’s implementation special is that you have many ways to deal with cycle recording, including treating each pass as a separate “lane” within a single track. Formerly, you had to jump to a different window to do multi-lane editing; while not that great of a hardship, the new approach is definitely more streamlined.

Simply go into record mode with cycle recording enabled, and as you record, all the takes are stacked on one track. When you stop, the



SX2 EXCELS AT CYCLE (LOOP) RECORDING; EACH TAKE CAN END UP IN ITS OWN LANE, AND AS YOU EDIT, THE PORTIONS YOU WILL HEAR ARE HIGHLIGHTED IN GREEN. OTHER CYCLE RECORDING OPTIONS ARE AVAILABLE, TOO.

Steinberg Cubase SX 2.0

takes "unfold" into multiple lanes, but within the same track. From there, you can use the scissors tool to split takes, and slip edit the tracks to "reveal" the portions you want (the highest-numbered track has priority if audio is stacked over several lanes). Conveniently, SX2 highlights the sections you'll hear in green, so it's very clear which sections have priority. When you're done, drag a rectangle around the takes, and collapse to a single track. Cool.

There's also a new "keep last" mode—ideal for when you're doing cycle recording, and know when you've done "the" take. Just stop, and the last take remains, while the others are erased. This is a good option for conserving hard disk space.

WHAT'S MISSING?

Devotees of TrueTape are already mourning its absence. Frankly, I never liked it that much; Magneto and the Quadrafuzz are both included if you want some plug-in distortion on your tracks. However, if you used TrueTape on everything, then inserting

enough plugs to do the same thing is a CPU hog. Fortunately, SX2 lets you insert effects into the record input (as well as adjust gain and phase), so you can record with the desired amount of distortion. Like tape, though, once the effect is "printed," there's no going back.

Also M.I.A.: MixerMaps. I realize people didn't use them much anyway, but they were convenient for programming older synths from within Cubase. Well, I guess time marches on, it's a virtual world, and all that . . . there is a MIDI plug-in called Track Control, but it's set up for GS/XG control, and is a pretty anemic alternative to the MixerMaps.

Speaking of MIDI control, you can run Cakewalk MIDI effects with Cubase SX (Windows version only) using Cakewalk MFX wrapper version 1.08, available under PC Freeware on the Steinberg site.

VIDEO

Although it's not Nuendo, SX2 has some decent video capabilities. First off, video

playback (within a single video track for thumbnails, but also via a video player window) is far more stable and forgiving of different formats than previous versions. Mac fans can enjoy full-frame video out via FireWire, and PC fans can take advantage of Windows Media 9 support. But the best addition for video (in addition to multiple time line calibrations) is the Time Warp tool, which is very much like Ableton Live's "elastic audio" feature, as it allows you to adjust musical material to specific events or arbitrary tempos via time-stretching.

The classic example is editing audio to video: There's a hit point in the video, you want measure 9 to start at exactly that point, but it hits a little early. Grab the Time Warp tool, drag measure 9 to the hit point, and the audio will be adjusted as needed to have measure 9 land right where you want it. This can also be used to adjust a tempo map to music that was recorded without a metronome click. For more, see the Live 3.0 review in the December '03 EQ.

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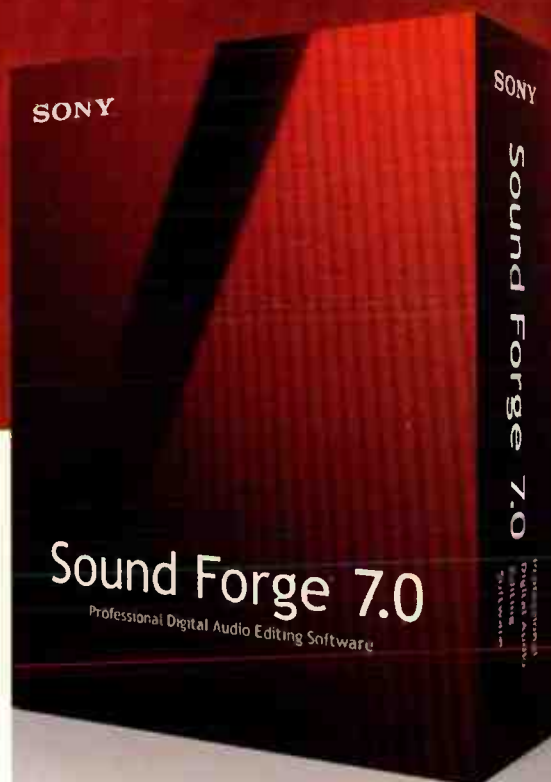
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Steinberg Cubase SX 2.0

FREEZE

Everybody's got to have Instrument Freeze these days, and so does SX2. It renders a soft synth as an audio file, mutes the MIDI track, stores the frozen file in a folder, and lets you carry on with far less CPU drain. Because the MIDI track isn't erased, you can "unfreeze" later and edit if needed. (Note that this isn't the same as the Freeze Edits function, which permanently applies audio effects to a track.)

One extra touch is that insert effects aren't frozen, just the instruments. So you can leave the instruments frozen during mixdown, yet still automate effects or edit them during the mixdown process.

AND LOTS MORE . . .

Steinberg claims over 100 changes in SX2, and while we've covered the biggies, there are many others worthy of note: Multiple controller lanes in the MIDI piano roll view, automation data that moves with audio events, OMF import/export, great scrubbing, Tempo

Record slider, the return of groove quantize, and a bunch more.

I thought SX was a major step forward for Steinberg, but SX2 feels even more mature and solid. And the interface, which I thought was excellent in SX, is just that much better. One suggestion: Don't waste your time with Cubase SL. While a fine product for its intended audience, it lacks a lot of the "pro" features that justify SX2's higher price tag.

If you use a different program, though, should you switch? With a few isolated exceptions, most programs have reached a rough degree of parity. Ultimately, switching would require a "must-have" feature for an individual user (e.g., Sonar doesn't do surround; SX2 doesn't read Acidized files). As more programs adopt OMF import/export and ReWire, I think it's more likely that people will become conversant in multiple programs and use them for what they do best, rather than expect a single program to do it all.

Individual needs aside, though, I firmly believe SX2 is the best Cubase yet. The

crash-prone days of Cubase VST are gone, as is the goofy "interface by committee" look. SX2 is thoroughly professional, stable, easy on the eyes, and retains a surprising ease of use. It's a no-brainer upgrade for 1.0 owners: \$149 is worth it for the cycle recording and Time Warp tool alone, and you get a lot more than that. EQ

Strengths:

- Vastly improved cycle recording
- Path delay compensation for plug-ins
- Lovely interface
- Thorough surround support
- Better send effects structure
- More flexible busing
- Greatly improved tempo change handling
- Highly customizable interface

Limitations:

- Hit point creation process still tedious
- Doesn't read acidized WAV files
- Buses still aren't freely assignable objects
- TrueTape and MixerMaps are gone

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by John Krogh

For sheer size and number of articulations, the VSL sampled orchestra is the undisputed champion. Equally impressive is its Performance Tool, a MIDI utility that processes input data to produce incredibly realistic sounding melodies, legato lines, and repetitions.

Vienna Symphonic Library

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Contact: www.vsl.co.at, www.ilio.com (U.S. dist. by Ilio)

Audio resolution: 16-bit/44.1 kHz
Version reviewed: GigaStudio

There are few entities more difficult or expensive to record than a full symphonic orchestra. As a result, several sample libraries have appeared over the years, designed for those with samplers and arranging skills to at least approximate the sound of a live orchestra.

The most ambitious of these projects to date is the *Vienna Symphonic Library* (VSL for short), which is an on-going and ever-expanding project conceived and spearheaded by Herb Tucmandl, a cellist who played with the Vienna Philharmonic before setting off into the world of film scoring and production. VSL came about simply because he wasn't satisfied with existing libraries for his own work. He started in 1995 not just to map out a library, but also to isolate the "building blocks" of transitions between notes (slurs, *legato* connections, etc.), which allows for far more authentic and natural-sounding phrases.

The end result is a collection of sounds that can be programmed and played to sound so realistic and believable, only finely tuned ears would be able to tell the difference between a live orchestra and a VSL mockup.

BACKGROUND

To say the production of VSL was a Herculean effort is not an exaggeration. The recording process began at the VSL "Silent Stage" outside Vienna. The company realized a project of this magnitude would take years to record, and the money spent renting a studio would likely exceed the cost of building one, so they decided to build their own space specifically for creating this library.

The studio is designed for sampling, with 90 dB of sound isolation from the outside world. And because much of the recording involved a single note from a single instrument, screen doors and "airlocks" were essential — if even a single fly was too near the mics,

the noise would ruin a session.

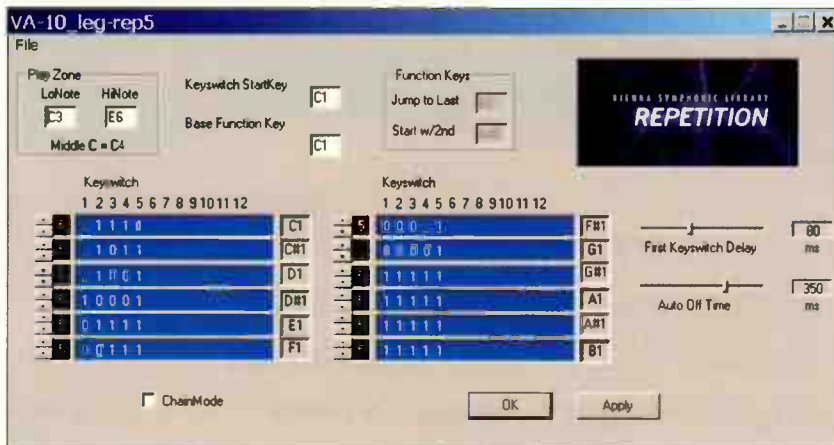
In the early design stages, it was decided that the space should have a "perfect ambient balance" — in other words, enough reverberation so the players didn't feel their sound was sucked into a void, but there couldn't be an excessive amount of room tone. As a result, the Silent Stage has exactly 0.7 seconds of 'verb. This was important, as it allowed the programmers to edit the samples in such a way that they would sound natural when being manipulated via VSL's Performance Tool (more on this below).

With some instruments, it took up to one year to record; sonic consistency from session to session was crucial. Marks were written on the floor to document the placement of chairs, baffles, mic stands, and even where players stand. Height and angles of the microphones used were measured as well.

This attention to detail is key to the library's evolution — as

FIG. 1. THE REPETITION TOOL. REPEATED SINGLE NOTE PHRASES WERE RECORDED, THEN SPLIT INTO SMALLER PHRASES, WHERE THE FIRST NOTE WAS REMOVED, THEN THE FIRST TWO NOTES, AND SO ON, UP TO THE LAST NOTE. EACH OF THE TRIMMED SAMPLES IS MAPPED TO A KEY SWITCH, AND WHEN YOU PLAY A RHYTHM, THE NEXT TRIMMED SAMPLE IS TRIGGERED, RESULTING IN REPETITIONS THAT SOUND NATURAL, NOT LIKE A MACHINE GUN FIRING.

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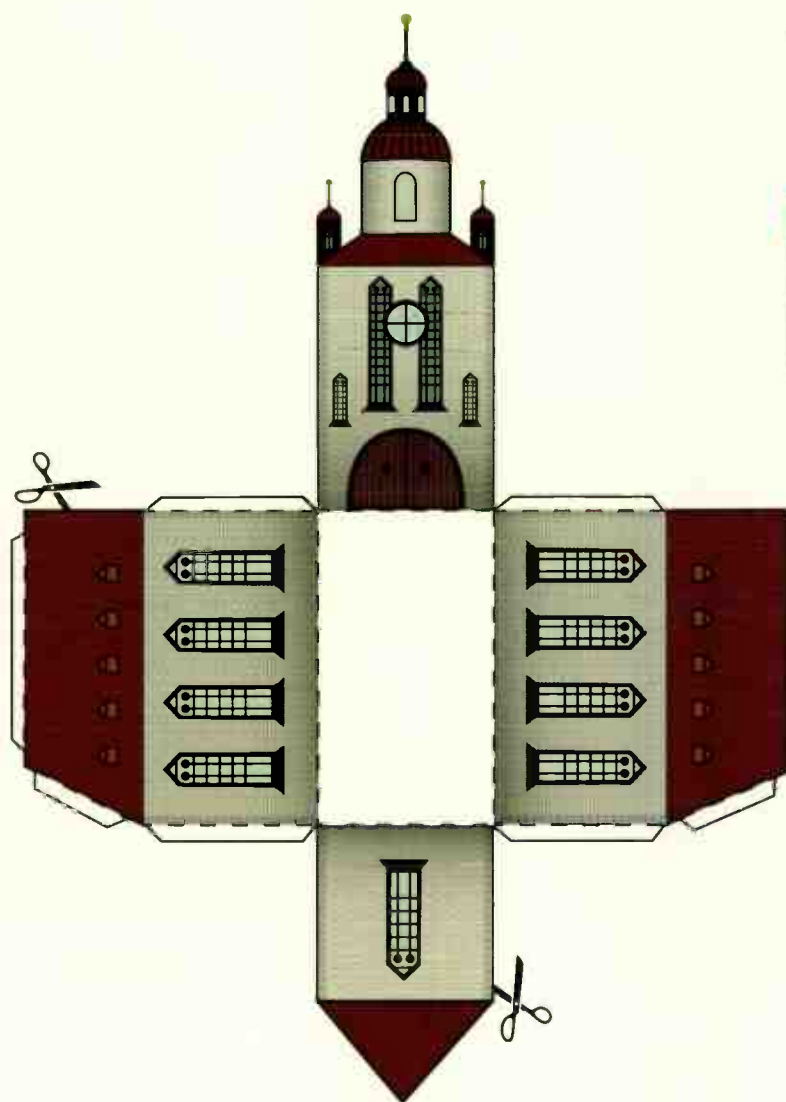
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Vienna Symphonic Library

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For EXS users, a third-party utility is available to help speed up the process of "resolving" the astounding number of samples in this collection. Logic users know that this process is extremely time consuming when done with Project Manager, but once completed, it lets you load samples into EXS24 in a fraction of the time it would otherwise require.

Produced by Redmatica (www.redmatica.com), the EXSManager (roughly \$47) is available for both editions of VSL, and can be used under Mac OS X (OS 9 users can use "resolved" programs from OS X). A Windows version has been widely used prior to the purchase of Emagic by Apple Computer. Since the basic installation of VSL can take up to a couple of days all by itself, the idea of saving some time later in the process is mighty appealing.

more instruments and articulations are added, engineers can quickly duplicate mic positions to maintain consistency with material from earlier sessions.

OVERVIEW

VSL is divided into two sets: The *Orchestral Cube* comprises solo and ensemble brass, woodwinds, strings, and percussion patches covering a wide range of dynamics and articulations. The *Performance Set* is a collection of phrases and specialized instrument patches intended for use with the *Performance Tool*. This MIDI utility handles the complex keyswitching necessary to make sequenced lines and repeated phrases come alive.

With the Giga version, it works between your host sequencer and GigaStudio, and in the Emagic EXS24 version, it appears within the EXS24 edit mode when an appropriate patch has been selected. In both cases, the *Performance Tool* processes normal MIDI note input data into key switch performances that trigger special "performance" patches (i.e., articulations).

Originally, the company planned to release a First Edition of VSL, to be later replaced by the Pro Edition. After many user requests, however, the First Edition lives on, so users have the choice of either version (an upgrade path is available). The difference between the two boils down to the Pro Edition having more solo instruments and articulations.

In total, VSL requires just over 260 GB of hard drive space for the Pro Edition, whereas the First Edition takes up a mere 96 GB. Obviously storage space is an issue with a library of this magnitude. (Note: VSL is currently available only in

16-bit, but a 24-bit version should be released sometime in 2004. This version will require even more space, as the samples will be larger than the current set.)

■ Instruments and articulations.

Strings are grouped into short and long note, trills/*tremolos*, *pizzicato/col legno*, with mutes, and dynamic categories. Each of these has a variety of patches, some with release triggers/samples, some with mod wheel controlling certain aspects such as switching among dynamic levels or articulations, etc. In addition, you'll find a Basics category containing "utility" patches from each subcategory designed for load-and-go situations. Basic patches typically have fewer velocity switched layers, so they require less memory. These "light" choices are handy for sketching out ideas. Then, when it comes time to finalizing your orchestrations, you can drill deeper into the other categories.

Brass is broken out in a similar fashion, offering *crescendo/decrescendo*, *glissandi*, flutter-tongue articulations, and more. All the solo and ensemble choices you'd expect to find are here, as are several less common horns such as contrabass trombone, *cimbasso*, and Wagner tuba. The solo trumpet and French horn variations are stand-outs — these are the best I've ever played from a sampler, bar none.

Woodwinds are in heavy supply; however, most instruments are only presented solo. Understandable, given that a single English horn or oboe is often used as a solo color and that creating a woodwind choir sound is often better achieved by layering solo instruments.

The Percussion section is full of all kinds of noisemakers, not just timps, bass drums, snares, and cymbals. I was pleased

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Ross says



"I've used my Royer's on every recording I've done since 1998. These mics have made a huge difference to me in my quest for real sounding records. From blues to heavy metal, I keep finding new and effective ways to use the mics and by far they have become my main electric guitar mic. I just finished producing and engineering Ziggy Marley's new record and single and the Royers are everywhere. I used them on the drums, organ, percussion, the four piece horn section and of course the guitars. I brought in my old friend David Lindley to play his arsenal of stringed instruments and he was very impressed with the size and detail translated from the mics. 'Irie!' I don't look back now, only forward and the bottom line is, I won't ever make a record again without these mics."

Ross Hogarth (Grammy winning Producer/Engineer - Ziggy Marley, Gov't Mule, Keb Mo, Coal Chamber, Jewel, Roger Waters, Black Crowes)



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to find gems such as the waterphone, with its eerie moan, brakes and springs (perfect for industrial effects), and a respectable number of Latin favorites.

■ **Performance Tool.** VSL's Performance Set offers the same instruments as the Cube, but most of the performance patches are programmed to work specifically with the Performance Tool, which is a combination of three different utilities: the Alternation, Legato, and Repetition tools (see Figure 1). These go hand in hand with legato, repetition, and alternation patches, all of which take advantage of keyswitching — enabling different sets of multisamples such as *pizzicato*, *legato*, *tremolo*, etc., by playing notes from a MIDI keyboard. More than simply switching between *piano* and *forte* samples, though, the Performance Tool can be used to smoothly connect intervals between two notes, trigger individual regions within a repeated phrase sample for more musical repetitions, and more. The key switching is done behind the scenes, so all you have to do is play. It's quite remarkable — no other library can touch this kind of flexibility.

IMPRESSIONS

The VSL samples are strikingly present and clear, despite the fact that they're only 16-bit. Because the Silent Stage has less than a second of reverb, these samples are unusually dry. Having one or more quality reverbs on hand is essential to creating a good orchestral sound with these instruments.

Some of the highlights include the woodwinds, which tend to have a reedy, organic quality that blends well with the string section. This "human" characteristic gives MIDI sequenced lines an extra level of realism — at times during the review I couldn't believe I was listening to MIDI tracks. Even in exposed passages, the samples sounded like a live performance by a top-notch instrumentalist.

Solo and ensemble brass patches never failed to blow me away, either, no pun intended. I was consistently impressed by the rich and expressive tones of the trombones and trumpets, in particular.

The strings, however, left me a little flat. Maybe the reverbs I used weren't up to the task, or maybe I'm just used to "syrupy" strings. Whatever the case, I couldn't get the kind of warm and wide "Hollywood" sound I was looking for. That said, I was able to program fingered

tremolos and *glissandos* that were spot on — there's no way I could have pulled it off with another library.

As for the Performance Tool, I had no problems setting it up. It proved to be a time suck, though, because there are so many options. It's conceivable that users might spend more time with the various aspect of the Performance Tool than actually composing music. This isn't a complaint, just something to be aware of, especially when you're coming up on a tight deadline.

CONCLUSIONS

VSL is a ground-breaking library that ups the ante for sampled orchestras in several key areas. For starters, there's an exhaustive compilation of articulations. Likewise, the instrument choices are voluminous. Launching VSL into the stratosphere is its Performance Tool, which is nothing short of brilliant.

The fact that the samples are lacking ambience may be a problem for some, as it's a tricky thing to create believable space around samples using synthesized or convolved reverb. The VSL folks recognize this, which is why they're developing a convolution technology to help place VSL in whatever room or hall you choose.

For many users, the bigger issue will be whether production schedules allow for the extra tweaking and massaging that's required to coax the most human-sounding performances from VSL. For me, the flexibility and control afforded by the Performance Tool outweighs the hoops I have to jump through to make it yield the desired results. The bottom line is this: If you're willing to put in the time to learn the tools, you won't be disappointed with the results. **EQ**

Special thanks to Keyboard editor Ernie Rideout and EQ's Craig Anderton.

Strengths:

- Possible to sequence ultra-realistic lines and phrases via Performance Tool
- Dry samples afford the user the opportunity to place instruments in whatever space they choose
- Exceptionally dynamic solo and ensemble woodwinds and brass
- Massive number of articulations

Limitations:

- Sheer size and complexity can be daunting
- Samples are void of big concert hall or stage ambience
- Requires huge amounts of storage space

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by Craig Anderton

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IK Multimedia SampleTank 2

This sequel far exceeds the original

Type: Virtual sample-based instrument with extensive sound library

Platform: Mac, Windows

Price: \$499

Contact: www.ikmultimedia.com

System Requirements: Windows 98SE/ME/2000/XP, Mac OS 9, Mac OS X

Internal resolution: 32-bit floating point

Plug-in formats supported: Mac OS X RTAS/VST/AU, Mac OS 9 RTAS/VST/MAS, Windows RTAS/VST/DX

Sample formats supported: SampleTank, WAV, AIF, SDII, SampleCell, Akai S1000-3000, mono or stereo, 16–24 bit, 22–96 kHz sample rate

Multitimbrality: 16 parts (one per MIDI channel)

Polphony: Up to 256 voices

Included content: 8 CDs with over 1500 presets and 4.5 GB of instruments

Version reviewed: 2.0.1r

Few things can help streamline the recording process as much as having a vast array of easy to find sounds at your fingertips. Traditionally, this role has fallen to hardware keyboards like the Korg Triton, Yamaha Motif series, Roland JV Series, Kurzweil 2500, and the like. But IK Multimedia virtualized the concept with the original SampleTank, which also was one of the first programs to blur the line between a sound library and a virtual instrument.

SampleTank 2, a potent sound module, boasts a production-oriented 4.5 GB library, coupled with a friendly browser and search function. It far surpasses its predecessor; you can create your own presets from your own samples, as well as import Akai 1000–3000 presets.

INSTALLATION

The package has nine CDs — one for the program, and eight for the sounds. Installing all

of them is somewhat time-consuming, but that’s a small price to pay for what you end up with on your hard drive. You need to authorize the program using IK’s usual procedure: Load the plug-in, enter a serial number, get a challenge code, go to the web site, and obtain a response that authorizes the program for full functionality.

When installing, you have the option to uncheck particular families of instruments. For example, if you already have a collection of basses you like, you can choose to save about 140 MB of disk space by not installing the ones for SampleTank 2. Of course, I couldn’t resist installing everything.

I did notice a problem when running the DXi version under Sonar, as there were problems with hung and missing MIDI notes. IK says a fix is forthcoming; meanwhile, I had no problem running it as a VST instrument using Sonar 3’s VST-DX wrapper.

THE INTERFACE

One striking difference compared to the original is you’re no longer limited to a bright red color scheme . . . not a big deal, but I do find other colors more restful on the eyes. The browser is also vastly improved; you drill down the sound tree by clicking on a triangle that “unfolds” the folder and presents the sounds. If you’re in a hurry, there’s also a Search function that collects all patches that fit your criteria in the browser window.

Everything else is obvious: Turn a knob, change a parameter.

THE SOUNDS

The major sound categories are bass, drums, ethnic, guitar, organ, percussion, piano, strings, synths, vocals, woodwinds, and orchestra. These include all the instruments that came with the original SampleTank, so you can replace it with SampleTank 2 without skipping a beat — your tunes

EFFECTS ARE NOT AN AFTER-THOUGHT, NOR ARE THEY INCLUDED TO COVER UP SLOPPY SAMPLES, BUT ARE AN INTEGRAL PART OF THE SAMPLETANK 2 INSTRUMENT.

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- 2 Ambience
- 3 Reverb Delay
- 4 Spring Reverb
- 5 Delay
- 6 Filter
- 7 Envelope Filter
- 8 Multi Filter
- 9 Wah-Wah
- 10 Chorus
- 11 Multi-Chorus
- 12 Phaser
- 13 AM Modulation
- 14 FM Modulation
- 15 Flanger
- 16 Envelope Flanger
- 17 Auto Pan
- 18 Tremolo
- 19 Rotary Speaker
- 20 Lo-Fi
- 21 Distortion
- 22 Phonograph
- 23 Crusher
- 24 Overdrive
- 25 PreAmp
- 26 ToneControl
- 27 Cabinet
- 28 Parametric EQ
- 29 Channel Strip
- 30 Compressor
- 31 Limiter
- 32 Slicer



SAMPLETANK 2 HAS AN OBVIOUS, FRIENDLY INTERFACE. THE UPPER LEFT SHOWS A MIXER WHERE YOU CAN ASSIGN INSTRUMENTS TO THE 16 MIDI CHANNELS; THE BROWSER IS IN THE UPPER RIGHT. BELOW THESE ARE THE EDITABLE PARAMETERS, AND A VIRTUAL KEYBOARD.

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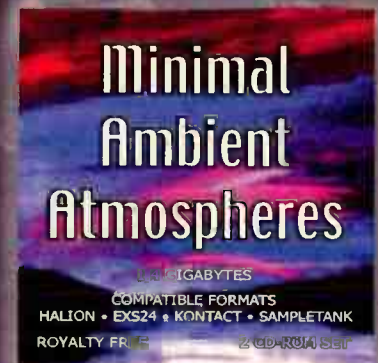
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SampleTank 2

sample. For example, the wah-wah guitar sounds are standard guitar samples through wah-wah or envelope filter effects. As a result, you can do a lot more to customize the sounds than if the wah effects were built in to the guitar.

GETTING LOOPED

In addition to instruments, there's also a folder of loop-oriented "construction kits" for loop-oriented musical genres (drum 'n' bass, house, techno, trance, ambient dub, and hip-hop). These are mapped across the keyboard, so you can create instant backing tracks just by holding down keys as needed. Furthermore, the loops can sync to tempo.

But there's also a collection of percussion loops, which are my favorites. The collection is heavy on ethnic percussion, including berimbau, djembe, oriental drums, surdo, talking drums, and the like, as well as more common percussion instruments like conga, bongos, cowbell, shakers, timbales, etc. There are fantastic for when you want to spice up a ho-hum rhythm track with some rump-shakin' grooves.

AND THE BOTTOM LINE IS . . .

Compared to instruments like HALion, GigaSampler, Kontakt, and the like, SampleTank 2 is a bit lean on sample mapping and editing features when you put together your own presets; for example, there's no velocity or positional crossfading, just hard switching, and no expansive overview of sample mapping. Nor can it stream long samples from hard disk.

But to fault it on that basis would be missing the point, as SampleTank 2 is intended to be an easy-to-use, flexible, cost-effective, high quality, and customizable sample library+workstation. It succeeds admirably at all of those goals — and then some. **EQ**

Strengths:

- Comprehensive sound library
- Highly editable
- MIDI control for most parameters
- Imports Akai, WAV, AIFF, SDII
- Friendly GUI
- Outstanding effects

Limitations:

- No positional/velocity crossfading, filter keyboard tracking, or LFO tempo sync
- No sample recording (import only)
- Can't stream from hard drive

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by Greg Rule

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Antares Filter

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Type: Four multimode stereo filters with companion delay units

Price: \$199

Platform: Mac and PC

Contact: Antares, www.antarestech.com

Filter specs: resonant lowpass, high-pass, bandpass, and notch; 2-, 4-, 6-, and 8-pole cutoff slopes (from 12–48 dB/oct); master frequency link; parallel and series routings (six choices); pan; gain; phase invert; frequency values can be displayed in musical note values or hertz

Delay specs: four stereo delay units; sync to internal or MIDI/host clock; feedback 0–100% (self-sustaining); delay time can be set in milliseconds (up to two seconds) or in beats or fractional beats synced to the master tempo

Other features: four function generators (each with 6-stage envelope and 10-shape LFO); two programmable rhythm generators, mod matrix; envelope follower, MIDI control, tap tempo; every time-based parameter (tempo, delay times, envelope rates, etc.) can be locked to internal master tempo or host app MIDI clock; can be instantiated in mono/mono, mono/stereo, and stereo/stereo versions (input meters change to reflect your choice; input channels aren't summed prior to being processed)

Supported plug-in formats: Mac: RTAS (OS 9 & X), MAS (OS 9 & X), VST (OS 9 & X), Audio Units support is promised; PC: RTAS, VST, DirectX

System requirements: Mac: PowerPC processor running OS 9 or 10.2 or later, suitable host app; PC: Win 98, ME, NT, 2000, or XP, suitable host app

From the company that rocked the music-production world with Auto-Tune comes a colorful new virtual tool — Filter. Its name is an understatement; Filter comprises four stereo filters, four stereo delays, two rhythm generators, four function generators, an envelope follower, and enough sync and mod choices to make your head spin. Antares tells us the goal with Filter was to create a tool that could stand up to any traditional

synth in the filter department, and with enough rhythmic sync power to entice the loop and groove-based community as well. As you'll read, they scored high marks on both fronts.

OVERVIEW

The first thing you'll notice about Filter is its user interface. What a beauty. Everything is right there in front of you — no sub menus to navigate. The controls are logically located and easy to find. Love that large, color-coded waveform

display in the middle of the screen, where all four filters' response curves (frequency and resonance) can be viewed and manipulated in real time. Move the mouse right and left to control frequency cutoff, up and down for Q. Clicking the numbered buttons on the left of the display brings the filter of choice to the foreground.

As to the Filter's inner workings, Antares isn't revealing which hardware device(s) served as the modeling basis for the filters themselves, but



FILTER IS LOADED WITH TEMPO-SYNC FEATURES. THE TWO RHYTHM GENERATORS, FOR EXAMPLE, LET YOU DRIVE THE ENVELOPES OR OTHER MOD DESTINATIONS FOR A VARIETY OF PERCOLATING EFFECTS.



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Antares Filter

might regret the amount of onscreen real estate it gobbles.

VERDICT

Filter rules. Talk about bang for the buck — for just \$199 you get Filter in all formats, which can come in handy if you're running several host apps on your computer. Most important, Filter is *loaded* with

The Frequency Link feature lets you designate one filter as the master, and all others will follow changes to the master's frequency proportionally.

features — many unexpected for a “filter” plug-in — and it performs impressively.

Few products are alone in their field, and Filter is no exception. There are many excellent filter plug-ins out there from the likes of Bomb Factory, McDSP, Sound Toys, Ohmforce, MOTU, TC Electronic, and more. But Filter excels in its rhythmic capabilities, and the fact that all four of its filters are true stereo (and with companion stereo delays to boot). Add in the other features mentioned in the review and you have another bar-raising plug-in from Antares. **EQ**

Strengths:

- Great graphic user interface
- Wide-ranging results — from smooth to sandblast
- Expressive rhythmic/sync functions
- Filters can be frequency-linked
- Available in all popular plug-in formats
- Fun, well-written owner's manual

Limitations:

- Not all functions can be automated (MAS version)
- Filters won't self-oscillate
- Gobbles significant screen real estate

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A sweet half-rack mic pre that offers blendable solid-state and tube signal paths, variable input impedance, multiple inputs, and stacks with other units to create a modular system — for under \$700.

Summit Audio 2BA-221

by Mitch Gallagher

Price: \$695

Contact: Summit Audio,
www.summitaudio.com

Strengths:

- Variable input impedance
- Stackable
- Tube output stage
- Mic, instrument, and line ins
- Variable cut-off highpass filter
- Multiple inputs can be used simultaneously
- Insert jack

Limitations:

- None to speak of



Need a lot of preamp in a compact package? The Summit Audio 2BA-221 has way more capabilities than you'd expect in a reasonably priced, half-rack unit.

The 2BA-221 has three inputs: XLR for mic, balanced 1/4" for line, and 1/4" hi-Z for instruments. You can use the instrument or line in at the same time as the mic input — each has a separate gain control. Included are phantom power, a lowcut filter variable from 20–200 Hz, and a 20 dB pad. XLR and 1/4" outs are provided and there's an insert jack. There's also 1/4"

"stacking" I/O that allows you to chain 2BA-221s to create a modular summing

system — stacking two 2BA-221s gives you four inputs.

But the 2BA-221 doesn't stop there. The unit is solid-state with a 12AX7 tube in its output stage; you can vary the amount of tube in the signal path. The 2BA-221 also has variable input impedance, adjustable from 100 to 10k ohms. Summit recommends setting the 2BA-221 to four times the mic's impedance. The manual includes a handy chart listing the impedance of more than 180 mics so you can dial the 2BA-221 to the right load.

So the 2BA-221 has a ton of features. But how does it sound? In a word: great. Running mics through it set for solid-state, it has good midrange presence, chunky bottom, and detailed highs. Mix the tube into the path,

and the tone changes — there's increased girth, smoother top end, and bigger lows. The effects are obvious with a mic, but with a guitar or bass plugged into the instrument input, they're downright striking. With mics, changing the impedance gives even more tonal variations. Higher impedance gives a fat, present tone, while lower settings thin out the sound and reduce the level.

The 2BA-221 offers true value — it has great sound, is wonderfully versatile, and is very flexible. In addition to being a cool studio preamp, it would, for example, be great for a solo guitarist/vocalist, since you can run through the mic and instrument ins simultaneously. Well worth checking out. **EQ**

M-Audio Studiophile BX5

by John Krogh

Price: \$399/pair

Contact: M-Audio,
www.m-audio.com

Strengths:

- Serious bang for the buck
- Natural, balanced sound
- Tone shaping controls

Limitations:

- No control for switching between +4/-10 operation



I don't think you can ever have enough reference systems for mixing, which is why my studio, like those of many *EQ* readers, is equipped with "main" monitors, plus a pair of cheap computer speakers, headphones, and a boom box. But one thing I've been wanting is another pair of pro monitors for use as a secondary reference that wouldn't misrepresent my mixes. Having another well-balanced set of speakers has helped reveal frequency and balance problems in the past, especially when my ears became too fatigued from listening to the same monitors for hours. So when M-Audio offered to send me a couple of BX5s for review, I was ready to receive.

Out of the box, the BX5s are impressive. They're built

solid and have a sexy, professional look and feel. The rear sports both balanced XLR and balanced/unbalanced 1/4" connectors. Both of these can be used simultaneously, which is handy if you want to monitor two sources (say, a MIDI keyboard and the stereo output from a DAW) at once.

But more than looks, these things sound good — surprisingly good for the price. I compared them to the Genelec 1029As in *EQ*'s sound lab and my own Dynaudio BM6s. The BX5s didn't have as much depth, but their separation was on par with the big boys. Overall, I'd characterize the BX5s as natural and "true" sounding, with little coloration and only a slightly hyped high end. With some pop tracks, for example, the speakers were a bit spitty.

The BX5s have a few more tricks not often seen on monitors in this price range. For starters, bass frequencies can be boosted or trimmed to compensate for less-than-ideal speaker placement such as being too close to a wall, which might cause lows to be over emphasized. Likewise, there are controls for boosting/cutting highs, boosting mids, and rolling off lows at specific frequencies, making it easier to pair the monitors with a subwoofer. All of the controls are switches, which means there's no guess work in matching the settings from one speaker to the other like there is with knobs. Nice.

As main monitors for a budding home studio or as a second reference for an already equipped room, the BX5s are a solid and feature-packed option. **EQ**



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If you have the ears to know how to use this clever program, HarBal makes fixing equalization problems in everything from samples to master recordings just that much easier.

by Craig Anderton

HarBal Harmonic Balancer

Price: \$95

Contact: HDQTRZ/TAQUIS,
www.har-bal.com

Strengths:

- Transparent equalization
- Effective, cost-effective tool for mastering EQ
- Reads/writes multiple formats
- Handles up to 32-bit/96 kHz files
- Loudness compensation when changing EQ settings

Limitations:

- Not available as a plug-in



Is this supposed to replace mastering engineers? Is it a miracle cure-all for bad recordings? Is it another of those dynamics-killers? Is it a really, *really* useful tool? The answers are no, no, no, and yes.

HarBal, a standalone Windows application (95-XP), is an 8,192-point linear phase digital filter designed to deal with the equalization aspect of the mastering process. It loads WAV, AIFF, and other file formats, and while emphatically not a "curve-stealing/morphing" program, you can simultaneously view a reference file of well-mastered music (examples are included for rock, jazz, hip-hop, etc.) to get an idea of what a well-balanced response curve looks like.

To use HarBal, you correlate visual anomalies with audible ones. For example, if the sound is "tubby," you'll likely see a low-end boost that could use a bit of dipping; "stridency" could correlate to an upper midrange peak. The interface makes it extremely easy to adjust the displayed curve to compensate for these anomalies, and there are multiple levels of undo if you overshoot the mark. A great feature, loudness compensation for EQ changes, means you're not fooled into thinking something is "better" because it's "louder." (HarBal can't be used as a plug-in, but according to the company an update will appear that hosts plug-ins; a Mac version is also forthcoming.)

Based on the web site's hype, I was prepared to be disappointed. Instead, I found a cleverly implemented tool that fixes EQ problems with astonishing speed and precision. I tried it on several songs, unmastered and mastered, and in each case, was able to obtain at least some degree of improvement (the better the mastering job, the less difference HarBal made).

Those with good ears will get the most out of HarBal. Although it won't turn a neophyte into a mastering engineer (nor does the company claim it will), HarBal is a welcome, important, well-designed program for those who believe mastering has much more to do with subtle response touch-ups than squashed dynamics. Very cool.

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The M24 is the first control surface to feature in-depth control of multiple plug-in effects at once, on a single channel or across multiple channels. For example, you could have several different plug-in equalizers across several channels and be able to jump from channel to channel using the channel select switches and all assigned equalizer controls would follow.

Extensive support available for a large number of manufacturers. Please visit the website for a current list of supported software and features.

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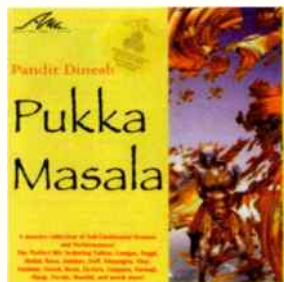
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Sounds



AMG

Pukka Masala – Pandit Dinesh

Contact: AMG, www.samples4.com

Format: 1 CD (WAV, REX2, audio, or Reason ReFill)

Price: £60 (approx. \$99)

Whether you need to score the sequel to *Ghandi*, love *bhanga* CDs, or just favor chicken *tandoori* and curry, you're a candidate for *Pukka Masala*. This CD of red-hot Indian grooves includes tons of percussion parts (e.g., tabla, *jumbay*, *madal*, hand drums), along with some melodic/rhythmic sitar and sarood parts, ensemble playing (e.g., Indian festivals), lots of congas, vocal effects, and more. The Reason ReFill packs over 400 WAV and 400 REX2 files.

Using any of the samples for commercial purposes requires registering (at no charge) with AMG.

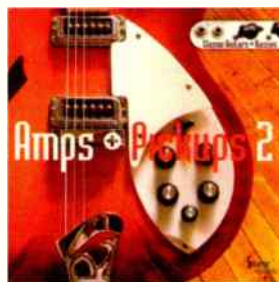
However, there's also about 60 MB of additional material (mostly WAV files) that requires additional licensing; contact AMG for details. These are atmospheres and longer samples, but represent a fair chunk (at least time-wise) of the almost 300 MB of material.

The REXification is very well done. Unfortunately WAV files aren't Acidized, but they are trimmed for easy looping. The recording is unhyped and neutral, but that's not a complaint — you have the flexibility to

SI's collection of electric basses and guitars is definitely capable of making believers out of all but the most hardened skeptics, provided you have the chops to sequence realistic parts.

process these sounds however you want.

All in all, this treasure trove of Indian grooves (from one of the major players in the Bollywood scene and the British "Asian movement" in the 1980s) is a great complement to dance tracks, and can also form the foundation for more exotic forays into soundtracks and experimental music.—CRAIG ANDERTON



SONIC IMPLANTS
Amps & Pickups 2

Contact: Sonic Implants, www.sonicimplants.com

Format: GigaStudio, SoundFont, and Kontakt

Price: \$229.95

I have to tip my hat to the Sonic Implants sound-smiths for their versatility. Their orchestral string library (reviewed November '03) is among the best in its class, and with *Amps & Pickups 2* they've gone 180° in the opposite direction. The second

in the *Amps & Pickups* series, *A&P2* is aimed squarely at the classic and roots rock crowd. While "sampled bass and guitar" might not be the first sound one thinks of when speaking of the Rolling Stones or The Who, SI's collection of electric basses and guitars is definitely capable of making believers out of all but the most hardened skeptics, provided you have the chops to sequence realistic parts.

The lineup includes multi-samples of a Fender Precision bass (fingered, picked, and slapped), a Telecaster, a Rickenbacker bass (fingered and picked), and a Ricky 330 6-string guitar. Starting with the low end, basses are presented in several useful ways — with and without slap, two- and three-way velocity switches, and up and down strokes for the picked versions. These samples are true to the ranges of a 4-string; nothing goes below a low E (although, with some editing, they could go lower).

Sonically, P Bass is round and full, with plenty of string tone at lower velocities and thicker shades at higher velocities. Contrasting the creamy tone of the Fender, the Rickenbacker bass patches are edgier with more bite at higher velocities.

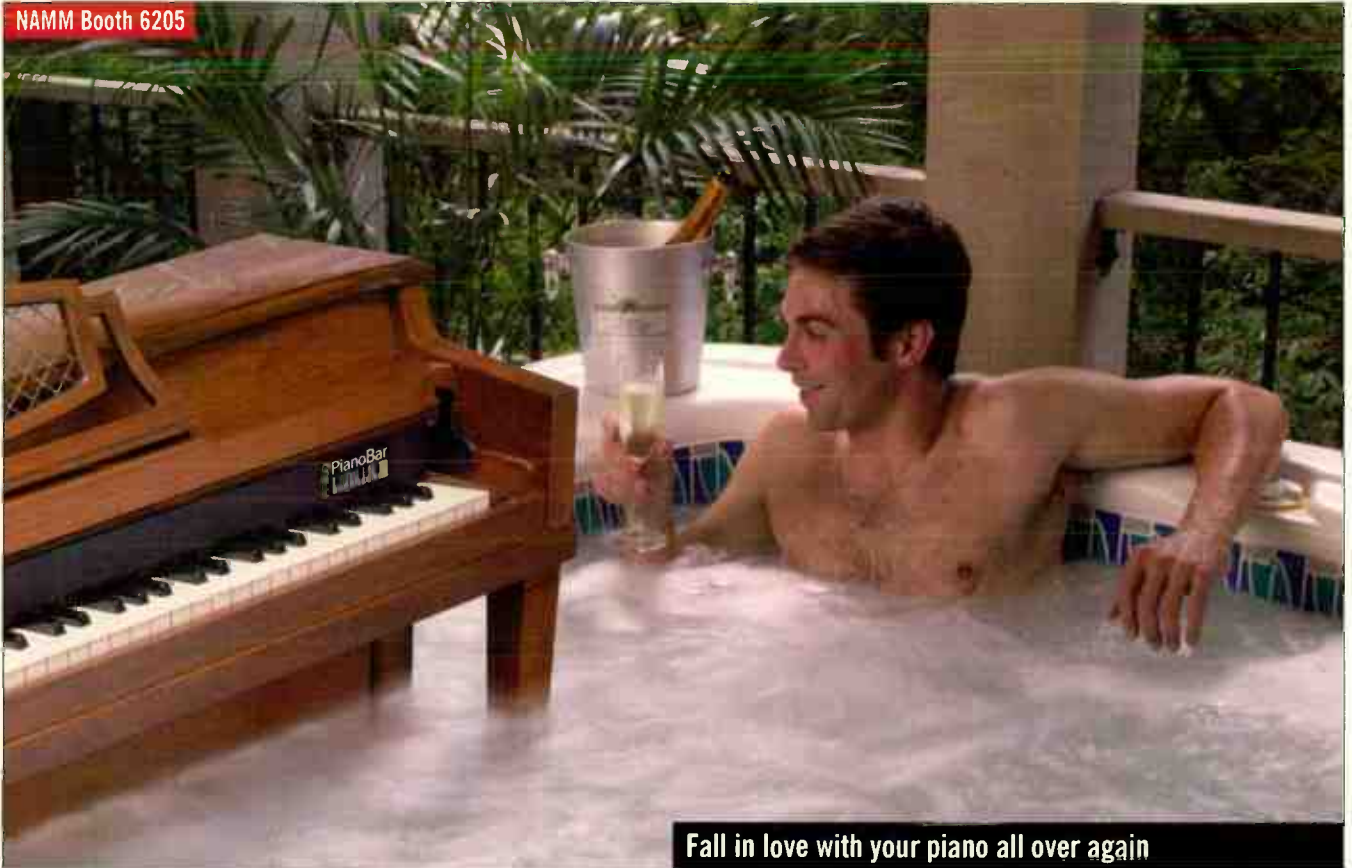
For guitars, SI did something a little different. In addition to single notes, they sampled up- and down-stroke chords. These include major and minor, as well as more interesting choices such as 7sus4, dominant 7ths, and add9 flavors. Depending on the patch, chord types might be mapped with major chords on the lower end of the keyboard and sus chords two octaves up, allowing you to play idiomatic strumming parts. It's pretty cool, and if you're not a guitar player, these patches could come in handy for songwriting demos.

The documentation is adequate, but lacking a few details. For example, it says a Vox AC30 was used in sampling the Rickenbacker, but no word on what was used for the Tele.

Programming is top-notch across nearly every instrument and variation. Switch points are natural, tuning is uniform, and sustained notes have a long decay. A couple gripes: There are no short or staccato samples, so it's harder to program fast repeated notes. Also, the upper register on both basses sounds closer to what I'd expect from a General MIDI module than a real bass. Otherwise I can't really find fault with *Amps & Pickups 2*. It's a great collection of instruments that are well recorded and musically programmed. If you need to inject some classic rock vibe into an otherwise ho-hum sequence, look no further.—JOHN KROGH EQ



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"Coming Attractions" are previews of new products that haven't arrived in the marketplace. These aren't product reviews, but are designed to bring you up-to-the-minute information on the next generation of cool recording tools.

COMING ATTRACTIONS

TC Electronic TC30

Guitar amp simulation plug-in

by Greg Rule

What is it? A plug-in modeled on the legendary Vox AC30 guitar amp

Who needs it? Any TC Electronic PowerCore user who wants to add a classic (albeit virtual) tone tool to their studio

Why is it a big deal? This is the first plug-in devoted solely to imitating the Vox AC30

Shipping: Soon if not by the time you read this

Price: \$249

Contact: TC Electronic,
www.tcelectronic.com

A virtual rebirth of a classic — the TC30 is a plug-in modeled on the legendary British Vox AC30 amplifier. Running piggyback on TC's PowerCore DSP card or module, TC30 mimics the sound and behavior of the "normal channel" found on the original AC30 . . . and then some. Many AC30 users have added a modification called Treble Booster, which drives the amp harder and provides additional tonal characteristics. TC30 is equipped with a treble booster as well, which was conceived with the classic sound of Queen's Brian May in mind. Additional options

also allow you to expand beyond that sound and create other tones.

A little history lesson for those unfamiliar with the Vox AC30 — *Guitar Player* tech editor Art Thompson writes: "Few guitar amplifiers have so thoroughly captured the imagination as the AC30. Since its introduction in 1960, the AC30 has become synonymous with the Beatles, the Shadows, Queen, Tom Petty and the Heartbreakers, and countless other groups who reveled in its complex 'blizzard of nails' shimmer. And talk about staying power: The 43-year-old design still radiates an air of

class and professionalism that puts most other amps to shame. It's all a testament to just how *right* Vox got the AC30."

AC30s aren't cheap, and the older they are, the harder they are to find. The virtual TC30, on the other hand, can be had for chump change comparatively, and it's readily available. In a sneak-preview demo, the *EQ* crew was impressed with TC30's low-latency performance, its sound, and . . . hey, how cool is it that the onscreen grille cloth actually vibrates as virtual air moves through the amp's animated speakers?! The engineers at TC are proud about the accuracy of the modeling, saying, "our internal blind listening tests have confirmed the accuracy of the amp model, with listeners not being able to tell the real amp and the model apart."

TC30 provides a No Latency mode that eliminates the perceptible processing delay that dogs so many plug-ins. This makes TC30 a highly playable virtual amp at low I/O buffer settings of around 128–256 samples. Tweakers will appreciate the Oversampling option, which provides higher processing quality than in Standard mode.

Once TC30 is ready to ship (probably by the time you read this), *EQ*'s resident guitar-slingers Craig Anderton and Mitch Gallagher will arm-wrestle to see who gets to review this fun new tone tool.






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Vocals: Kenny Loggins

K

enny Loggins defined the pop music landscape throughout the late 20th Century with his laid-back and poignant style of singing, songwriting, and guitar playing, which can be heard on such chart-topping hits as "Whenever I Call You Friend," "This Is It," "I'm Alright,"

"Footloose," and "Danger Zone" (from *Top Gun*). Kenny's latest release, *It's About Time*, finds him teamed with engineer Tony Shepperd and producer Tommy Sims.

"Recording a great sound on acoustic guitar can be difficult enough without having to also record vocals at the same time," shares Shepperd. "There's a difficulty sometimes in recording guitar and vocals at the same time, especially since there are no other instruments to hide behind. The tracks have to be right. When we started recording this song it was just supposed to be a demo. We thought that later on we would go back and correct anything and re-record the vocal separate from the guitar. That never happened! What you are hearing on the record is the

TRACK: "No Other Voice"
DATE: Summer 2003
STUDIO: Sound Design
LOCATION: Santa Barbara, CA
PRODUCERS: Kenny Loggins & Tommy Sims
ENGINEER: Tony Shepperd
ASSISTANT ENGINEER: Dom Camardella



Tony Shepperd (left) and Kenny Loggins.

original song demo! By the time we got around to mixing the song, it just seemed to fit."

SIGNAL PATH

For the past few years, Shepperd's favorite acoustic guitar mic has been the Marshall MXL 600 FET. "It's a great mic for capturing the nuance of guitar, it's inexpensive, and can be used for a variety of instruments," he says. "On the vocal I used an old stand-by, the AKG C414 B-TLII. Both mics went into the vintage Neve 8048 console at Sound Design studios; however, before we went into Pro Tools, I used the Otari RADAR II as my A/D converter. The A/Ds of the RADAR are just about the closest sound

to analog that I've found. From there, we went AES out of the RADAR into Pro Tools digitally."

MIC POSITION

"The tricky thing about recording guitar and vocal is *phase*," warns Shepperd. "That's right! If you're not careful, the entire track sounds as if it's completely out of phase. Another important aspect of mic placement is that the artist needs to feel comfortable. Try to place the vocal mic slightly above their chin. Singers usually tend to sing out more when they keep their chin up and out.

"For the guitar, I aimed the XL 600 slightly away from the sound hole, pointing the mic slightly up at the frets to try and catch some of the fingering. It will also alleviate a lot of tubbiness that can come from pointing the mic directly into the sound hole. If you keep the mic on the guitar about a foot away, you'll be able to capture a lot of the ambiance of both the guitar and the bottom end of the vocal."

MIXING

"This was one of the last songs mixed for the album," Shepperd concludes. "I had tried mixing it a number of different ways, but as fate would have it, one night while listening to the Pro Tools mix, I muted the reverb returns. Suddenly, the guitar and vocal became much more intimate. So by starting from that point, we were successfully able to bring the intimacy of a singer/songwriter guitar and vocal back into a focused perspective. The EQ needed to be radically different so as to make the guitar and vocal not sound as if they had been recorded with only one microphone. Since there was no bass instrument in the song, I brought out the bottom range of the guitar.

"Another crucial element to always consider when you're mixing is the panning of the instruments and vocals. In a guitar and vocal only scenario, I usually like to pan the guitar slightly to one side so it doesn't occupy the exact same pan position as the vocal. In my opinion, there are three elements that come into play in your mix: height, depth, and width. Where you place elements in your mix is as critical as how you recorded them. Let the vocal breathe a little by not having the guitar sit right on top of it in the mix. On Kenny's vocal, I actually added a little highpass filtering to it during the mixing process. In this instance, the guitar mic was actually picking up a lot of the same frequencies as the vocal mic. So, by putting a highpass filter on the vocal mic at 180 Hz, it allowed the guitar mic to augment some of the frequencies recorded by the vocal mic, and fill out the overall sound and stereo imaging.

"When all is said and done, you *have* to end up with a great vocal, and a guitar sound that cuts through the track. Whether you're an engineer-for-hire recording a legendary singer or a singer/songwriter who wants to record your own music, these basic concepts and suggestions should help you add a few more tricks to your arsenal of recording techniques." **EQ**

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Digidesign Pro Tools

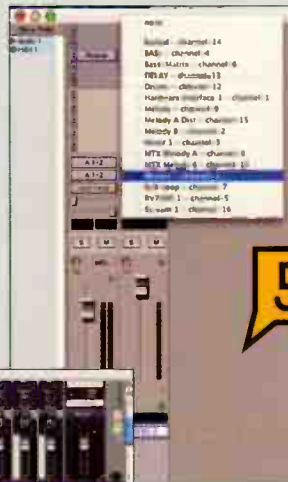
Getting ReWired

Objective: Use ReWire to connect Pro Tools to other applications such as Reason and Live.

Background: With v6.1, Pro Tools gains support for ReWire 2.0 through use of an RTAS ReWire plug-in. This allows it to stream audio and MIDI with other ReWire-compatible applications running on the same computer.

Step by Step: You're just a few steps away from ReWiring Pro Tools.

- 1-Band EQ II (stereo)
- 4-Band EQ II (stereo)
- ff d2 1-2Band (stereo)
- ff d2 4-Band (stereo)
- ff d2 6-Band (stereo)
- Compressor (stereo)
- Limiter (stereo)
- Expander-Gate (stereo)
- Gate (stereo)
- ff d3 Compressor+Limiter (stereo)
- ff d3 Compressor/Limiter (stereo)
- maxim (stereo)
- D-Verb (stereo)
- Short Delay II (stereo)
- Slap Delay II (stereo)
- Medium Delay II (stereo)
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- SurroundScope (stereo)
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- Recti-Fi (stereo)
- Sci-Fi (stereo)
- D-Verb (stereo)
- ReWire (stereo)**
- Dither (stereo)
- POW Dither (stereo)
- Compressor (stereo)
- Limiter (stereo)
- Expander-Gate (stereo)
- Gate (stereo)
- 1-Band EQ II (stereo)
- 4-Band EQ II (stereo)
- Lexicon PSP42 (stereo)
- Short Delay II (stereo)



- 1 Launch Pro Tools. Create a new audio track (TDM systems) or aux input track (LE systems). Depending on the software "client" you're ReWire with, you can use either mono or stereo tracks.
- 2 Assign the ReWire RTAS plug-in to an insert on the track. If you're using a stereo track, you can use either the multi-channel or multi-mono version of the plug-in.
- 3 If the ReWire application supports auto-launch, it will launch in the background as soon as you insert the plug-in. Otherwise, launch the ReWire application, and set it up to play the sounds or sequence you're going to use.
- 4 In the Pro Tools ReWire plug-in window, click the output selector, and assign it to the outputs from the ReWire client. If the client has a sequencer (e.g., Reason, Live), click *Play* in Pro Tools. The client should begin playing in sync with Pro Tools, with audio flowing into the Pro Tools mixer. The client will follow any tempo and meter changes in your Pro Tools session.
- 5 Pro Tools can also feed MIDI to the ReWire client — notes, continuous controllers, whatever. To do this, create a MIDI track, and assign its output to the ReWire client. Some applications, such as Reason (shown here), will list a MIDI connection for each module that's installed. In this case, choose the module you want to control.

tips

- When quitting, close the ReWire client application first, then Pro Tools.
- If you have performance problems, in Pro Tools choose *Setup>Playback Engine*, and change the CPU Usage Limit. The ReWire client may also have a CPU usage setting.
- Some clients support multiple outputs. Reason, for example, has 64. You can create as many tracks in Pro Tools as you need to accept those outputs (up to the ReWire limit of 64).

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MOTU DP4

Tape-Stop Effect

Objective: Create a downward slide/tape-stop effect.

Background: This expressive dive-bomb effect is a classic, yet is not used too often in the digital world. Time to add it to your bag of tricks!

Step by Step: Most power apps have tools for creating this type of sound. Here's one way to do it with the standard tool set supplied in DP4.



1 With the marquee tool, select the section of audio you want to effect.

2 Go to **Audio > Audio Plug-ins > Sonic Modulator**.

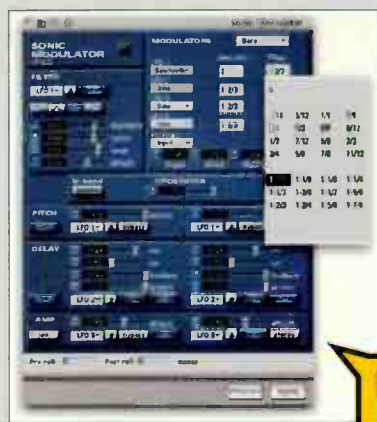
3 The **Raygun Pitch** preset is a good place to start. Select it from the patch menu.

4 In this patch, pitch is being modulated by LFO1, so you'll want to match the length of the selected audio region to the mod rate. Do so in the **Modulators** section of the plug-in by clicking and holding the gray box in the upper right side of the window and choosing the closest denomination to your region. If your selected audio region is 1-bar, for example, select **Bars**, then change **Rate** and **Phase** for LFO 1 to 1-Bar (as shown). Now the pitch descent will occur over the course of one bar.



5 Experiment with the amount of pitchbend in the **Pitch** field. And if you'd like to introduce a bit of dynamic filter to the effect, disengage **Bypass** and choose your modulation source in the **Filter** section of the plug-in.

6 Click **Apply**.



tips

- Crash cymbals and other high-frequency audio yield particularly dramatic results.
- Looking for an even faster way to accomplish this effect (and don't mind forking over some bucks for a third-party plug-in)? There are plenty of tools that do this effect automatically, such as Digidesign's *Vari-Fi* and Serato's *Pitch & Time*.
- To hear how this effect sounds, log onto www.eqmag.com.



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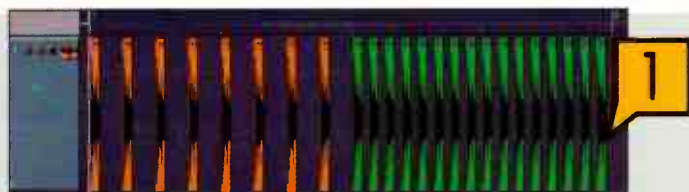
Emagic Logic

Creating stutter-edit drum rolls

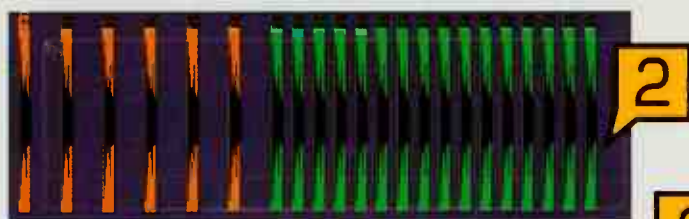
Objective: Use Logic's Sample Editor to create dramatic stutter-edit drum rolls.

Background: There are many ways to make buzzy, mechanical-sounding drum rolls using a variety of MIDI or audio tricks. One way is by cutting and pasting a snare hit or whatever you'd like to "roll" for a bar of 8th-, 16th-, or 32nd-notes. To make things more interesting, the roll can be faded in using the Sample Editor's Fade command. (This is a trick I picked up while watching BT work on a remix for Britney Spears.)

Step by Step: It takes only a few moves in the Arrange window and Sample Editor to create wicked stutter rolls.



1 Repeat a single snare hit on 8ths or 16ths for up to one measure.



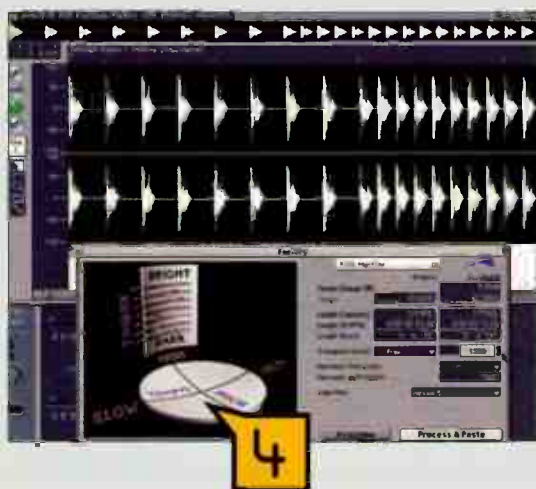
2 Drag-enclose the phrase with the Glue tool.



3 Double-click one of the audio slices — you'll be asked if you want to create a new file. Click *Create*. The resultant audio region will look something like the one shown here (Step 3).

4 Open the audio file in the Sample Editor, then choose *Time and Pitch Machine* from the *Factory* menu. We'll transpose the file up an entire octave, which will produce a roll twice as fast as the original.

5 With the entire audio file selected, choose *Fade In* from the *Sample Editor's Function* menu. The end result should look something like the file shown (Step 5).



tips

- This works great on vocals — try experimenting with different word segments to create stuttered phrases.
- If you use the Sample Editor's transposition features, make sure *Version 5* is selected for the Algorithm type. Otherwise the audio file won't get sped up.
- For even more creative options, make several rolls of different lengths using a variety of sounds (kicks, snares, synth stabs, etc.), then map these across the EXS24's keyboard. You'll be able to play your rolls in real time.

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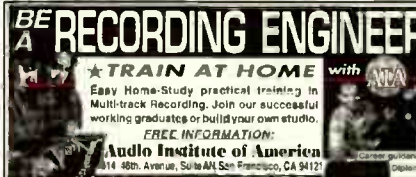
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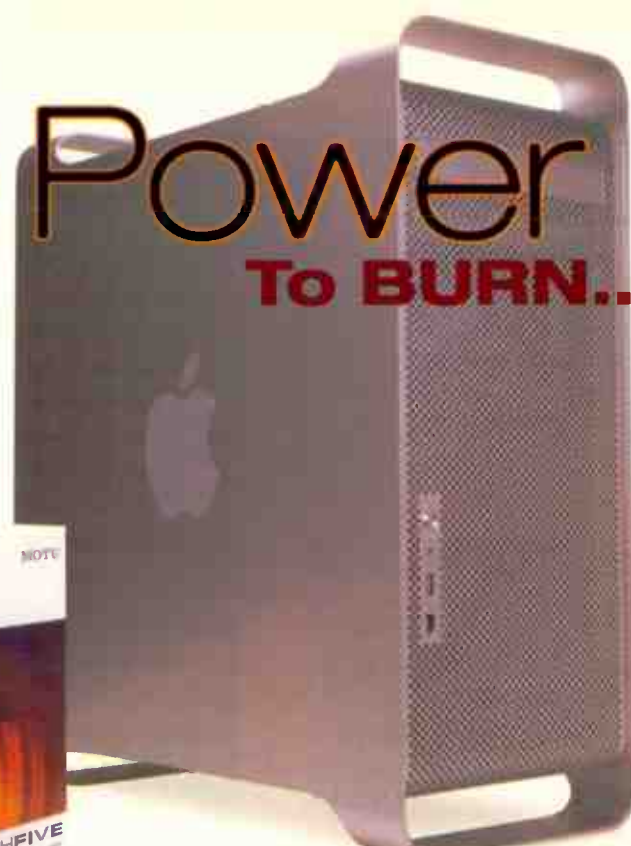
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Trilogy™ — Total Bass Module™

The world's first Electric, Acoustic and Synth Bass Instrument

Trilogy is an awesome triple-threat plug-in instrument that integrates a custom three gigabyte core library of hundreds of brand new acoustic, electric, and synth Bass sounds with a powerful user interface. Create your own sounds! Produced by Eric Persing, it overflows with earthshaking, cone-blowing, subsonic sound. "True Staccato" for realistic repeated notes, Minimoog™ style legato triggering, multimode resonant filters for both independent layers. \$349 for MAS and Audio Units.



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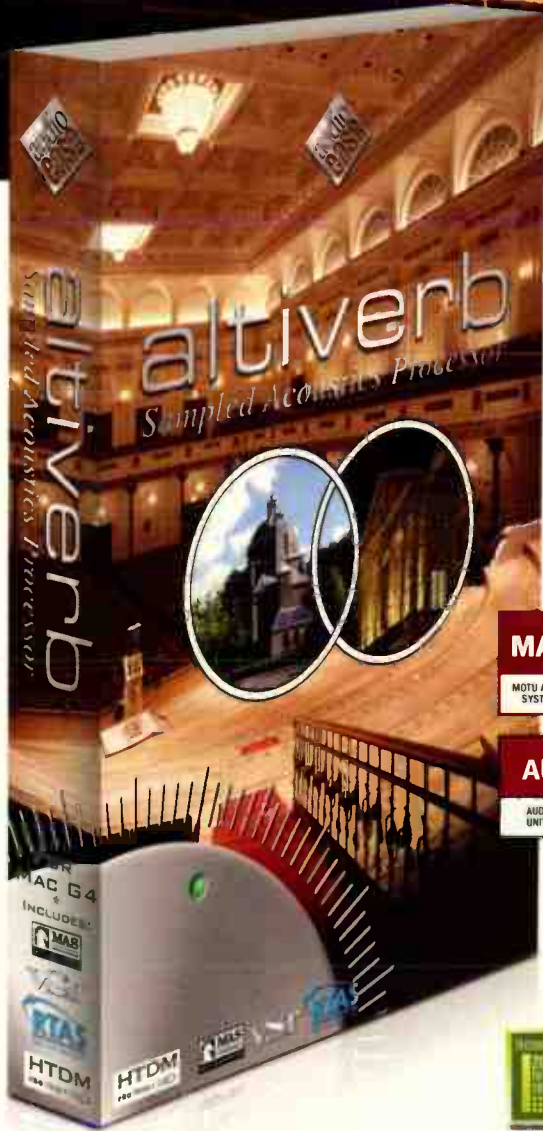
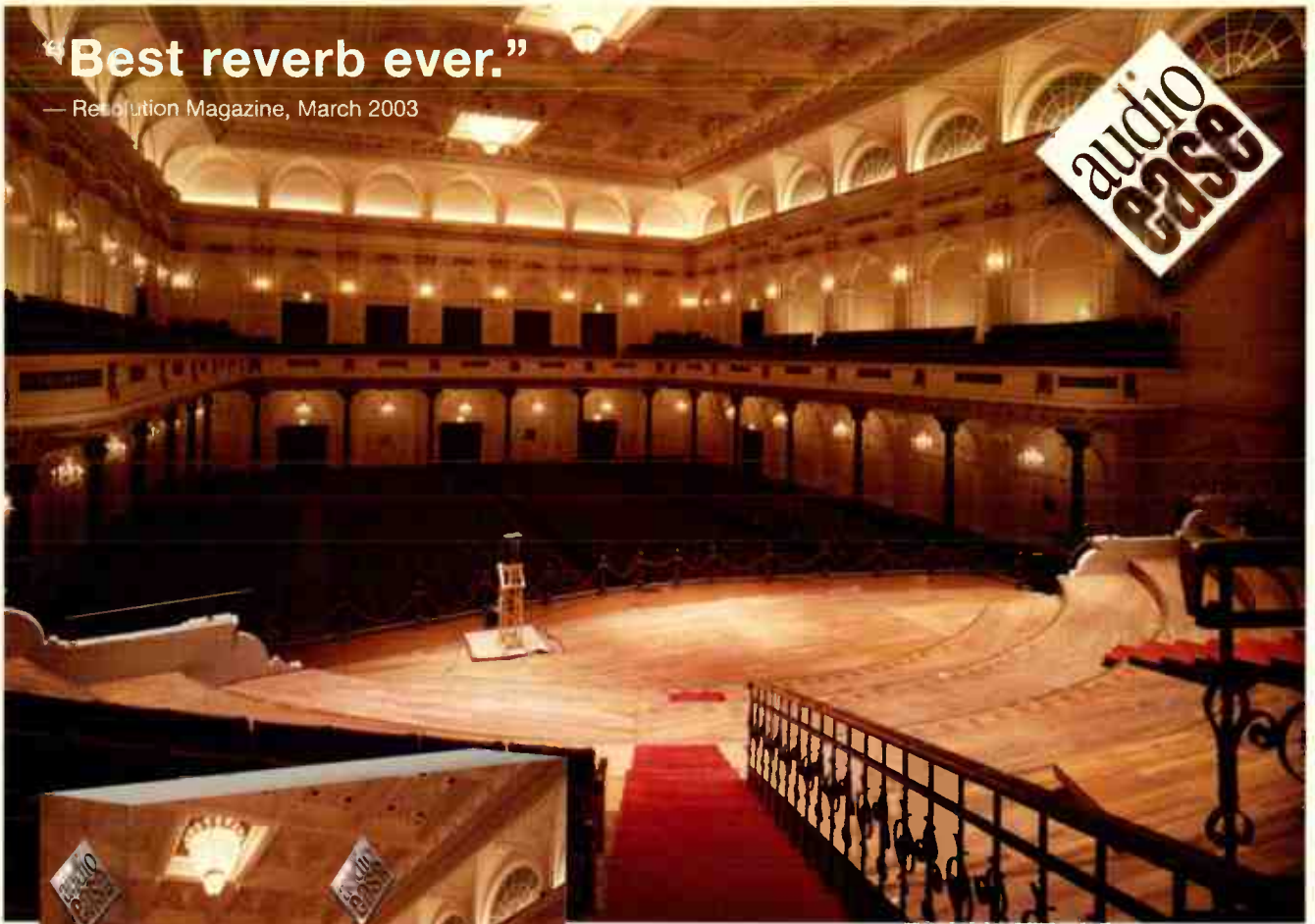


Authorized Reseller

MOTU NATIVE POWER • CALL SWEETWATER 800-222-4700

"Best reverb ever."

— Revolution Magazine, March 2003



Altiverb™ sampled acoustics processor

The ultimate 'must have' reverb plug-in for DP4 on G4/G5 systems

Showered with acclaim since its debut, this legendary reverb plug-in is now shipping for your DP4 and OS X desktop studio running on a Power Mac G4 or G5. Breathe the unsurpassed realism of real acoustic spaces into your mix: halls, cathedrals, studio rooms — in stereo and quad (surround) configurations. Download a constantly growing library of world-class acoustic spaces, at no extra charge, such as LA recording studios, historic French cathedrals, and world-class European concert halls. You can even sample your own spaces. The critics say:



"Altiverb is quite possibly the best-sounding reverb available, bar none."

— Pro Audio Review, Nov. 2002

"Hands down the most natural-sounding reverb plug-in around."

— EQ Magazine, January 2002

"Altiverb Produced results that eclipsed anything I'd heard before."

— Sound on Sound, May 2002

"Altiverb is flat-out the densest and smoothest native reverb I've ever heard. Moreover, it out-performed an assortment of hardware reverbs I had on-hand for comparison." — Electronic Musician, October 2002



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Digital Performer 4 interactive training

Cool School Vol. 6.1 DP Basics, Vol. 9 DP4, Vol. 10&11 Plug-ins

Check out the latest Digital Performer 4 and plug-ins interactive training products from Cool Breeze Systems. If you prefer the "show me" style of learning, then the Cool School Interactus training environment is for you. CSi products include hours of concise, well thought out movie tutorials with "before and after" audio examples,

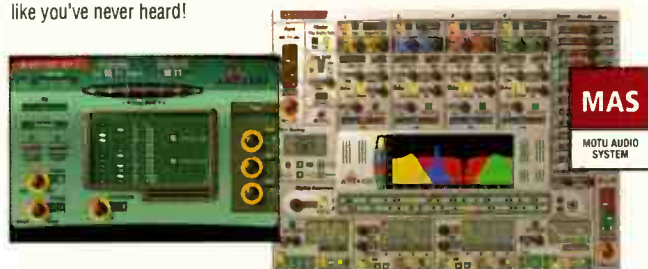


software click-state simulations, a huge DAW-related glossary, and built-in quizzing. Beware: you may dig it.

Antares Auto-Tune™ 3 and Filter™

Two new MAS plug-ins for DP4 — a classic and something new

Antares brings two essential plug-ins to your DP4 mix. The legendary Auto-Tune is the "Holy Grail" of pitch correction. The all-new Filter™ plug-in delivers filter effects like you've never heard!



Mackie Control Universal & Extender

Automated hands-on control for the DP4 studio

Imagine the feeling of touch-sensitive, automated Penny & Giles faders under your hands, and the fine-tuned twist of a V-Pot™ between your fingers. You adjust plug-in settings, automate filter sweeps in real-time, and trim individual track levels. Your hands fly over responsive controls, perfecting your mix — free from the solitary confinement of your mouse. Mackie Control delivers all this in an expandable, compact, desktop-style design forged by the combined talents of Mackie manufacturing and the MOTU Digital Performer engineering team. Mackie Control brings large-console, Studio A prowess to your Digital Performer desktop studio, with a wide range of customized control features that go well beyond mixing. It's like putting your hands on Digital Performer itself.



Native Instruments B4

This virtual instrument classic is now available for DP4 as an AU

The B4 is another classic keyboard from the 20th century which Native Instruments brings into the studio and onto the stage of the 21st century. The B4 is a complete virtual tonewheel organ, capable of reproducing in authentic detail the sound of the legendary B3 organ and rotating speaker cabinet, including tube amplification and distortion. Beneath the attractive, photo-realistic vintage-looking graphics operates an up-to-date audio engine, with perfect sound and lots of options for fine-tuning, all with full MIDI automation. This instrument is a must-have for every DP4 studio. Includes a full set of 91 tonewheels, photo-realistic graphics in the original look, full MIDI automation and many options for easily fine-tuning the sound.



Mackie UAD-1 Powered Plug-ins

Accelerated effects processing for DP4

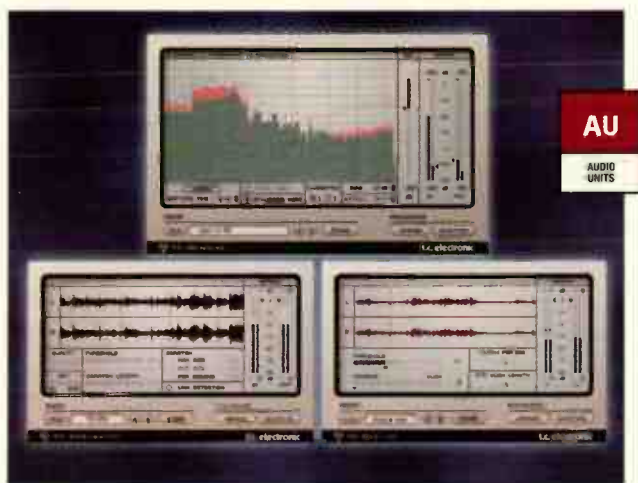
Install a UAD-1 card in your Mac and then run dozens of sophisticated effects plug-ins inside Digital Performer without bringing your Mac to its knees. What's the secret? UAD-1 is a custom DSP-equipped PCI card. It's like adding an extra \$20,000 worth of effects gear to the dozens of native plug-ins 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 the 1176LN Limiting Amplifier and Teletronix LA-2A Leveling Amplifier, two more analog classics reborn inside Digital Performer. Apply liberally with host CPU cycles to burn.



TC Electronic Restoration Suite

Ground-breaking audio restoration plug-ins for DP4

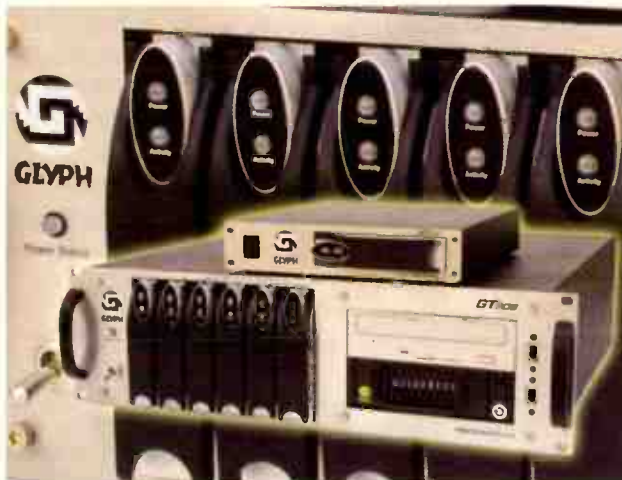
TC Electronic revolutionizes audio restoration with the new Restoration Suite for the PowerCore platform. Powerful, fast and easy to use, this bundle of hi-end restoration plug-ins provides descrambling, denoising and declipping for the most critical applications in audio restoration. The descrambling algorithm, based on a collaboration between TC Electronic and Noveltch from Finland, employs a breakthrough first-to-market technology and delivers incredible results. Both the Denoiser and Declicker plug-ins are based on TC's many years of experience in the field of restoration, now with extended functionality. Restoration Suite is one of the first hybrid plug-ins, utilizing CPU and PowerCore DSP processing at the same time to combine the best of both worlds for optimal sound quality and best real-time results.



Glyph Technologies GT 308

Ultimate backup and storage for your MOTU desktop system

The Glyph Technologies GT 308 is the perfect all-in-one storage and backup solution for the MOTU desktop studio. A 3U rack-mount eight-bay enclosure, the GT 308 comes with up to six hot-swappable GT Key FireWire drives, perfect as target drives for multitrack audio recording, storing your MachFive soundbank folder or temporary archiving of your DP4 projects. The right-hand expansion bays offer options of AIT backup, SCSI hot-swap receivers, DVD-R/RW and/or CD-R/RW. Like other GT Series solutions, the GT 308 features QuietMetal™ for ultra-quiet performance and Glyph's Integrity™ FireWire hot-swap technology to ensure the best reliability and performance. Included with the GT 308 is the GT 051, a tabletop hot-swap enclosure that makes content more portable and expansion easy.

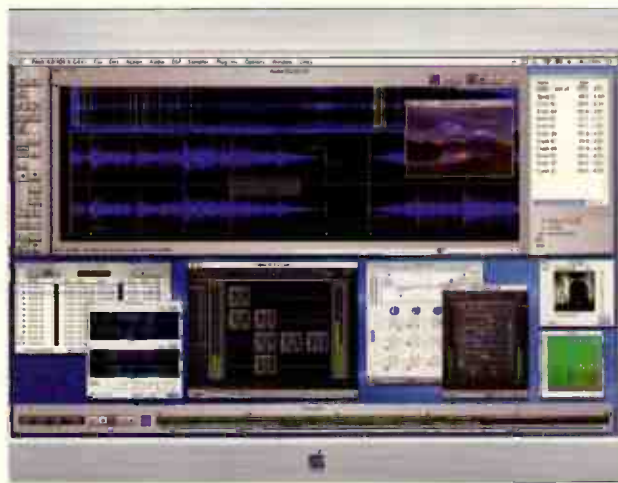


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BIAS Peak 4 — 4 Is More

The ultimate waveform editing companion for DP4 and MachFive

Burns redbook CD's directly. Reads/writes MP3, MP4(AAC™), 24 bit WAVE & more. Batch process dozens or even thousands of files. Ultra fast waveform editing now even faster. Launch directly from DP4. Unlimited undo/redo with graphic edit histories. Unique DSP and looping tools like the stunning new sample based ImpulseVerb™, Change Duration envelope, Harmonic Rotate, Bit Usage graph, Grid Markers from Tempo, plus Repair Clicks, Loop Tuner™, Loop Surfer™, Guess Tempo™, Duplicate, and more. Improved Region Cross-fade Editor and new Content Drawer. Hot swap real-time effects using Peak's included Vbox™ SE VST matrix. Supports Audio Units and Core Audio. Optimized for Mac OS X, multi-processors, and the Altivec G4 Velocity Engine. Includes new Squeeze™ pro compressor/limiter, Freq™ EQ, and more.



ADAM Audio P11A Studio Monitors

Two-way shielded active monitors for your MOTU studio

With groundbreaking innovation in electro/acoustic transducers, no-compromise design, superior materials and the same A.R.T. (Accelerated Ribbon Technology) folded ribbon tweeter found in all ADAM monitors, ADAM's P11A two-way shielded active monitors deliver your mix with astonishing clarity. Connect a pair to the main outs of your MOTU 828mkII FireWire audio interface — or any MOTU I/O — to hear your mixes with unique imaging and outstanding transient response at a very attractive price point. Europe's "Keyboards" magazine held a studio monitor shootout between no less than 25 professional monitor systems, and the ADAM P11A's came out at the top of the heap. One listen, and you'll be hooked, too!



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