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Auto-Tune 4

Loops

- Rock/pop loop tips
- Creating your own loops
- Improving loop quality

Inside SCARFACE's Hardcore Garage

How to Mic Acoustic Guitar

TASCAM 2488
i3 DSP-Quattro
JBL 6300 Monitors
Arturia Minimoog V
Kurzweil Rumour & Mangler
M-Audio Octane

11 Products Reviewed

JULY 2004
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THE ENGINE OF SHARKEY'S MACHINE

:: Sharkey ▸ Producer, Solo Artist

Sharkey has been a SONAR user for years who has performed and produced with such heavyweights as Eminem, Mickey Petralia, Mario Caldato, Jr., Everlast, and Rick Rubin. His new disc *Sharkey's Machine*, recorded in SONAR 3 Producer Edition, is one of the hottest albums of the year. A hip-hop heavy, electronica and rock-laden reflection of his diverse musicality, *Sharkey's Machine* features guest appearances by Cannibal Ox, The Pharcyde, Jean Grae, Grand Puba of Brand Nubian, and Cherrywine (formerly of Grammy Award winning group "Digable Planets").

"I've worked with a lot of other systems and now I do it all in SONAR 3 Producer Edition. People literally bug out when they hear that I create my beats entirely with SONAR and nothing else. It has everything I need to max out my creative abilities: top notch mixing, sweet effects like the Lexicon Pantheon Reverb, unstoppable audio and MIDI looping tools, VST and DirectX support, and the amazing VSampler 3 DXi. I never leave SONAR...and it always keeps me inspired. I'll tell you what I tell my friends, if you're looking to create music on a PC, SONAR's the only game in town."

SONAR3
PRODUCER EDITION

Visit www.SONAR3.com/Sharkey to read the full interview and pick up *Sharkey's Machine*, available everywhere from Babygrande Records

cakewalk

World Radio History

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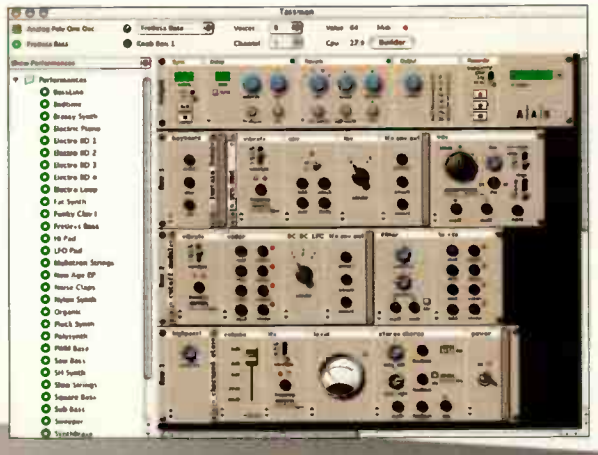

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For more information on Command | 8, visit www.digidesign.com.

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Talk Box

TICK-TOCK

Is anyone else feeling slammed out there? Remember when you were a kid and summer vacation rolled around? (I'm writing this in late May, as the neighborhood kids are getting out of school. I can see them outside my window, enjoying the gorgeous sunny afternoon . . .um, where was I?) Three months of glorious time...available to be spent however you liked (at least mostly how you liked). It's no secret that most people would love to have more time — and most working musicians, engineers, and producers are included (since we are, after all, people).

As much as we wish we had more of it, time remains a precious and heavily rationed commodity, which means that we have to prioritize as best we can. But as musicians, engineers, and producers, we must ensure that we don't prioritize ourselves right into a corner — it's so easy to get caught up in the day-to-day: studio maintenance, software upgrades, client requests, production deadlines, session scheduling, working around a day job, the list seemingly never ends. And that's before you go home and have to make your life work. . . .

When time gets crunched, it's often the intangible stuff that gets lost in the shuffle — and for us artistic types, the intangible stuff is what we're all about. Next time you're putting together a schedule or to do list, make sure to put some "art" time on there — time you can spend getting back in touch with why you got into this crazy endeavor in the first place. Take some time to play — to record or make music for the joy and love of it. Remember why you started recording. Try something new or different. Expand your horizons — not because you have to, but just for the fun of it. Trust me, the time will be well spent.

A Void In Our Lives

Over the next few months you may notice a distinct lack of articles in *EQ* from Technical Editor John Krogh — and for very good reason: John has been tapped as Programmer/DAW Operator for Whitney Houston's summer tour, and will be hitting stages around the world. Congratulations and best of luck, John. See you when you get back. —*Mitch Gallagher*

The BAND STAND

What have you been doing in your studio lately just for the "art" of it — not because of a client request or because you "had to"?

Mitch Gallagher, Editor
I've been getting back to my roots: playing guitar and writing music — in a variety of new styles for me. It's so easy to get caught up in all the technology and to forget why we do this: to make music. I'm finding that taking off my engineer hat once in a while and getting into musician mode makes me a better engineer in the long run.

Craig Anderton, Editor at Large
I've been playing around with Cakewalk's Project5. It's cool to sit back, make some loops, and see what comes out. I've also been coming up with patches, mostly for the Line 6 Vetta amp, NI Guitar Rig, and Arturia Moog Modular. I do have an ulterior motive in that the Vetta sounds will end up in my next sample CD, but for now it's an excuse to play some guitar!

John Krogh, Technical Editor
I've been spending a lot of time in my studio, and the most important thing I've been doing for the "artistic side" of my brain is to leave the studio. I can't be creative if my batteries aren't charged up, and the best way for me to "reload" is to get out, enjoy life, and come back ready to work and experiment.

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Editor: Mitch Gallagher, mgallagher@musicplayer.com
Managing Editor: Debbie Greenberg, dgreenberg@musicplayer.com
Editor at Large: Craig Anderton, canderton@musicplayer.com
Technical Editor: John Krogh, jkrogh@musicplayer.com
Group Copy Chief: Kevin Owens, kowens@musicplayer.com
Contributing Editors: Gerry Bassermann, Dan Daley, David Frangioni, Chris Gill, Steve La Cerra, Jerry McPherson, Gary Mraz, 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 McGowan Tel: 650-513-4376, Fax: 650-513-4646; jmcgowan@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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Newsstand Sales and Marketing Manager: Pam Santoro
Assistant Circulation Manager: Rosario Perez
Assistant Circulation Manager: Maribel Aleman
Classified Ad Sales Assistant: Darlene Labrecque
Imaging Technicians: Joe Ging, Martin Ruiz
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Administration Support: Sandra Pollard

WWW.EQMAG.COM
Web team: Matt Dula, Joe Gero, Coral Xu, I-Hsun Huang, David Pak, Mitch Gallagher, Craig Anderton

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A Big Knob.

If you've spent any time making music on a computer, you've probably noticed a few simple things you're missing. Like a big, convenient volume knob. And a monitor selector... and a talkback section... and a source selector... and some headphone control. In short, you're missing the basic stuff you'd find on a traditional recording console.

To solve this problem, we created the Big Knob. A simple tabletop level control box that lets you switch between three sets of studio monitors, four different stereo sources, and even send musicians their own custom headphone mix while communicating with them via a built-in Talkback microphone. With its high-end audiophile sound quality, robust Mackie construction and, um... big, smooth knob, every computer-based studio needs a Big Knob.

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Dan Steinberg is the product manager for Big Knob. He has repeatedly exercised his right to veto several previous captions.

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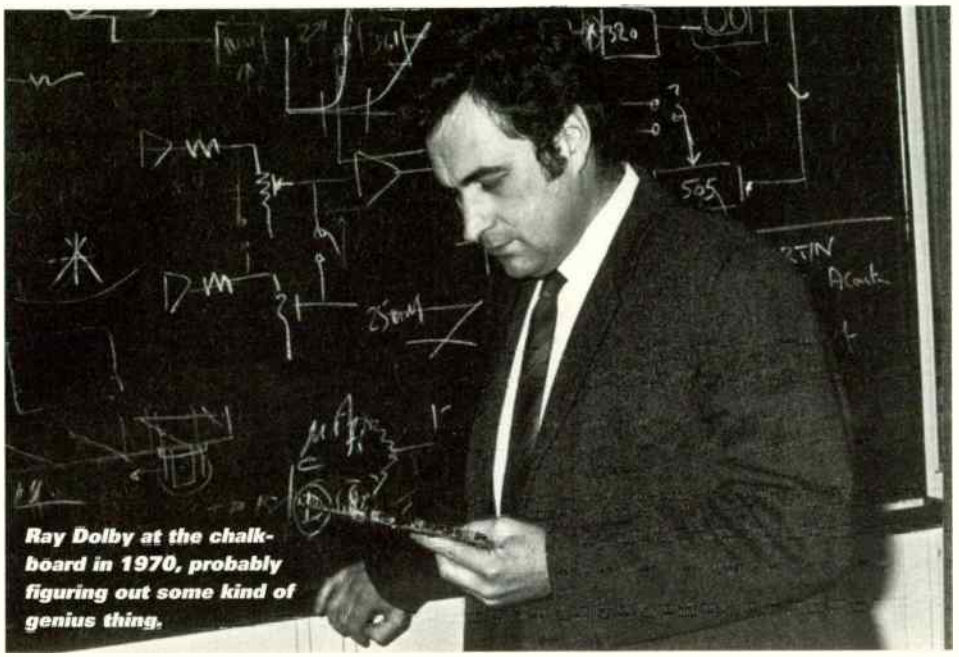
Punch—In

Tips & News You Can Use

BY CRAIG ANDERTON



Ray Dolby at the chalkboard in 1970, probably figuring out some kind of genius thing.

Ray Dolby's Quiet Riot

To many, he's the guy who made cassettes useable for something other than dictation . . . but noise reduction also got Ray Dolby inducted into the National Inventors Hall of Fame in Akron, Ohio. Fred Allen, head of the Selection Committee, stated that "Ray Dolby changed the face of the recording industry . . . the multitrack recording techniques that blossomed in the late 1960s and early 1970s would have been impossible without Dolby's invention because the tape hiss would have been intolerable. With the removal of tape noise, cinema sound [also] became higher fidelity, and paved the way for even more sophisticated surround sound formats like Dolby Stereo."

Dolby Laboratories has licensed over 1.5 *billion* consumer products, which is a lot of Dolby! Thanks Ray, for your contributions toward democratizing the recording process. www.dolby.com

Super Smart, Indeed

In Germany, it seems like everyone is issued a cell phone at birth — they're everywhere. Now the group Super Smart (we're not making this up) has released their first album, "Panda Babies," as a collection of polyphonic ring tones with integrated voices and instruments. We're also not making up the fact that this Munich, Germany-based band appears only in Panda bear heads, sort of like a cuddly version of The Residents.

For an "introductory price" of under two Euros (cheap), you can check out their mix of disco pop meets electro-punk. Or you can groove on their first video, which is (why am I not surprised?) made for mobile phones only. www.gofresh.de

CD of the Month

Loretta Lynn

Van Lear Rosé,

Interscope Records

It smelled like a gimmick: Pair Loretta Lynn, a 69-year-old country singer thought to be in the twilight of her career, with Jack White, the up-and-coming guitarist from the White Stripes. But listen to the CD, and you'll testify.

White did everything right. For the first time in her career, Lynn wrote all the songs on her CD; the personal, *cinema verité* lyrics spin stories that remind you why lyrics *do* matter. The album was recorded on an 8-track analog recorder in 12 days, with as few takes as possible, using not a rotating door of Nashville pros but White and three other musicians. He spurned slickness, going for a raw, emotional sound that gives his particular vision of country an edge that ranges from forceful to majestic.

Yet the production takes a back seat to the true star of this show: Lynn's remarkable voice, which soars, begs, cries, coos, and ultimately, grabs your heart *and* mind.

This CD is a striking achievement that shows what happens when a talented producer is true to the music, the songs, and the artist. Make no mistake, this is a country record — but even if you think you hate country, just try to resist.

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tip

WHAT'S THE DEAL WITH RAM AND STREAMING?

Q. I have a sampler that streams from hard disk, but its minimum system requirement includes a lot of RAM. Why is this necessary with hard disk streaming?

A. Hitting a key and reading a sample directly from disk would cause significant latency, due to the time required to find and load the sample. As a result, "streaming" samplers load the first part of a sample into RAM so that it's immediately available. While that's playing back, the hard disk can seek the rest of the file and begin playback from there.

Because the sampler has no idea what key(s) you're going to play next, the first several milliseconds of all samples in a preset need to be loaded. Therefore, you'll need more RAM if you're playing a preset where each key has its own sample, and even more if there are a lot of velocity-switched samples — they all require pre-loading too. Typically, a program will let you tweak the sample preload and buffer sizes to find the sweet spot between storing enough data and conserving on RAM.

INDIE WORLD:

WoM's "Vida Fraktal"

Featuring Gus Lozada (keyboards, vocals) and Enrique Górriz (guitars), this synth-pop CD was tracked entirely in Propellerhead Reason, with vocals and guitars added in Ableton Live. All off-line audio processing was done in Sony Sound Forge with Waves plug-ins.

Using cross-platform programs allowed Gus to work on files at home on his PC, and on the road with a G4 PowerBook. The tracks were then transferred using M-Audio's FW410 multi-channel FireWire interface into a ProTools HD system for the final mixing and mastering.

The vocals, a high point of the CD, were recorded direct to hard disk with no EQ or compression, then processed using the Waves C4 multiband compressor, MondoMod chorus, and TrueVerb. Some of the guitars were recorded direct into the Mac, and processed only with Live's internal effects.

The group is currently working on their first video, which they're doing themselves with Sony's Vegas 4.0. To hear some audio clips, visit **www.guslozada.com**.

CD to Go, Please

Hot trend: Leaving a concert with a recording of the show you just attended.

Main players: HyBurn, Disc Live, and Clear Channel's Instant Live

Origins: Four years ago, HyBurn started recording CDs at concerts and selling them to showgoers afterward. They're now handling everything from individual concerts to tours.

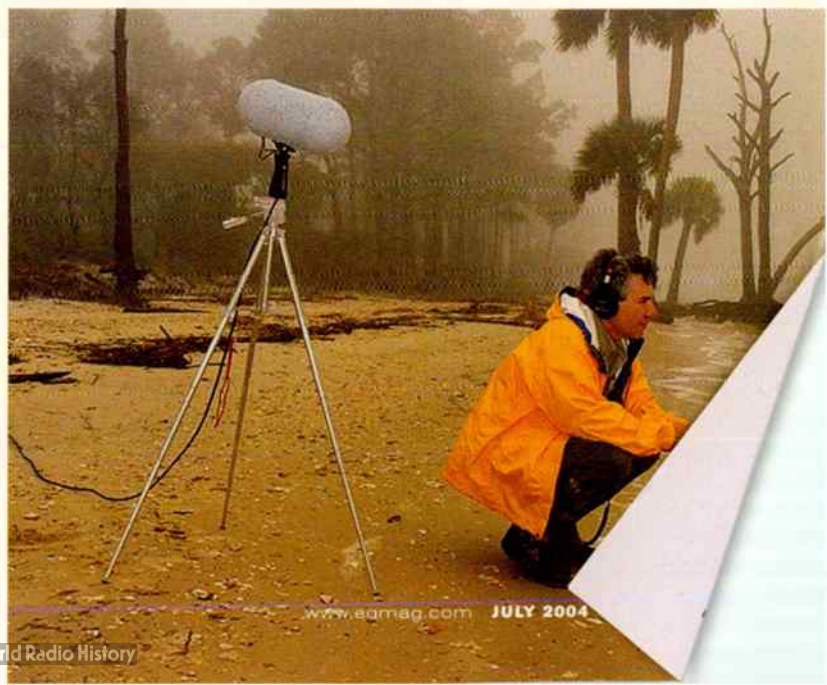
Why it matters: The artists get a chunk of the sale price, making this a new merchandizing stream. It also provides an alternative to the often lo-fi approach of bootleggers. Meanwhile, the fans get what they want — instant gratification. **www.hyburn.com**

Kids, Don't Try This at Home

Bernie Krause has been doing field recording for more than 35 years, but it has not always been a happy experience for his three M-S (mid-side) pairs of Sennheiser MKH 30 and MKH 40 mics. They've been subjected to temperature extremes of 50 below 0 to 120 degrees, bone-dry desert climates, and the extreme humidity of the rain forest.

One was even attacked by a bear: Krause had been recording in Sequoia National Park, when a black bear came up to one of his mics and completely engulfed the wind shield with its mouth. As a result, says Krause, "I have the only stereo surround recording of what it's like to be inside a bear's mouth." Well, better the mic than you, Bernie.

For more information on Krause's field recording techniques, see his new book/CD, *Wild Soundscapes: Discovering the Voice of the Natural World* (Wilderness Press). **http://www.wildsanctuary.com**



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FEG MODS

The "FEG" DIY preamp (April 2004) garnered a lot of interest, as well as comments about mods and additional background material. Marc Lindahl (of Plugzilla) offers the following.

"Note that the Miller effect has nothing to do with tubes or transistors *per se*, but with what happens when you vary a capacitor's voltage at both ends simultaneously. Here are a couple nice backgrounders:

http://carcino.gen.nz/tech/elec/millereffect.php
www.alkenamps.com/MillerCapacitance.html

"Also, Class B amps are never used for audio; they are always class AB. One characteristic of AB (and B) is that its slew rate is symmetric because you have an active device 'pulling' in both directions, whereas Class A is asymmetric (passive device pulling one way, active the other). I suspect the asymmetric drive of class A has more to do with the sound."

Here are Marc's mods:

- With a DPDT on/off switch, you could bypass FEG (handy if the battery dies). Wire the other pole's center to the output volume, then the two sides to the op amp output (C4) and pickup selector input. Add a 100k–470k resistor from C4 to ground if there's popping.
- Connect a 0.1µF ceramic cap in parallel with the C3/C4 combination to improve transient response (picking, high end) because it has a much lower impedance at those frequencies.

Mark Amundson, an Applications Engineer for Honeywell, offers the following:

- Consider wasting another half milliamp of current drain and reducing the R3/R4 rail splitter to 4.7k for a slightly stabler ground reference. I use 100µf/6WVDC Panasonic caps from Digi-Key on my rail splitters, for their small size.
- Add a 1N5819 diode in series with the battery clip before the splitter to prevent possible damage caused by an accidental battery clip reversal.
- Regarding op amps, I like a CMOS op amp's low current draw, decent slew rate, and wimpy output ratings that are perfect for soft clipping fuzz/overdrive circuits.

Forum Exchange

MusicPlayer.com Forum Watch

If you're into field recording for live performances, samples, sound effects, or whatever, what's the best option? Here are some opinions.

■ **Original question posed by Ken/Eleven Shadows: Does anyone have advice on portable recording? I'm looking for something that's lightweight, sounds decent (I'm not expecting Nagra here), runs on batteries, reliable, etc. I have access to an Audio-Technica portable mic. I'd like to keep it under $1,000.**

■ **Timmayock: I just bought an M-Audio USB mic pre for $150. This helps turn a laptop into a very nice two-track recorder. If you were to buy something instead of your existing mic, I'd recommend two mics and a stereo mic bar. These are much more versatile.**

■ **henryrobinett: If you had a PowerBook I'd suggest a Metric Halo 2882. Eight very decent mic pres, but not if you need a lot of gain. Their ULN-2 is the bomb, but is only two channels. Very high quality pres. The sound is amazing.**

■ **theblue1: You may find a single stereo mic is much easier to handle in the field than a bar-type holder (if you get a bar-type holder make sure it's adjustable — different situations may require different placement widths.).**

The Sound Design 7 Series recorders look really cool but aren't cheap: $3,000 and $6,000. Sony has a portable DAT for $800, but check their warranty — someone dropped a similar unit after the warranty expired, and Sony refused to work on it (even for a fee).

But something like the Zoom PS204 Palm Studio, at $200, would be much cheaper and more flexible. It's a 4-track recorder which even has a built-in condenser mic and preamp (you can use an external mic, instruments, etc.).

■ **Anderton: There are similar products like the Korg PXR4 and TASCAM PS5, but these usually record to a data-compressed format. The Fostex FR-2 ($1,999) field recorder looks pretty cool, it can record Broadcast WAV files to CompactFlash or hard drive.**

■ **Hendmik: I know DAT is dead, but TASCAM still makes a great portable DAT, the DAP1, that is kind of the industry standard for low end DAT use. It's about $800 on eBay, $1,500 new. It's not SMPTE ready, but has S/PDIF I/O that you could clock to a MiniDV camera if needed. The TASCAM also does phantom power. I often wish I hadn't sold mine.**

■ **Mats Olsson: How about using a MiniDV camera? Some of them have manual audio recording level and/or line input. It shouldn't be hard to find a used camera in good condition; add a couple of fresh rechargeable NiMH cells, and you're in business.**

■ **Ken/Eleven Shadows: Could you get decent audio with one of those if you feed it with A-T (or similar) stereo mics? The A-T mics run on batteries and don't require phantom power . . . how's the sound quality, though?**

■ **F7sound: With MiniDV, the recorder is pretty noisy, especially with the onboard mic (not just preamps — mechanical noise), and they record at 48kHz, not 44.1.**

■ **Hendmik: You're right about the onboard mics. A client brought in an industrial video where he recorded the dialog with the onboard mic. He wanted me to clean out the mechanical noise. It was a disaster. He was a great editor and director, but like most directors, audio was an afterthought that he really didn't understand.**

■ **Rog: I use the DAP1 a lot. I'd go with Henry Robinette's suggestion, though. An MIO or ULN-2 sound better, are more flexible and would be way more useful for not much more cash. Also, you won't have to wait around when transferring into a DAW for editing. A MIO and laptop can be pretty bulky though, you can't really use them for recording on the move.**

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T 508-652-0900, F 508-652-0909 Email: genelec.usa@genelec.com
In China: Genelc China Rep. Office, SOHO New Town
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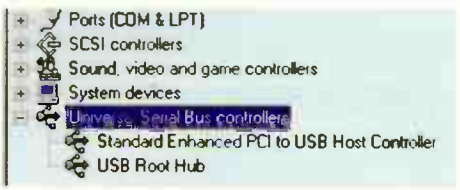
Punch-In

tip

WHICH USB AM I USING?

Q. How can I find out if my Windows XP system and computer are USB 2.0 compatible?

A. Open Device Manager, then click on the Universal Serial Bus Controllers folder. Check to see if any of the devices show an "Enhanced USB" Host Controller. If so, the system can handle USB 2.0. For more information, surf to www.usbman.com/Guides/checking_for_usb_2.htm



Microsoft: Driving Audio

Microsoft's next-generation audio capabilities are taking shape: There's not only broad support for the Universal Audio Architecture (UAA) initiative announced in 2002, but the first version of the Microsoft High Definition (HD) Audio Class Driver (based on Intel's High Definition Audio spec) is now available. Through UAA, Microsoft is also delivering a set of Windows audio class drivers based on other key audio technologies, including USB Audio and 1394 Audio.

UAA claims several key benefits:

- Simpler audio peripheral installation
- Higher performance through minimal CPU time consumed when streaming
- Glitch-free audio
- More stable and secure audio for server applications
- Less driver code to be developed, tested, and supported

Before the emergence of Intel's HD Audio spec, each vendor had to create a separate driver to work with digital audio controllers; now, a common audio host controller interface allows the Microsoft UAA HD Audio Class Driver to provide audio support.

Support for UAA-supported technologies includes Agere Systems, Analog Devices, ATI, C-Media Electronics, Conexant Systems, Fujitsu, Intel, Motorola, Nvidia, Realtek Semiconductor, SigmaTel Inc., Silicon Integrated Systems, Silicon Laboratories, Smart Link, ULi Electronics, VIA Technologies, and others. www.microsoft.com

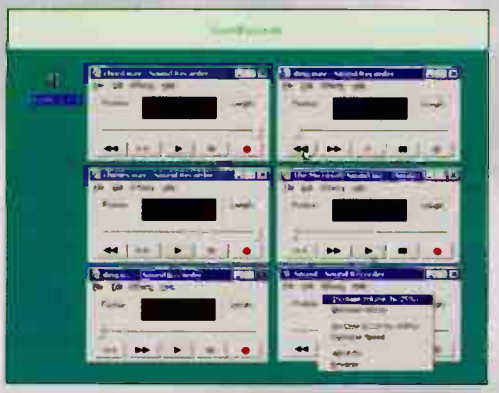
Go to www.microsoft.com and search on UAA to find white papers and design details.

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://pya.cc/pyaimg/pimg.php?imgid=3622**

Click on this, and see what can be done with only six instances of Microsoft's ultra-basic "Sound-Recorder" software. Okay, it's truly funny — but also consider this comment from one observer: "It's really cool when people can make something so elaborate and interesting out of such a limited medium."



■ **http://home.wxs.nl/~frank.philipse/frank/frank.html**

If tubes make you hot, you'll feel a glow inside when you check out "Frank's Electron Tube Pages." Download data sheets on just about every tube used on this planet (and possibly even others), as well as get base diagrams, substitution info, and useful links. Tubular, dude!

■ **http://www.audioworld.com/musicbiz.shtml**

Want a quick hit of music industry news? Go here to find out why Apple isn't interested in collaborating with RealNetworks, news on the Japanese music service that pumps content directly into audio gear, a comparative review of Sirius and XM Radio, and much more.

World Radio History

NEW! US-2400

The plug-and-play DAW controller with 2.5 motorized faders per finger.

Twenty-five, 100mm touch-sensitive, high-resolution motorized faders.

Twenty-four complete channel strips with rotary encoders plus

Mute, Solo and Select buttons.

The new **US-2400** is fully mapped for instant use with any DAW that supports HUI® or Mackie® Control protocols.

For more info on the first DAW controller with enough faders to handle a typical recording session without lots of bankswitching, e-mail us for a brochure at *tascamlit@teac.com* or visit a TASCAM dealer.

Now you can use your mouse and keyboard for what they're good at... interfacing with on-screen graphical interfaces — and use the wide-body US-2400 for what *it's* good at — mixing and hands-on control.

LED ring encoders give you hands-on "analog" of you DAW's pan and aux sends. A special channel strip mode and meters are provided for DAWs that support these functions.

Joystick for surround sound panning.

Mute, Solo and Select buttons on every channel beat the heck out of trying to mouse and click on-screen icons.

With 24 hands-on channel faders, bank switching is kept to a minimum. But for *really* big projects, the US-2400 is ready to control up to 192 channels!

Assignable Function keys can be set to Autopunch, Record arming, Undo, etc.

Recessed jog/shuttle wheel and solid-feeling transport controls.

Touch-sensitive motorized faders have 10-bit resolution — FOUR times finer than many competitors' control surfaces. You get ultra-smooth, big-console-quality fades. Hit the FLIP button and the faders can be used for writing automated pan or aux send moves while channel levels remain accessible on the LED rotary encoders.

- Footswitch jack for punch-ins
- In/Out point buttons
- Mac® OSX and Windows® XP compatible

- Adjust DAW software parameters such as 4 band EQ via the rotary encoders

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DJ AND PRODUCER

PERSONAL CREATIVITY

World Radio History

Super Audio Mastering Goes ATR

England's Super Audio Mastering is the first studio in Europe to take delivery of an ATR analog mastering deck, with Aria Reference Series class A discrete electronics by David Hill. Equipped for playback in both 1/2-inch, 1/4-inch stereo and full track mono formats, the ATR/Aria machine was custom modified and remanufactured by Michael Spitz of ATR Services in York, Pennsylvania.

Since acquiring the deck, among other projects Simon Heyworth has worked on solo albums from Brian Eno. The transfers are being done for stereo PCM and DSD stereo for hybrid SACD.

Super Audio Mastering is housed in a round, stone building — originally built as part of a farmhouse complex in the 1860s — located near the village of Chagford in Devon. Heyworth says that the studio space required only minimal acoustical treatment, as the rough-hewn structure provided a pleasing natural ambience, with the rough stone wall surfaces providing excellent high frequency diffusion. **www.superaudiomastering.com**, **www.atrservice.com**.

Mastering engineer Simon Heyworth and his Arial/ATR brings back analog tape to high-quality mastering.

Virgins Prefer WMA

MusicNet and Virgin Digital (the digital entertainment platform of the Virgin Group) are partnering to create a global digital music destination based on the Windows Media Audio (WMA) format. **www.virgindigital.com**

Ilio Gets Big

Ilio Entertainments, makers of sample libraries and virtual instruments, has expanded their office facilities from 2,400 to 7,000 square feet. In addition to increased office facilities, the expansion adds a state-of-the-art demonstration room, as well as 2,700 additional square feet of warehouse space. **www.ilio.com**

Lend Me Your Ears

If you're an audio engineer, musician, or other music industry professional, you likely have more hearing loss compared to the general population, and it also started affecting you at a younger age. This isn't speculation; the House Ear Institute has done thousands of hearing screenings at music industry trade shows like AES, and the results indicate that high-frequency hearing loss from noise-induced inner ear damage is widespread. Even when hearing thresholds were within normal limits, all age groups shared a characteristic loss of hearing sensitivity around the 4–6kHz frequency range.

It's scary, but HEI researchers emphasize that noise-induced hearing loss (NIHL) is the one type of hearing loss that *is* preventable, and encourage all music and audio professionals to wear appropriate hearing protection where sound levels exceed 85dB SPL for extended periods of time. **http://www.hei.org**

The picture on the left shows a normal inner ear "hair" cell; the one on the right shows considerable damage

TOP TEN TIPS: HEARING CONSERVATION

- See an ear specialist once a year and have your hearing checked.
- Carry earplugs around with you for protection against noisy environments.
- Common tasks (*e.g.*, hammering) can create huge volume spikes.
- Wear hearing protection when using power tools or doing construction.
- Avoid driving with the window open.
- In airplanes, don't wear earplugs that totally seal the ear canal — a sudden cabin pressure change could damage your ears.
- Headphones can create deceptively loud levels because of their proximity to your ear canal.
- For onstage, use custom molded earplugs. They cost more, but have a fairly flat response that doesn't make the music sound "muffled."
- Monitor at reasonable levels in the studio.
- Be aware that certain medications can affect your hearing. Ask your doctor whether any potential side effects relate to hearing.
- Don't fly when you have a cold or sinus infection. If the Eustachian tube is swollen shut, the inner-ear pressure can't equalize with the atmospheric pressure, causing pain and possibly a ruptured eardrum.
- Some pilots say menthol inhalers can help open up the Eustachian tube and minimize ear block.

World Radio History

REALITY
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IR-1 Convolution Reverb
A breakthrough in control of sampling reverb

- Factory Presets
- IR-1 Full Reset...
- Room - 1...
- Studio - 1...
- Plate - 1...
- Custom Setup

- CD1: Sampled Acoustics
- Sydney Opera House
- Grand Ole Opray
- Concert Halls
- Opera Houses
- Churches
- Theaters
- Amphitheaters
- Auditoriums
- Recording Studios
- Small Rooms
- Medium Halls
- Clubs
- Stadiums
- Outdoors
- Car Interiors
- Mics
- CO2: Virtual Acoustics
- Synthetic
- LX 48L- Plates
- LX 48L- Ambience
- LX 48L- Halls
- LX 48L- Concert Halls
- LX 48L- Random Halls
- LX 48L- Bombastic Plates
- LX 48L- PST Ambience
- LX 48L- Rooms
- LX 48L- Random Space

IR-1 Offers the best features of Sampling and Traditional Reverbs without the compromises. IR-1 is the first Convolution Reverb with "classic parameters" that affect the convolution, not just "filter the result".

IR-1 comes with an extensive library of over 60 carefully sampled impulse response files that recreate both the acoustics of real spaces and the sounds created by classic electronic devices. Waves worked with leading acoustician professor Angelo Farina to develop new and innovative techniques to create a library that establishes new benchmarks for clarity and accuracy in sampling reverbs.

Load IR's from ANY library that supports the WAV file format.

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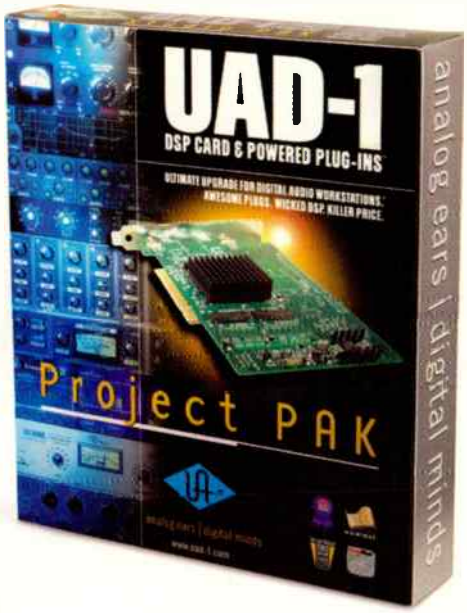
phone: 865-909-9200
fax: 865-909-9245

World Radio History

Tool Box

BY KEVIN OWENS



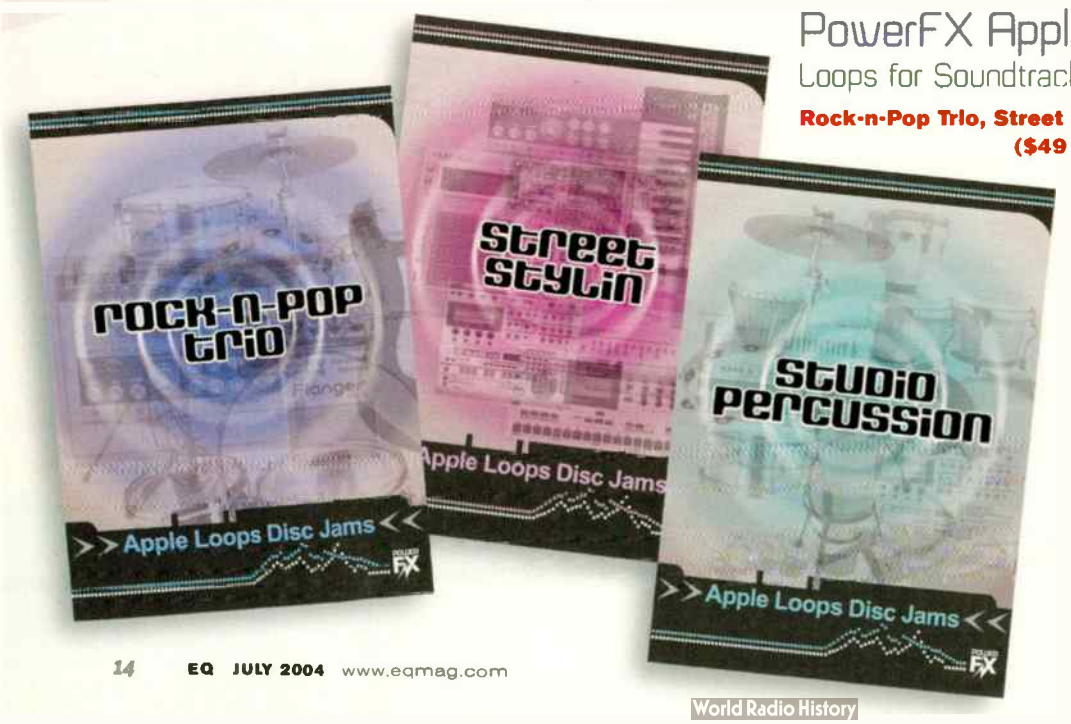
Universal Audio UAD-1 Project Pak

PCI DSP card and plug-in bundle

The **UAD-1 Project Pak ($499)** ships with the UAD-1 PCI/PCI-X DSP card and a bundle of 15 Universal Audio version 3.5 plug-ins, including the 1176SE vintage compressor, the Pultec EQP-1A EQ, RealVerb Pro, Nigel guitar processor, EX-1 EQ/compressor, DM-1 Delay Modulator, and the CS-1 channel strip. The Project Pak is compatible with Windows 98SE/ME/2000/XP/2003 and Mac OS 9/OS X/Panther, supports VST, AU, DX, and MAS plug-in formats, and is expandable online.
Universal Audio, www.uaudio.com.

Soundelux E250 Cardioid tube vocal mic

Optimized for the close-miking of loud vocals without the typical proximity-effect problems of low-frequency buildup and upper midrange/treble tilt, the **E250 ($3,000)** features a newly designed capsule with a 1" diameter and a 6-micron-thick gold-vapor deposited diaphragm. The E250 has a frequency range of 20Hz–18kHz, and comes in a wood box with a custom shock mount and a power supply.
Soundelux, www.soundeluxmics.com.

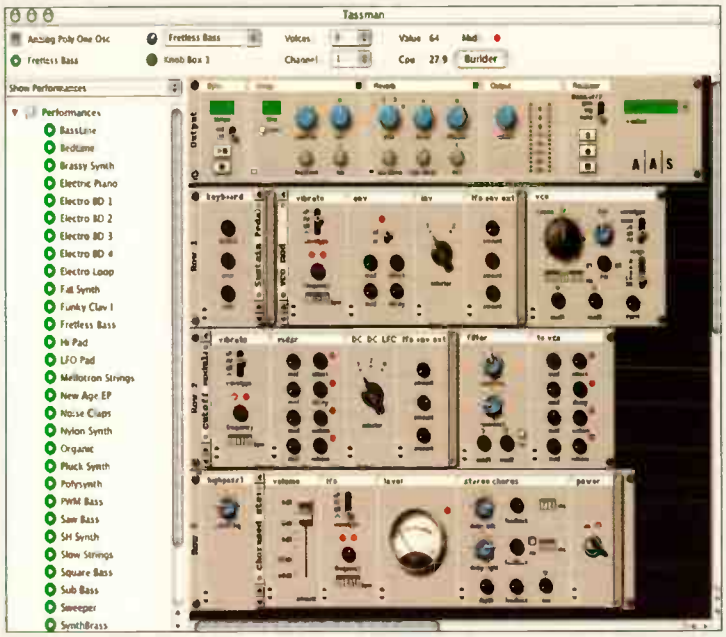


PowerFX Apple Loops Disc Jams

Loops for Soundtrack and Garage Band

Rock-n-Pop Trio, Street Stylin, and **Studio Percussion ($49 each)** are the three latest additions to the Apple Loops Disc Jams series of Soundtrack- and Garage Band-optimized loops. *Rock-n-Pop Trio* is a collection of acoustic drums, electric bass, and rhythm and lead guitars in a straight up rock style; *Street Stylin* is a stockpile of R&B, hip-hop, and downtempo loops with synth basses, guitars, keys, beats, and other effects; and *Studio Percussion* is a library of percussion loops — packed with percussion, congas, bongos, shakers, timbales, and bells — for use in almost any genre.
PowerFX, www.powerfx.com.

World Radio History



Applied Acoustics Tassman 4

Modular sound synthesis studio

Features new to **Tassman 4 ($399 download, $499 boxed; $99 upgrade from v3)** include a new synth and preset library, the ability to process live audio inputs, sync to host capability, and improved acoustic modules. Other new features include a Performance mode that gives you instant access to your sounds by combining a synth, a preset, effects, and MIDI maps (you can organize performances by style, type, or venue), and an Output stage that provides control over the playback and recording of your performances.

Applied Acoustics, www.applied-acoustics.com.

Nady RSM-2

Ribbon studio microphone

Constructed of turned brass and designed to deliver smooth, natural low and high end, the **RSM-2 ($439.95)** features a vintage 2"-long, 2-micron-thick aluminum ribbon design, a SPL capability of 165dB, and a figure-8 audio pickup pattern. The RSM-2 is available with either a gold- or platinum-finished grille, and comes with a padded carrying case.

Nady Systems, www.nady.com.

TASCAM CD-RW750

Professional CD Recorder

The rackmount **CD-RW750 ($679)** has the same 24-bit digital converters, CD-R and CD-RW support, and S/PDIF I/O (optical and coaxial) as its predecessor the CD-RW700, but also brings CD text, A-B repeat, and single playback features to the party. Other enhancements include a RAM buffer, digital fade in and fade out from 3–30 seconds, and a monitor section that allows standalone A/D and sample-rate conversion.

TASCAM, www.tascam.com.

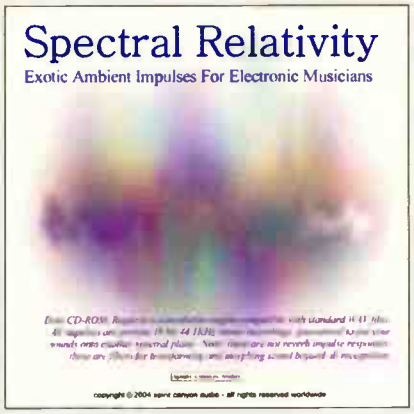
World Radio History

Spirit Canyon Audio Spectral Reality

Impulse response collection

Designed for electronic, ambient, and abstract musicians and sound designers, **Spectral Reality ($34.99)** transforms any standard convolution reverb into a general-purpose digital signal processor. The collection of more than 850 impulse response files allows you to use nearly any modern convolution reverb to do such non-reverby things as place sounds three dimensionally; smear, distort, and mangle sounds creatively; reverse time; pitch-shift and pitch-bend sounds; and more.

Spirit Canyon Audio, www.spiritcanyonaudio.com.



pcAudioLabs Custom DAWs

Built-to-order workstations

PcAudioLabs.com lets you custom configure your DAW from the ground up. The 19-step, guided, online process begins by selecting your desired level of "quietness" — there are four power supply/cooling configurations to choose from — and continues until your dream desktop, rackmount, mini PC, or laptop **($900–$7,000)** is complete. All available components have been pre-selected for reliable and stable operation, and, as you select components for your system, subsequent choices are limited to those parts that are 100-percent compatible with those you've already chosen.

To optimize the workstations for music production, the company performs over 40 tweaks to the operating system and motherboard BIOS depending on configuration.

pcAudioLabs, www.pcaudiolabs.com.

Lovetone Meatball and Cheese Source

Effects pedals

Lovetone announces that their **Meatball** and **Cheese Source** analog effects pedals **(appx. $530 each at current exchange rates)** are back in production. For those unfamiliar with the Lovetone food groups, the Meatball is an envelope follower/triggered filter that features four frequency ranges, multiple filter types (with depth and resonance controls), attack and decay knobs, an effects loop, and much more. The Cheese Source (pictured) combines Lovetone's venerable Big Cheese fuzz and Brown Source valve-tone overdrive pedals in a single box.

Lovetone, www.lovetone.com.

World Radio History

MXL

Studio photo courtesy of Solid State Logic Inc.

Plus

RECORDING PACK

MXL 2003 + MXL 603

MXL 2003

Features

- 1.06" (27mm) gold-sputtered, 3 micron density diaphragm
- Balanced transformerless output
- 3 position switch: Bass Cut, -10dB pad
- Durable brass enclosure
- Complete with mic clip and zipper pouch

Applications

- Vocalist mic - Lead and Background
- Voice Over, Announcing, Dubbing
- Close miking Guitar Amplifiers
- Overhead miking

MXL 603

Features

- 20mm gold-sputtered, 6 micron gold diaphragm
- Satin silver finish with etched engravings
- Mic clip included
- Supplied with Carrying Pouch

Applications

- Stringed instruments, bass, guitar
- Piano miking
- Drum overhead
- Percussion
- Room miking

The MXL Recording Pac was designed with the working musician in mind. It was developed for recording music and vocals into digital or analog recording devices. The combination of these two highly respected studio condenser microphones is perfect for working in recording studio and home music recording applications. The unmatched sonic excellence and superior component quality, make the Recording Pac Plus the best value on the market. Audition your Recording Pack Plus today and experience the music you can only achieve with MXL Studio Condenser Microphones.

www.MXLMics.com | sales@mxlmics.com | 800-800-6608

World Radio History

Mackie dXb.400
Digital console

Designed with professional recording and post production applications in mind, the **dXb.400 ($20,000)** features a 96x96 channel I/O matrix at 96kHz (or a 48x48 channel matrix at 192kHz), a touch-screen interface, onboard automation and DSP, 25 100-mm Penny& Giles optical faders, a fully configurable I/O card cage, and a FireWire I/O card option for streaming to or from desktop or laptop computers. It's also equipped with advanced surround mixing and monitoring functionality, including 24-bit bus architecture, flexible panning assignment, bus/return switching to an assignable speaker matrix, and "fold down" monitoring.

Mackie, www.mackie.com.

Soundfield Surround Zone
Mac/PC plug-in for Nuendo

Surround Zone ($1,162.50) for Nuendo 2.0 (Mac and PC) decodes and processes the B-Format audio output generated by any of SoundField's surround microphone models. SurroundZone offers a choice of three different 5.1 arrays, is adaptable to 6.1, 7.1, and any future surround 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.

Soundfield, www.soundfieldusa.com.

Wave Arts FinalPlug Mastering plug-in

FinalPlug ($149.95) is a new peak limiter/volume maximizer plug-in with bit-depth truncation (from four to 24 bits) and TPDF (triangular probability distribution function) dithering. Features include mono-to-mono or stereo-to-stereo operation, comprehensive noise shaping, sample rates of up to 192kHz, and presets for CD and DVD-A mastering and track compression. FinalPlug works on individual tracks or an entire mix and supports Mac OS 9 (MAS/VST/RTAS), OS X (AU/MAS/VST/RTAS), and Windows (DX/VST).

Wave Arts, www.wavearts.com.

World Radio History

Millennia
Music & Media Systems

Making Waves

MAKING WAVES

Co-holder of the Tennessee State Men's Three Slalom record, producer/engineer Chuck Ainlay's spirit of adventure has lead to Grammy winning and/or multi-platinum releases for Mark Knopfler, Steve Earle, Lyle Lovett, Trisha Yearwood and many others.

TD-1 customized travel accessories include travel bag and leather handle

Finally, a no-compromise analog recording channel priced within the reach of small studios and home recordists ($1,495). Designed with "take me anywhere" versatility, TD-1 delivers unmatched Millennia performance, extensive signal path routing, and adventurous behavior.

"I love the TD-1! I've been using it on new album projects by Mark Knopfler, George Strait, Mary Chapin Carpenter, and Sugarland. The HV-3 mic pre and REAMP features are outstanding."

Hand made in Northern California, employing REAMP®, Speaker Soak®, TwinTopology®, Millennia's acclaimed HV-3 mic preamp, pliant DI, multi-impedance bridging, fully parametric NSEQ, three audio transformers, nine outputs, and military build quality...TD-1 is equipped for

MAKING WAVES

www.mil-media.com 530-647-0750

World Radio History

Apogee Rosetta 200

Two-channel AD/DA converter

The **Rosetta 200 ($1,995)** features two channels of high quality, 24-bit AD/DA conversion; sample rates of up to 192kHz; two channels of AES, S/PDIF (coax and optical), and ADAT/SMUX I/O; MIDI I/O; Soft Limit for maximizing levels without clipping; and full channel metering. Also new is the included Coda audio finishing module, a trio of tools designed to preserve the integrity of hi-definition recordings with a minimal loss of quality. Optional expansion cards for FireWire, Pro Tools HD, and Pro Tools Mix systems are available.

Apogee, www.apogeedigital.com.

Discrete Drums Earthbeat

Multitrack drum library

Earthbeat ($199) is collection of multitrack drum and percussion loops covering a variety of Latin, African, eastern, and "other-world" textures performed by drummer Greg Morrow and percussionist Eric Darken, and recorded in Nashville's legendary Sound Kitchen by engineer Steve Marcantonio and producer Rick DiFonzo. The 8-CD set — five discs of 24-bit/44.1 multitrack WAV files, one disc of 16-bit stereo WAV files, one 24-bit WAV sample CD, and one audio CD for quick reference — comes in Discrete's signature wooden box. A 16-bit WAV version is also available for **$99**.

Discrete Drums, www.discretedrums.com.

Metasonix TX-1 Agonizer

Mystery effects box

Designed to "screw everything down to a nice, crunchy sonic puree with aluminum shavings and broken glass mixed in," the fully analog **TX-1 Agonizer ($499)** uses an obscure TV tube from the 1960s that Metasonix claims has never been used for audio before. The pedal features a neon lamp in the feedback loop that causes "all kinds of non-stability, plus loads of screeching, gagging awfulness," as well as front-panel Pound, Strangle, Grind, and Now Suffer controls. The company warns that the Agonizer draws a lot of power -- 1.5 amps of 12 volts AC — and "puts out such a hot signal that there is a real danger of it damaging some types of solid-state equipment." Sweet.

Metasonix, www.metasonix.com.

World Radio History

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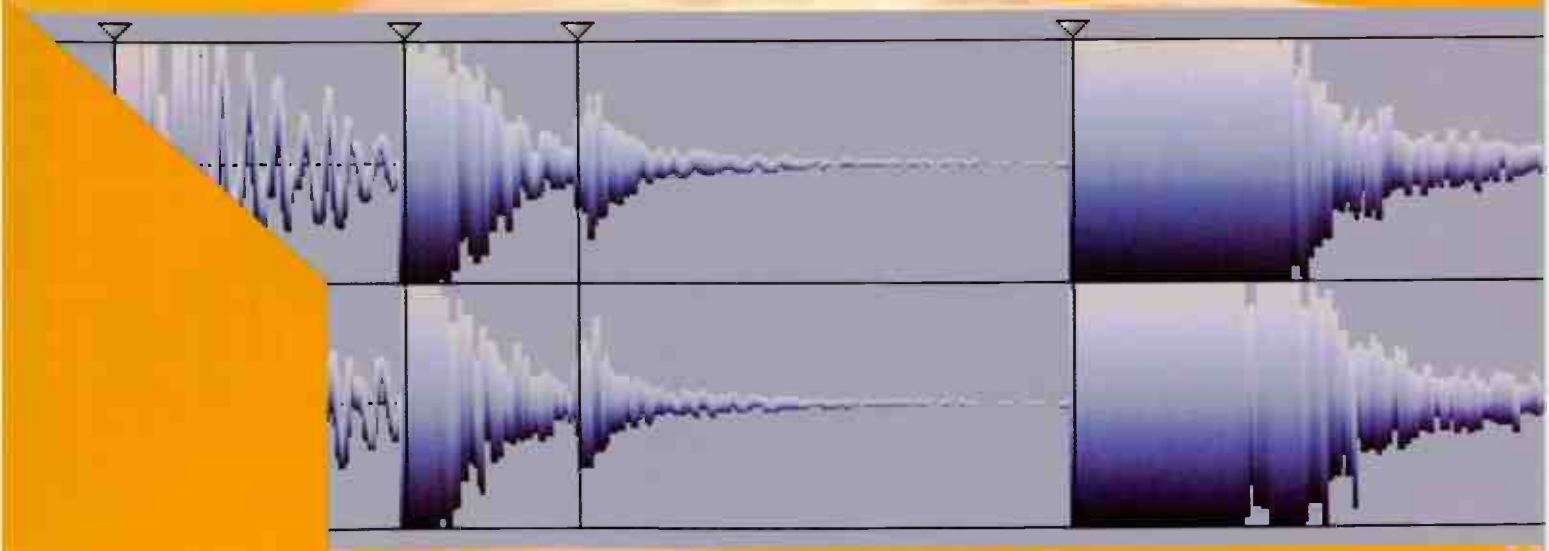
World Radio History

Loops HIT THE MUSICAL MAINSTREAM



World Radio History

Formerly the province of ivory tower electronic music experimentalists and Red Bull-swilling DJs (how's that for an odd couple?), taking a piece of audio and repeating it over and over to create a "groove" has hit the musical mainstream. From rock to rap and country to soundtracks, loops have woven themselves into the fabric of modern music — whether as bit players in a standard recording session, or as stars in an environment tailor-made for them.

If you think all loop music is just a 4/4 kick drum and a synth bass line, that just testifies how well they've done their job of integrating into today's scene. You've heard loops everywhere, whether you recognize them or not. Loops have expanded way beyond their dance roots into . . .

- **COMMERCIALS.** The ability to time-stretch loops makes it easy for that fantastic 36-second music bed to fit into a 30-second spot.

- **OVERDUBS TO EXISTING TRACKS.** You have a slammin' rock track, but want to add an exotic flavor with some world percussion. No Djembe player? No problem. Grab an idiomatic pattern from a percussion sample CD, and lay it in.

- **INSPIRATION CREATOR.** If you're bored by a metronome's "TICK-tock-tock-tock," load a cool drum loop to kick start your creative juices.

- **ADDITIONAL PRODUCTION ELEMENTS.** Whether it's a rock, pop, or country record, chances are you'll hear loops being pressed into service as additional production elements. In many cases, traditional percussion (*e.g.*, tambourine and shaker) is replaced with more ear-catching looped material created from live performances of the drummer or other band member.

- **TRANSPOSITION.** Your singer would be more comfortable if the tune was a full step higher. Fortunately, most digital audio loops can transpose as well as stretch time.

- **VIDEO SOUNDTRACKS.** Audio-for-video can be a high-pressure environment where the clock and budget rule all. Loops to the rescue: Lay down a quick rhythm track, record a blistering solo in real time . . . call Fed Ex for a pickup.

- **SPECIAL EFFECTS.** By abusing loop parameters, it's possible to slice and dice audio into something completely different — from freakishly musical to hi-fi sci-fi.

- **PRACTICING.** Working out a solo? Set up a loop of multiple tracks, click go, and practice until you get it right.

- **"DATA COMPRESSED" FILES FOR COLLABORATION.** If you're a songwriter doing melodies and collaborating with someone else on lyrics, it's a lot easier to email a file based on loops — a loop repeated eight times takes up 1/8th the memory of the music expressed as a traditional digital audio file.

- **LIVE PERFORMANCE.** Loop-based software (such as Ableton's Live) encourages using loops as performance elements — raw materials that you shape, in real time, into evocative, evolving music.

- **LOOP-BASED MUSIC.** Oh yes, and there's always music based on loops: Rap, techno, hip-hop, trance, ambient, house, and so on through the endless mutant variations that keep butts shaking on dance floors.

Unlike the old school loop days, where you spliced tape to created a physical loop and let it run over a tape head *ad infinitum*, today's slick digital tools let you stretch audio in a way that makes Silly Putty look downright inflexible. Yes, the days of calculating tempos and laboriously trimming lengths to create a loop have mercifully joined the Elcaset on the scrap heap of recording history. In many cases, you can just drag and drop loops into today's tunes and get creative, rather than switch into geek pocket protector mode.

If you're already using loops, you'll pick up a bunch of tips and tricks exclusive to *EQ*. The following pages are chock full of vital information that will help get you well on your way to adding loops into your bag of production tricks. And if you're not using loops yet, keep reading . . . and discover why loops are here to stay, even if your musical point of reference is Led Zeppelin rather than Kraftwerk. —*Craig Anderton*

World Radio History

by Craig Anderton

HOW TO GET LOOPY

Loop formats dissected and explained

There are many types of loop formats. This roundup covers the main ones and describes the technology involved, what's cool and uncool about each format, and their degree of convenience.

STANDARD DIGITAL AUDIO FILES

Before decent time-/pitch-stretching became common, you had to use loops at their "native" tempo/pitch. Some loop CDs included the same loop recorded at multiple tempos and/or keys so users wouldn't be so restricted.

The technology: You imported the loops, and copied/pasted as many times as needed.
Cool: Uncompromised sound quality because the loops weren't altered.
Uncool: Inflexible — you built your tune around the loops, not the other way around.
Convenience factor: Extremely convenient if your song happened to be at the same tempo and key as your loops. Otherwise, file under "annoying and tedious."

DSP-BASED STRETCHING

Today's hosts often include DSP algorithms that can transparently stretch pitch or tempo — grab a piece of audio, and drag its end to shorten or lengthen.

The technology: These algorithms remove or add samples to shorten or lengthen a loop, respectively; crossfading helps cover the "splice points."
Cool: Stretch pitch and time conveniently, with decent sonic results.
Uncool: When the producer says "Can you speed up the tempo?" you have to re-tweak all the loops you stretched so they fit the new tempo.
Convenience factor: Quite convenient, unless there are lots of tempo changes.

In Reason, the Dr. Rex file player assigns each slice to a MIDI note; the sequencer plays these back in order.

REX-BASED STRETCHING

Propellerheads' REX format tackles time-stretching through methods other than conventional DSP (Cubase SX's "hitpoints" and Ilio's "Groove Control" use a similar approach).

The technology: The REX process cuts the audio at transients to create "slices," then triggers them further apart in time if the tempo slows, and closer together if the tempo speeds up.

With most hosts, using a REX file is just drag-and-drop (or import). However, it is possible to trigger these slices with a MIDI sequence; editing the MIDI sequence creates loop variations. ➤

You can resize events in Cubase SX with the Time Stretch cursor, which automatically applies DSP-based stretching.

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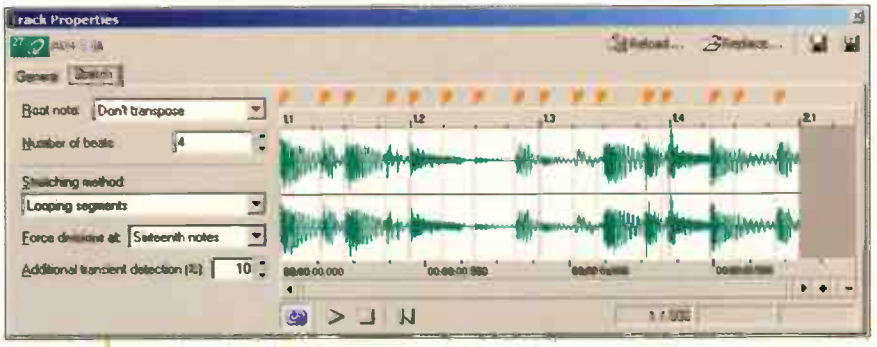
Cool: Because little DSP is involved, with the right kind of percussive material there's virtually no sonic degradation (particularly with stretching to faster rather than slower tempos). REX files also track tempo changes automatically.
Uncool: Sustained sounds don't lend themselves to the REX process.
Convenience factor: Seamless integration into projects makes REX files extremely convenient, although this depends on how well the file was optimized for the REX format.

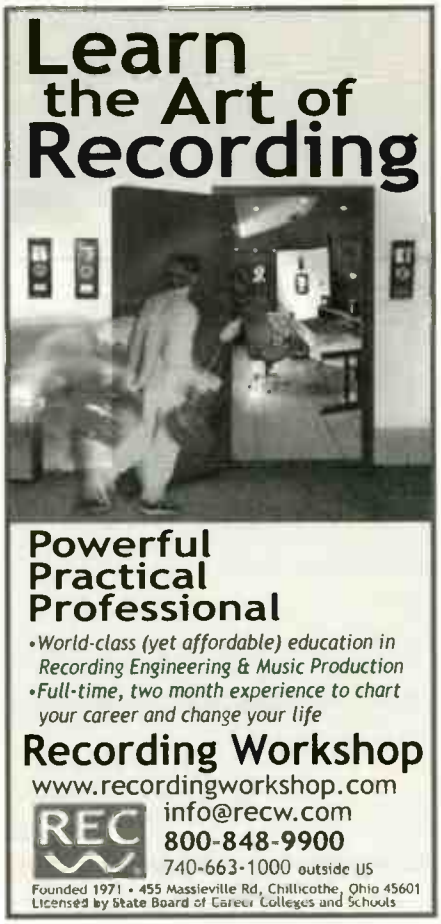


Acid's Properties page is where you adjust a loop's acidization markers, along with the stretching method and other loop optimizing parameters.

"ACIDIZED" (RIFF/WAV) STRETCHING

An acidized (RIFF) WAV file embeds pitch and tempo information into the file header. When loaded into a compatible host, the header provides "directions" on how to handle file playback with tempo or key changes. Apple Loops are similar, but contain additional parameters.

The technology: This DSP-based process slices audio at transients, adds or removes samples to lengthen or shorten them respectively, then crossfades these segments to smooth transitions within the loop.
Cool: Automatically follows a tune's tempo and key change markers.
Uncool: Slowing down loops can add artifacts, and "acidizing" files so that they stretch over a wide range is a time-consuming art.
Convenience factor: The most convenient way to loop.



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by Craig Anderton

SO YOU WANNA MAKE A LOOP...

The scoop on making loops, in 10 easy steps

Your drummer just came up with the rhythm pattern of a lifetime, or your guitarist played a rhythm guitar hook so infectious you're about to soak the studio in Lysol. And you want to use these grooves throughout a song, while cutting some great vocals on top.

There's something about a loop that isn't the same as the part played over and over again . . . and vice-versa. Sometimes you want to maintain the human variations that occur from measure to measure, but sometimes you want consistent, hypnotic repetition. When it's the latter, here's an easy way to create a loop from start to finish. We'll use a rhythm guitar figure as an example.

1. CHOOSE YOUR PITCH WISELY

If you need to play in a specific key, fine. But if you plan to use the loop in other keys, remember that pitch transposition is harder to do than time stretching; transposing much past three semitones can lead to a very unnatural sound. One solution is to record the loop in two or more keys.

For example, when recording loops for my *AdrenaLinn Guitars* sample CD, I played each loop in the key of *E* (to cover the range *D*–*G*) and also *B*♭ (for *G*♯–*C*♯). Therefore, it's possible to reach any key without having to transpose by more than three semitones.

There were a few cases where it simply wasn't possible to obtain the same chord voicing in the two keys. So, I cheated and used a DSP-based time stretching program (Prosoniq Time Factory) to transpose the pitch, then created a loop from the transposed version.

2. PLAY AGAINST A CONSISTENT TIMING TRACK

It's easy just to "grab" part of a track from a multitrack recording. But if you're creating a loop from scratch, playing against a rhythm track generally gives a better feel. I also add a bass part in *E* and *B*♭ (muting whichever is appropriate) so I can play against a melody as well. Just make sure you can change the track's tempo (*e.g.*, a MIDI rhythm driving a virtual drum machine) because you want to . . .

3. RECORD AT A SLOWER TEMPO

Acidized or REX format files sound better when sped up than slowed down, because it's easier to remove audio than try to fill in the gaps caused by lengthening audio.

Set the tempo for the right feel, and practice until you nail the part. But before hitting record, slow the tempo down, typically to 100 BPM (if the tempo was below 100 BPM, leave it as is). You may also find it easier to play the part more precisely at the slower tempo.

Typically, an Acidized or REX loop can stretch (if properly sliced and edited) over a range of about –15% to +60% or higher. So, a 100 BPM loop will be viable from about 85 BPM to over 160 BPM. For really downtempo material, consider cutting at 80 BPM instead.

4. SWING OR NO SWING?

Swing, which adds a syncopated quality to a rhythm, alters the duration of note pairs. (For example, with 50% swing, the first sixteenth-note of a pair and the second sixteenth-note have the same duration; with 57% swing, the first sixteenth-note's duration will equal 57% of an eighth-note, while the second sixteenth-note will equal 43% of an eighth-note.)

If a loop wants to swing, let it. Unless it has a huge swing percentage, it will usually play okay against something recorded without swing. Loops recorded without swing will work with a greater range of material, but they won't have that cool feel only swing can provide. ➤

Track 1 plays bass in the key of *E*, Track 3 drums, and the guitar part has been recorded several times in Track 4 so there's a choice of performances. Note that the tempo is set to 100 BPM, even though the loop is intended to play back at around 130 BPM.

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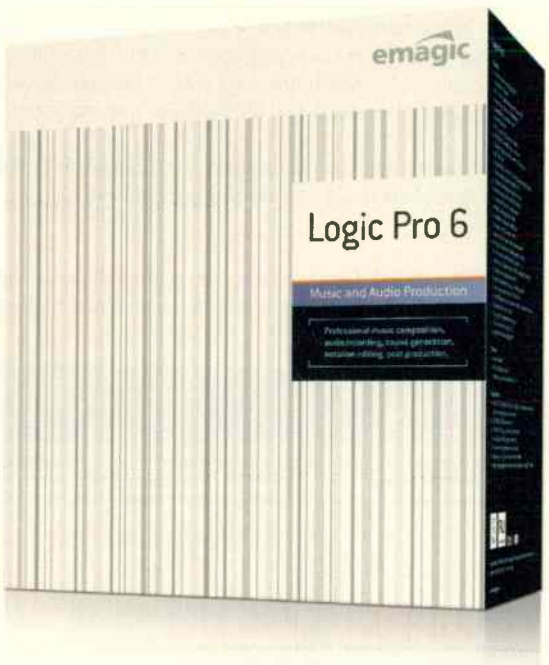

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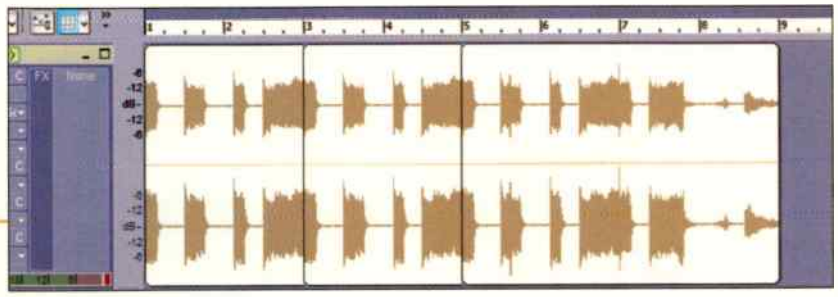


If you make a loop longer than needed, you can always cut it into smaller pieces. In this example, the original four-measure loop goes from measure 5 to measure 9. But its first two measures have been copied and pasted in measures 1 and 2, as well as measures 3 and 4.

5. HOW MANY MEASURES?

Although many loops are one measure long, I think two-measure loops "breathe" better: The first measure is tension, the second is release. Four-measure loops work well when the sound needs to evolve over time. Eight- or sixteen-measure loops are more like "construction kits," which you seldom use in their entirety, but from which you instead extract pieces.

It's easy with any looping-oriented program to shorten a long loop. So if you create a four-measure loop that builds over four measures but want to build over eight measures instead, split the loop in the middle, repeat the first two measures twice (to provide the first four measures), then play the full four-measure loop to complete the eight-measure figure.

6. TRIM TIME

After deciding on the optimum length, zero in on the best candidates for looping. Say you're recording rhythm guitar. Solo the track, and listen to the entire rhythm guitar part. Mark off regions (based on the number of measures you want to use) that would make the best loops.

After locating the best one, cut the beginning and end to the beat. With loops played by a "real human," the beginning likely won't land exactly on the beat and neither will the end. Find the loop beginning, zoom in, and place it at the exact beginning of the measure (assuming there's no rest before the first note kicks in). Snap the cursor to the measure beginning and do a split or cut. Similarly, trim the end so the loop falls exactly on a measure boundary, and cut there as well. You now have a precisely cut loop.

7. HOW ABOUT SOME "QUANTIZATION"?

Now scan the loop for transients and see if they line up properly with note divisions. Small timing differences are not a problem and, if done musically (*e.g.*, a snare on a loop's last beat hits just a shade late), will enhance the loop. But if a note is objectionably late or early, isolate it by splitting at the beginning and end, then sliding the attack into place.

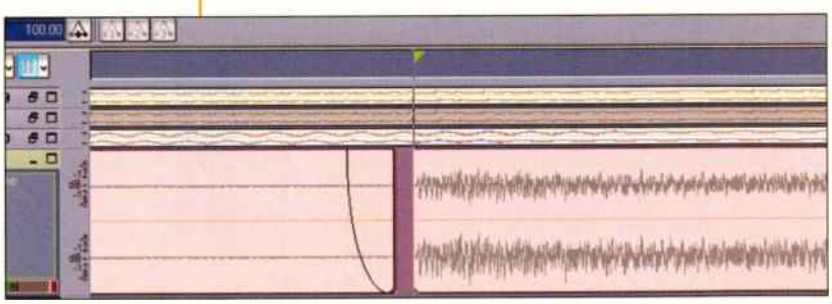
Moving a late note ahead in time will open a gap between the note you moved and the next note. If this creates a problem, you could:

- Add a slight fade to the first note so it glides more elegantly into the gap.
- Copy a portion of the first note's decay, and crossfade it with the note end to cover the gap.

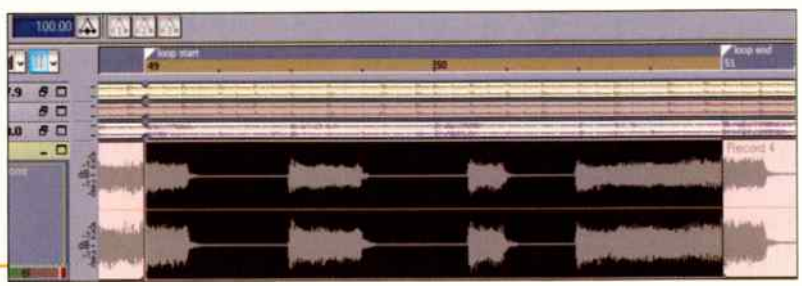
If the note was early and you shifted it later, then there will be a gap after the previous note, and the end of the note you moved might overlap the next note. If the gap is noticeable, deal with it as described above. As to the end, either:

- Shorten it so it butts up against the beginning of the next note.
- Crossfade it with the next note's beginning.

If you've edited the loop, it's not a contiguous file any more but a collection of various bits. To make it one file again, bounce



The chord hit a bit early, so it has been shifted to land on the beat. The note before it has a fade so the gap isn't obvious.



The best two measures out of the performance are now cut at the loop beginning and end. The rest of the audio gets nuked.

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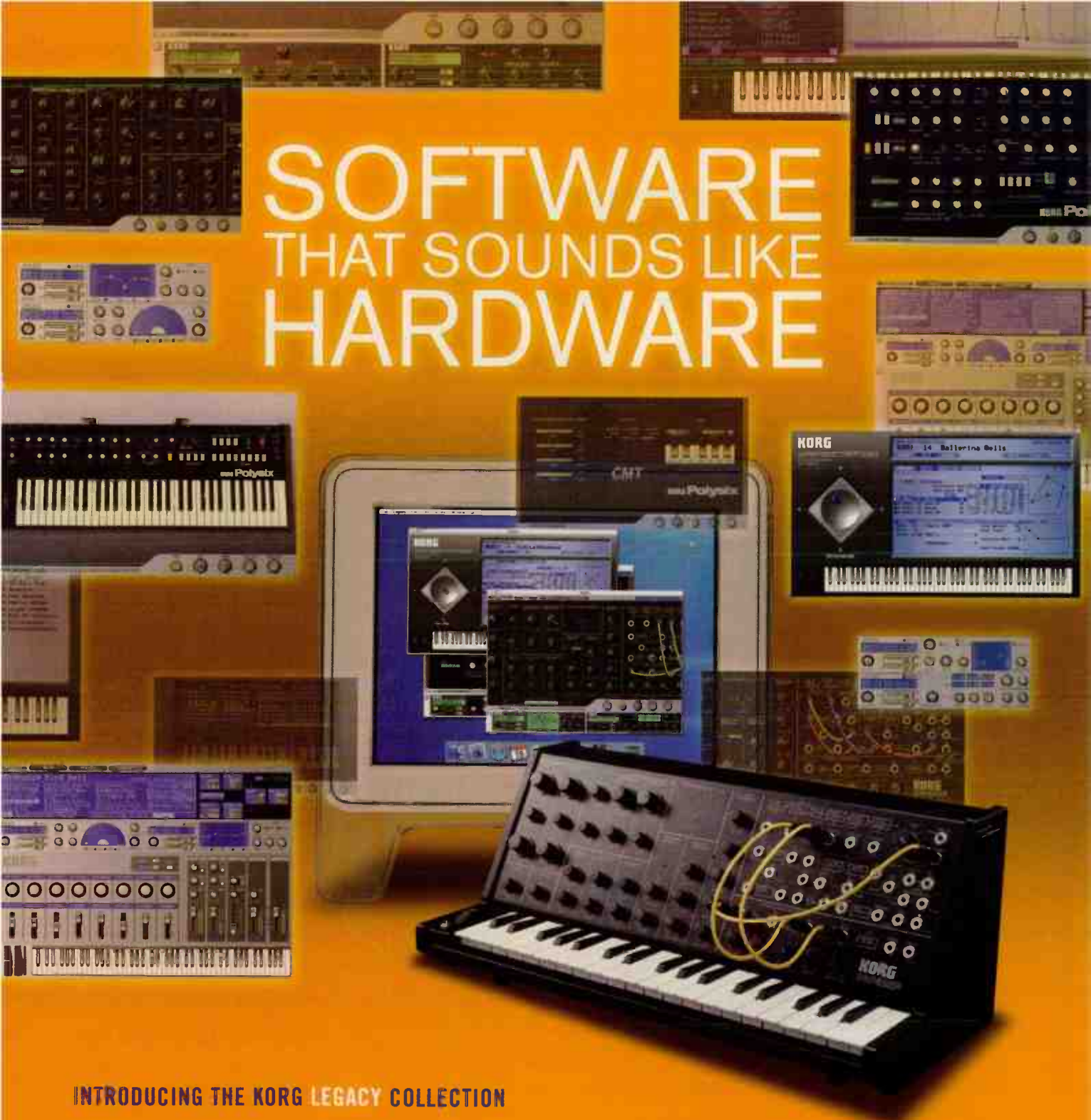

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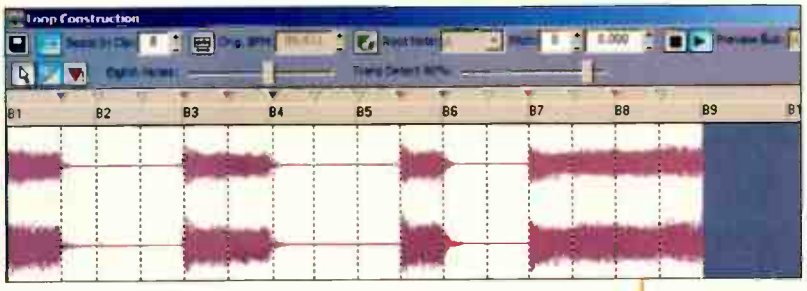


The loop is now in Sonar's Loop Construction window, where markers have been added and tweaked for optimum placement.

the region containing the loop to another track, bounce into the same "clip," or export it and bring it back into the project.

8. WHAT ABOUT PROCESSING?

A "dry" loop is the most flexible — if you throw on some reverb, then the stretching process has to deal with that too. Cut a dry loop instead, and add reverb once the loop is in a track in your host.

If an effect is an integral part of the loop, such as tempo-synced delay, embed the effect in the file if you want a "plug and play" loop. Otherwise, add the effect during playback.

tips

- If there's a level shift between the loop start and end when you cut a loop to the desired number of measures, you may hear a click when the loop repeats. To correct for this, add a very short (3 ms) fade at the loop start and end.
- When playing against a rhythm track, it's best to create one using MIDI. That makes it easy to change tempo, as well as quantize parts or add swing.
- ReCycle, Sonar, and Acid — the main programs capable of creating slice-based loops from raw files — accept AIFF or WAV format data.
- When creating an acidized loop, don't forget to enter the root key for pitched loops. This allows the loop to follow key changes in the host program. For percussive parts, specify no root key so that only the duration, not the pitch, changes.
- Sometimes it's worth cutting and pasting different pieces from your various performances to create the ultimate loop. If you plan to cut and paste bits and pieces of a performance to create a loop, you may need to add fades to those sections that don't end on a zero crossing. When you bounce or export these clips prior to creating a loop, the fades will become part of the file.
- If you plan to normalize a loop, do so before trimming it to length or adding any fades.

Some people "master" their loops with heavy compression so the loops really "jump out," or add extra brightness so the loop "pops." But when you record other tracks (vocals, piano, etc.) then master the song, if you want to squash the dynamics a bit, then the loop dynamics will be super-squashed, and if you add a bit of brightness, the loop will shatter glass.

I often add a little EQ to trim response anomalies, and just enough limiting to tame any rogue peaks. Loops fit better in the track that way, and are more workable when it's time to mix and master. You can always add processing; it's more difficult to remove it.

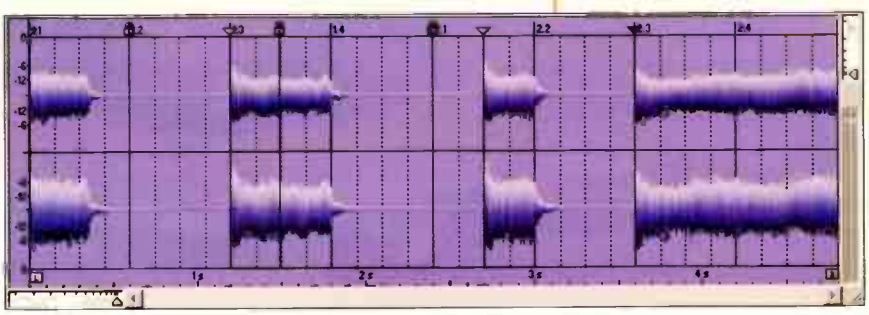
9. YOU HAVE THE FILE, NOW ACIDIZE THE LOOP

You now have an ideal candidate for looping. To acidize it, bring it into Sonar or Acid. Either program will make an educated guess about how best to loop it, and will do a decent job. You can then optimize the loop markers for the best stretching over the widest range (see the article on optimizing loops on page 34).

10. . . . OR MAYBE YOU WANT A REX FILE

If you want to create a REX file, import the loop into ReCycle. Again, the article on optimizing loops on page 34 includes information on how to tweak the markers that determine where the "slices" fall for the best possible stretching.

If you followed the above directions and optimized the loop, it should work with a variety of material over a wide range of tempos, and fit perfectly into a song . . . that's what it's all about.



Once imported into ReCycle, you add markers at transients to create "slices." The marker that splits the second chord in half is there for a reason — there are two eighth note chords played in quick succession. Even though you can't see the transient that marks the beginning of the second chord, it still needs to be marked so that it plays back at the right time.

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World Radio History

by Craig Anderton

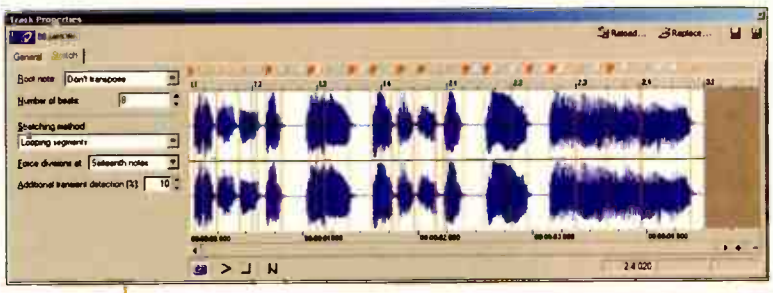
OPTIMIZING LOOPS

Tweak your loops for the best sound and stretching

PART 1: THE IDEAL ACIDIZED WAV

The two main programs for creating/editing acidized files are Acid and Sonar. A poorly acidized file, where the markers that define how the file should be stretched aren't placed properly, will cause artifacts when stretched (*e.g.*, doubled attack transients that sound like "flamming," and/or a loss of some of the "ring" and/or fullness from percussion and other sounds).

Let's investigate how to create the perfect loop, using Acid as our host; the same basic principles apply to Sonar too.



The markers have now been edited. Dark brown markers are in their original positions; light brown markers are moved. Light blue markers are disabled.

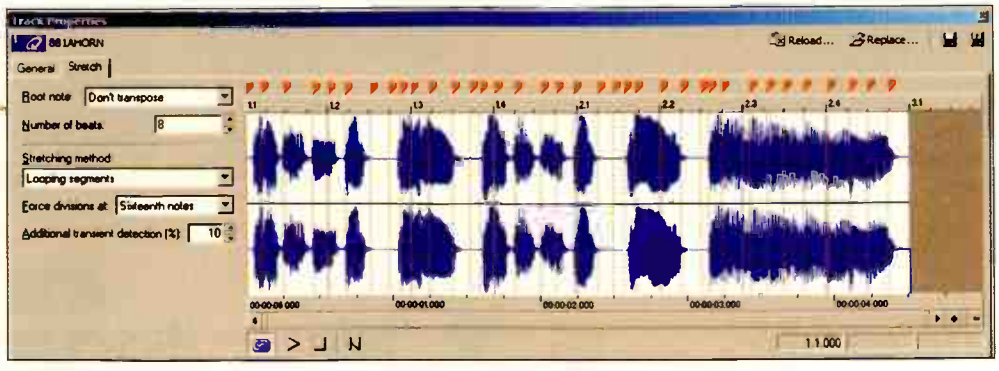
1. Bring the file into the host, then open up Acid's Loop Properties page, or Sonar's Loop Construction window. You'll see a lot of markers; either program will attempt to guess where they should go. Sometimes this works — in fact, some people would merely save the file and consider their work done. But you'll usually need to tweak the marker positions so the file can stretch over the widest possible range.

2. Slow the host tempo downward by 20% or more and play the loop. A slower tempo exaggerates any problems. For example, if you hear flamming, then a marker is likely not sitting exactly on a transient. You may also hear notes that "jam together," as if just that section of the loop was sped up. This means that a marker is missing at one or more notes, and you need to tell the acidization process that these are distinct events. You do this by adding a marker at the note.

3. Acid and Sonar both let you move markers around (click-drag), and add markers by double-clicking the strip that displays the marker "flags." The general rules for editing are:

- Existing strong transients should all have a marker at the transient's precise beginning. Zoom in if needed to see the transient.
- Secondary transients, such as those caused by a delay or flam, should have markers as well.
- Remove spurious markers (*i.e.*, they don't fall on transients or rhythmic intervals) because they perform no real function.
- With sustained material, add a marker at a rhythmic interval (*e.g.*, quarter note or eighth note). This tells the DSP to create a crossfade to help make a more seamless transition; putting it on a beat means that any discontinuities will likely be masked by other sounds.
- If you hear a "fluttering" effect during sustained notes, try adding another marker in the middle of the note.
- Sometimes adding a marker at the end of a note's decay prevents roughness toward the note's end.

4. Sometimes transients won't be obvious. For example, a fill and cymbal crash might play simultaneously at the end of a drum loop, so you can't see the individual transients. Listen to the part: If there's a hit every sixteenth-note, then just place a marker at every sixteenth-note. If it's mostly sixteenth-notes but there are some hits that extend over an eighth-note, add hits for the sixteenth-notes but omit them for the sections that are longer.



When you bring a file into Acid or Sonar, it will guess where the markers should go. In this case, there are too many markers, and they don't fall on transients properly.

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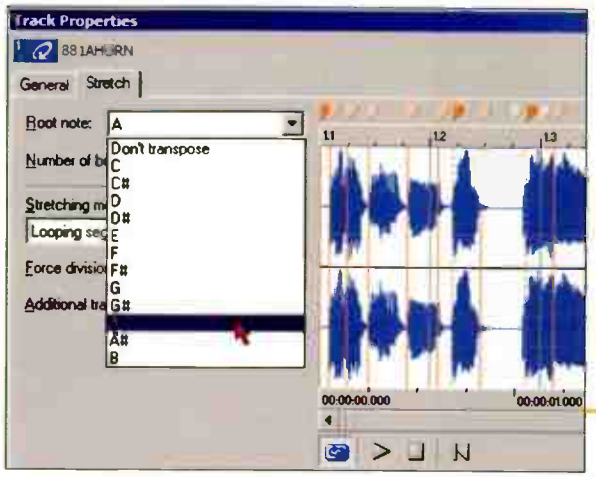

Acid has a drop-down menu that lets you specify the loop's root note.

5. Keep listening and tweaking until everything sounds right. Now jack up the tempo and listen again. This makes it easier to hear if there are too *many* markers. For example, if there's a sustained section with lots of unneeded markers, you may hear a certain roughness or discontinuity. Try removing some of these markers and decide whether that improves the sound.
6. By alternating between very slow and very fast tempos, you'll be able to find the optimum marker placements that work over the greatest variety of tempos. Now return the loop to its "native" tempo — it should sound as it did before it was looped.
7. With melodic loops, specify a root note for transposition. This allows the host to transpose the file if there are key change markers embedded in the sequence.

ACIDIZATION TIPS

Acid and Sonar both have a few tricks up their sleeves.

- Acid offers three stretching algorithms: Looping Segments (the most common option), Nonlooping Segments (works best with sustaining material), and Pitch Shift Segments (shifts pitch to adjust for tempo variations, like conventional resampling). If a file doesn't stretch properly with Looping Segments, experiment with the other options.
- Both Sonar and Acid can add markers at specific rhythmic intervals. If the Transient Detection parameter is set to 0%, then markers will appear only at the intervals specified by Sonar's Slicing slider or Acid's "Force Divisions At" drop-down menu. Increasing Transient Detection places markers at transients; higher values detect more transients (like a "sensitivity" slider).

ALMOST THERE . . .

Finally, save the file. With Sonar, simply drag the loop from the Clips pane to a folder or your desktop. It will be saved as an acidized WAV. With Acid, any changes you make to the properties are saved with the file. But if you click on the Save icon, it applies these changes to the original file as well. Done!

PART 2: THE IDEAL REX FILE

Many of the same principles that apply to Acidized WAVs apply to REX files, as you again want to find transients. However, unlike Acidized WAVs where it's usually better to have too many rather than too few slices, REX files should have no more slices than necessary. (Note that the following concepts also apply to creating "hit points" in Cubase SX.)

To create a REX file:

1. Open the file to be "REXed" in Propellerhead's ReCycle program.
2. Enable Preview Mode, which lets you add and audition slices.
3. If you're asked whether you want to move the left locator to the first slice point, say "Yes" unless there is supposed to be "air" at the loop start. ➤

After clicking on the Preview Mode button, you'll need to specify the loop length in bars. This can later be tweaked to bars and beats, or no bars and just beats.

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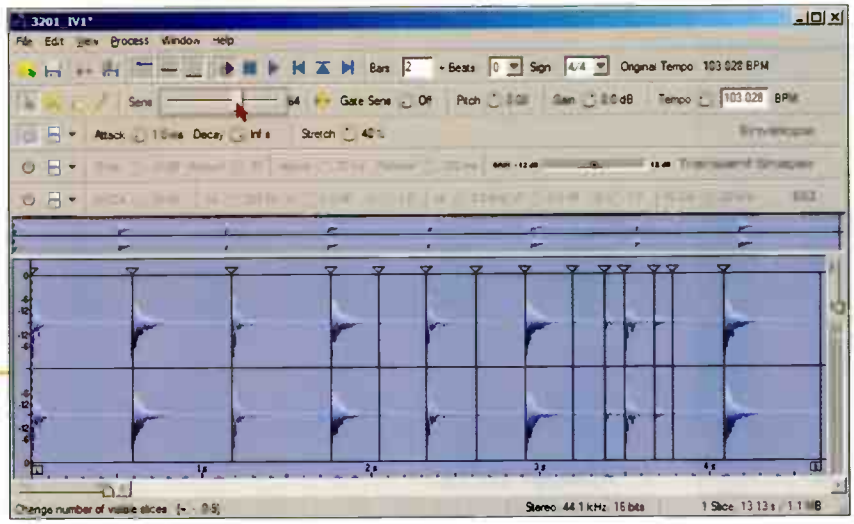


The more you move the Sensitivity slider to the right, the more sensitive ReCycle is to transients. Go too far, and you'll see a forest of slice markers. There's a useful keyboard shortcut for this: The keyboard's number keys select different sensitivity levels.

4. Move the Sensitivity slider toward the right, and ReCycle will hunt for transients and add slice markers. Adjusting the Sensitivity slider may locate all transients with simple, highly defined drum patterns, but you'll likely need to edit slices manually (described later).

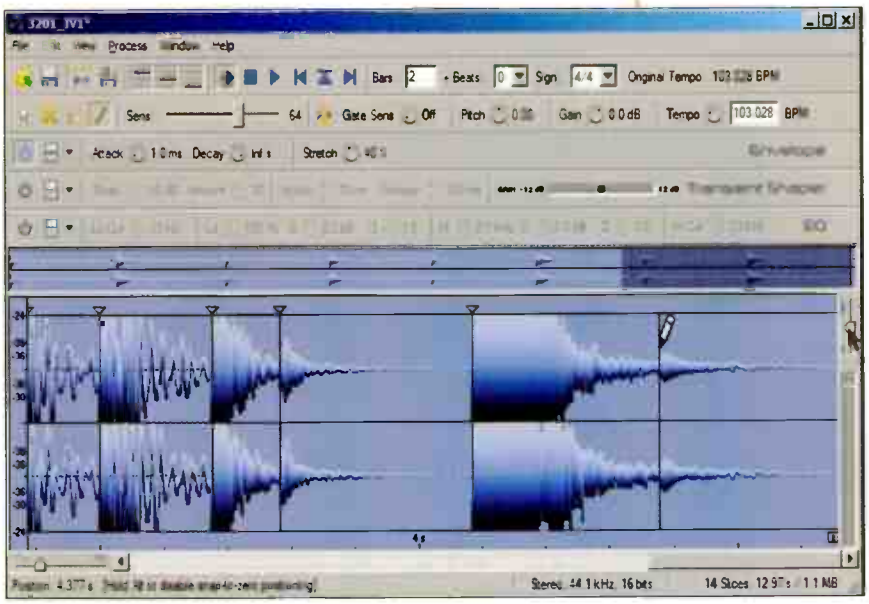
5. Slow the file way down (*e.g.*, 70 BPM for a 100 BPM file). You'll hear each slice as a discrete "blob" of sound as the file plays back. For fine-tuning, select the Speaker icon, click within a slice, and you'll hear just that slice. Problems fall into three categories: Clicks or pops at the slice's beginning or end, missing transients, and/or spurious transients.

6. To deal with clicks, move the slice marker associated with the click until it falls on a zero-crossing in both channels of a stereo file (zoom in horizontally if needed). Even though ReCycle will try to "snap" the marker to a zero crossing with stereo files, it can be tedious to look for the perfect slice point. For example, most of the time a slice wants to go as close to the beginning of a transient as possible, but sometimes you'll get better results if it sits slightly before or after what would seem to be the optimum point.

7. You'll hear if a file needs additional slice markers when you listen at the slower tempo. For example, suppose two sixteenth-notes play but there's only a slice marker at the beginning of the first one. Because each slice plays back at its original tempo (even with a slow tempo in ReCycle), the notes will appear to hit in quick succession. Placing another slice at the beginning of the second sixteenth-note defines it as a separate note that needs to be stretched.

8. If there are too many markers, as evidenced by "stuttering" sounds or the splitting of sounds in the middle, click on each offending marker's head and hit the keyboard's Delete key.

Eventually, you'll "nail" where all the transients are. This is not always easy, and some sounds (*e.g.*, sustained) simply aren't suitable for the REX process. There are some tricks worth noting, though:



Sometimes it's easier to see transients if you zoom in vertically. Use the pencil tool to place a slice at the beginning of the transient.

- Ctrl-G overlays a sixteenth-note grid. If possible, it's best if slices fall on the beat.
- If the file has a sixteenth-note rhythm, go *Process* > *Add Slices at Grid* to place a marker at each sixteenth-note. Tweak them to make sure they're placed optimally.
- To do this with eighth-notes, temporarily enter a number for bars that's half the real value (*e.g.*, 1 bar for a 2-bar loop). Then hit Ctrl-G and go *Process* > *Add Slices at Grid*. When you re-enter the

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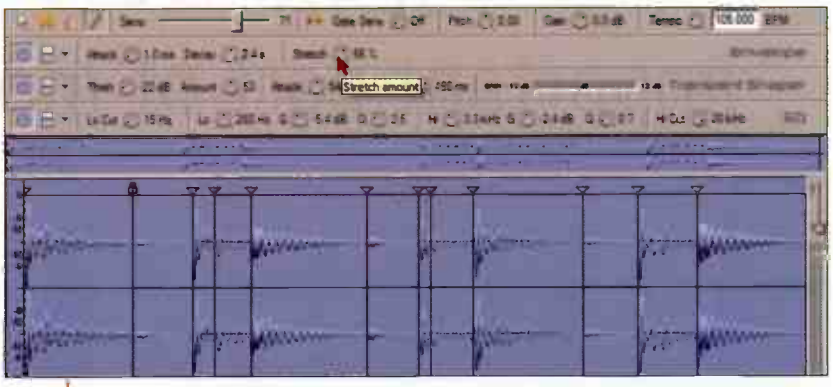
correct number of bars, the markers will sit at eighth notes.

The penultimate step is to slow the file to the slowest reasonable tempo you plan to use, and turn up the Stretch parameter until you don't hear any gaps between slices. This doesn't always solve the problem, but it can help. (If turning up Stretch causes a big volume swell in the file, locate the marker that happens just after the volume swell, and move it earlier.)

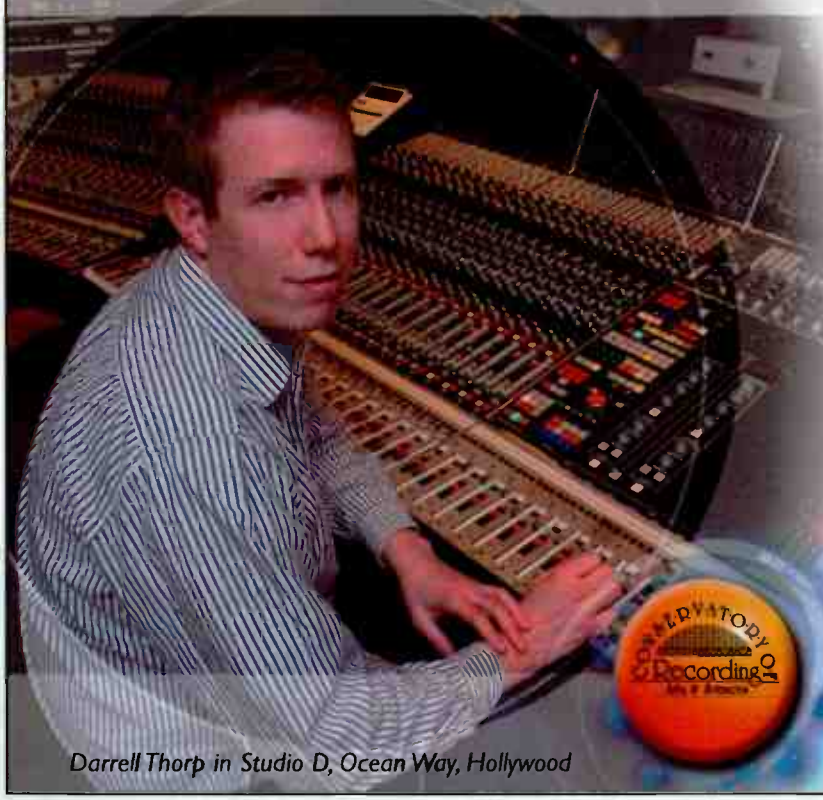


The Stretch control helps fill in gaps when slowing the file below its original tempo. Also note the three signal processors: envelope, transient shaper, and EQ. These can further modify the sound.

Finally, play the loop back at a much faster tempo. If all is well, you're done. Otherwise, you may need to retweak markers.

Incidentally, ReCycle also includes three signal processors. Envelope adds attack and decay times to each slice (globally). Short decays can give very cool percussive effects. The Transient Shaper provides dynamics control, including compression-type effects. EQ has low cut, high cut, and two parametric stages. The Pitch control transposes the file (try outrageous amounts for special effects), and Gate Sensitivity adds a type of noise gate effect. These can not only clean up existing files, but add special effects.

CONGRATULATIONS!



Darrell Thorp in Studio D, Ocean Way, Hollywood

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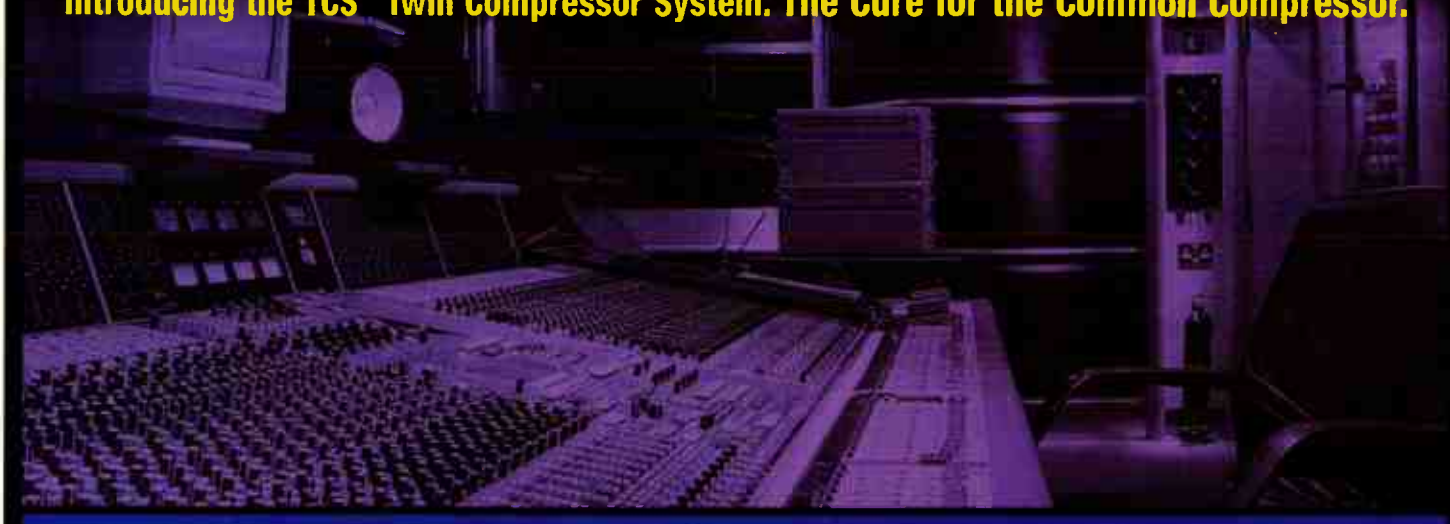

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Professional Audio Design's Tony Belmont (L) worked closely with Scarface (R) on specifying the gear for the Garage. After working for years in commercial studios, Scarface had definite ideas for what he wanted in the rig: "I've been doing this for 17, 18 years, so I know what I like and I don't like."

HARDCORE GARAGE

Say Hello to My Little Studio. . . .

by Mitch Gallagher

Carving out a long-term career in the volatile world of hardcore rap is a difficult proposition for most artists and producers . . . if not a near impossibility. But Brad Jordan — better known as Scarface — has easily been up to the task. Launching his career in the late-'80s under the name Akshen, he joined The Geto Boys, and was integral to the success of their debut album, *Grip It! On That Other Level* (later re-released as *The Geto Boys*). Taking the name "Scarface" from the song of the same name on the album, he released a string of successful solo efforts through the '90s and into the new millennium. In 2001, he was named Lyricist of the Year at the Source Awards, and inked a deal with Def Jam records. Taking the reins of the Def Jam South label, his successes include his first signing: Ludacris.

His credits as a producer and performer include Gang Starr, Too $hort, Ice Cube, Wyclef Jean, Ludacris, Nas, and many others, as well as soundtrack credits for *South Central*, *Jason's Lyric*, *High School High*, *Office Space*, *Tales from the Hood*, *Original Gangstas*, and more.

Scarface had a simple reason for building his own studio: "I got tired of driving 40 miles, however many miles I had to go to the studio. And having to call somebody to book some time and all that. I would much rather just put it in my house. That way when I come up with an idea, I'm right there."

The studio occupies one bay of a 4-stall garage attached to Scarface's home, which is also how the studio came by its name: The Garage. The studio is completely isolated, with a floating floor design. It consists of a control room and an isolation booth.

The Garage is a private facility. "The studio is exclusively for me. I'm only using it for myself at the moment. Sometimes I'm doing tracks for other people there, but it's really just for me. I'm not interested in bringing other people in."

Flying Solo

The Garage has a staff of one. "I'm doing the engineering myself. I wanted to make it really nice in there. I wanted a studio that was user-friendly for me, for one person. This cat named Skip Holman taught me to engineer, how to use my studio. In the past I was turning knobs, not really engineering, but the stuff I'm doing now I'm engineering myself.

"Skip Holman, man, he is an unbelievable person, man. That man came to my house every day at about 8:30, 9 o'clock in the morning and stayed until six in the evening — Pro Tools school. He taught me how to work everything in my studio. I owe him tremendously."

User Friendly

"I know an SSL like the back of my hand, but it's not as user-friendly as what I'm using right now. I'd give my right nut for an SSL and

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—Peter Arsenault, FOH engineer
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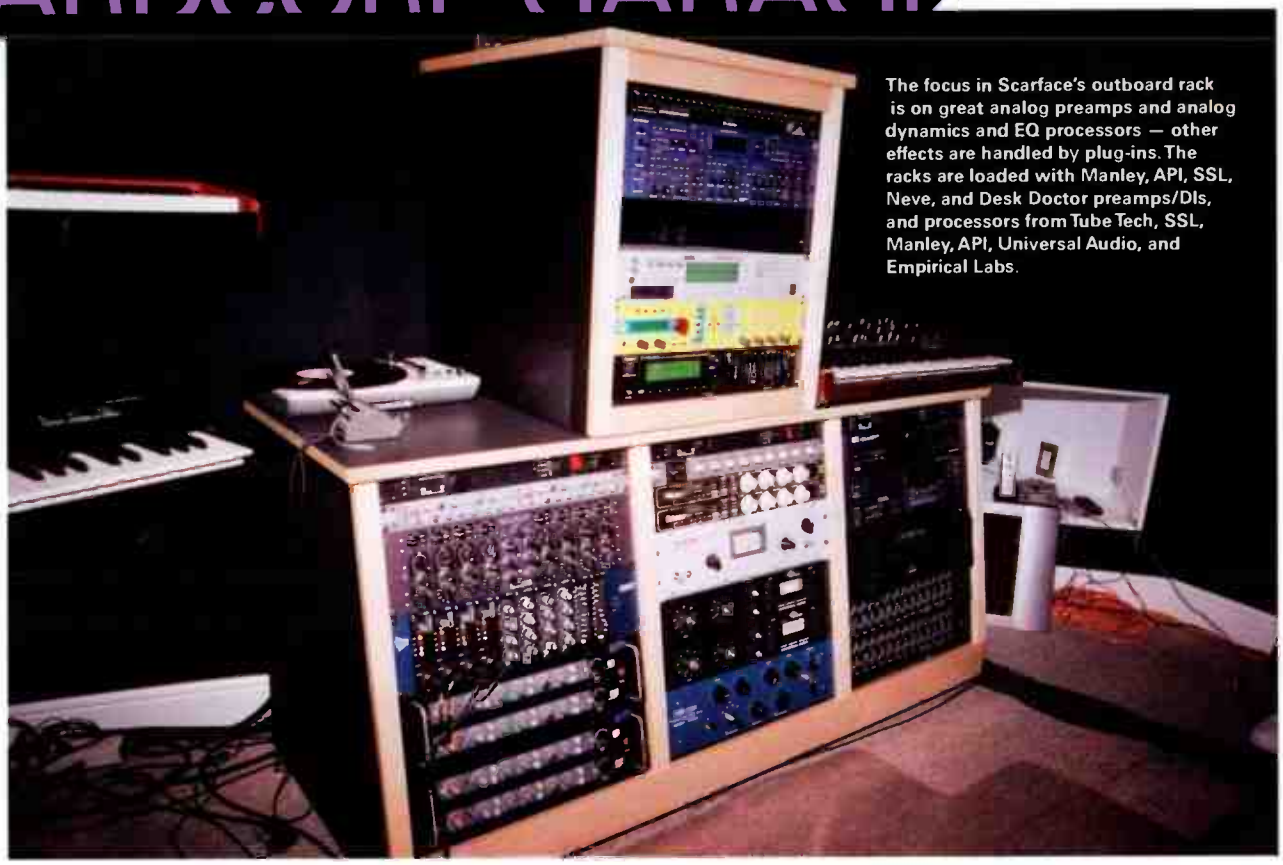

The focus in Scarface's outboard rack is on great analog preamps and analog dynamics and EQ processors — other effects are handled by plug-ins. The racks are loaded with Manley, API, SSL, Neve, and Desk Doctor preamps/DIs, and processors from Tube Tech, SSL, Manley, API, Universal Audio, and Empirical Labs.

Scarface emphasizes that the key to a successful studio —whether home, private, or commercial — is knowing the gear inside and out, and arranging the studio in ergonomic fashion. "You can have all the best gear they make, the best stuff that money can buy, but it's worthless if you can't work that sh*t. If you can't go in there and make music with it, then what the hell did you buy all that crap for? They say, 'I just got the new 454-2000x' — big deal, can you work it? Does it work?"

To control ambient noise, the studio's Pro Tools system, including a Marathon-racked Apple G4, three 192 I/O interfaces, a MIDI I/O interface, and a Glyph Trip Rack removable drive system, is rackmounted in an isolation cabinet.

two tape machines, but realistically, it's not the best way for me to work right now. It's not the best way to go. I'm an SSL baby. There was nothing you could do to turn me to Pro Tools. But when I finally did . . . now I know all the tricks of the trade. Before that it was all analog.

"The first thing I do is turn my computer on and go to my beats setup [a Pro Tools template with all the keyboards patched in] then I start working on the track idea. I try to do about a song a day. I've got a catalog with about 200 songs, some finished, some not.

"My studio is so set up, man. All I do is go to my beats setup, make a session, and throw it in a new folder. And that's it. My whole studio is up and ready to go — and if I bring in some new gear, I just plug it into the DI Active [24-channel direct box/active patch bay], run MIDI to the drum machine, or whatever, and I'm good. That's how user-friendly it is. ➤

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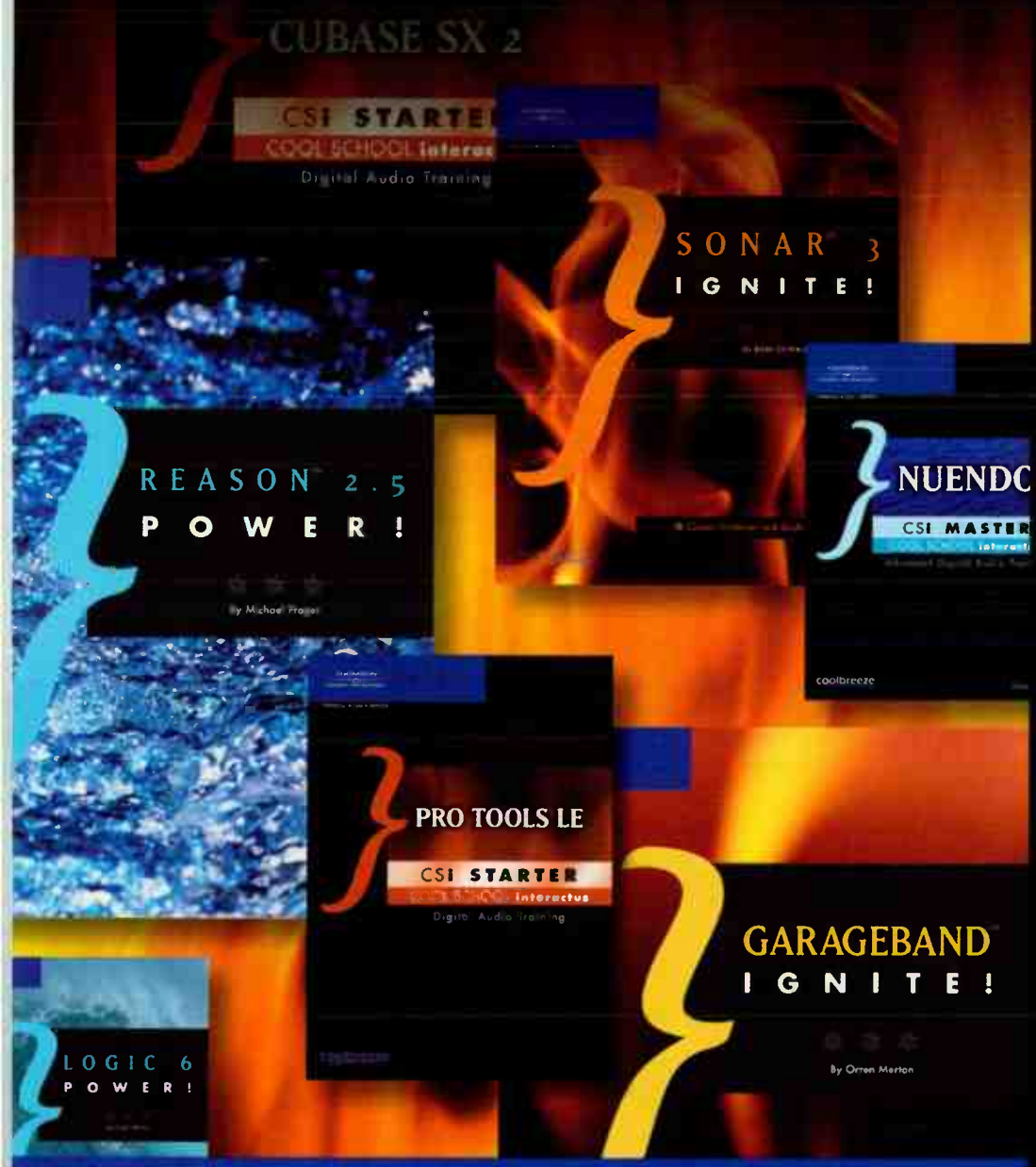

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Scarface tracks vocals in the studio's booth. His favorite vocal chain consists of API preamp to SSL compressor, with a Soundelux U99 microphone. "That's the one I love the most." A Furman headphone monitoring system completes the complement of vocal booth gear. The booth and control room were treated with an Auralex Elite acoustics package.

"Everything in my studio is on the patchbay, everything. And I can use it, man, I'm so proud of that fact. I've been in so many studios where I couldn't work something, you know, the engineer would always have to be sitting beside me to help me do something. Even if I go to another studio now to record somebody, the engineer has to sit beside me just to show me how they've got their rig wired up."

perfect

"Did you ever go to a studio, man, and some sh*t works and some sh*t doesn't? Like my buddy. Well, he's not my buddy, he's a piece of sh*t. [*Laughs.*] He has every f***ing thing, and none of it works. He's got the fastest computer in the world, it crashes every 15 minutes. Every time you go to his studio, something else doesn't work.

"Everything in my room works. If I ever need to make a change or an adjustment to something, it's so easy for me. Or if

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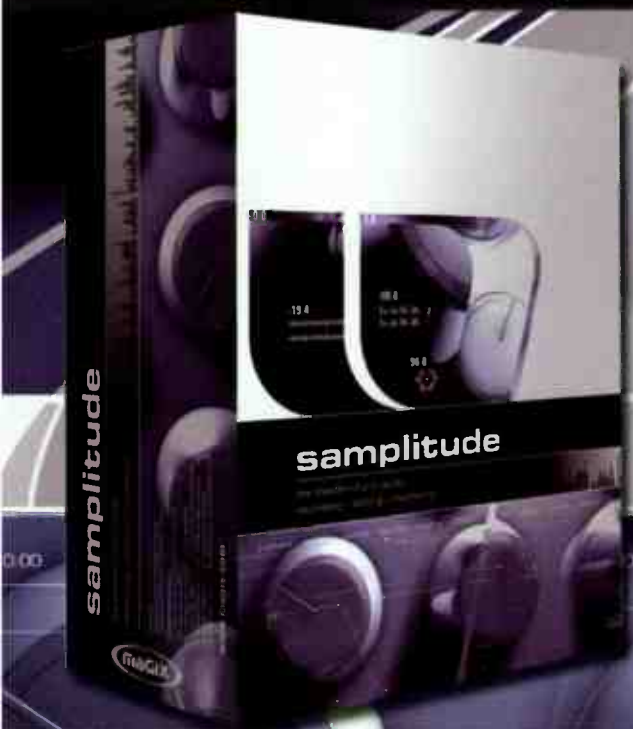

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KRK SYSTEMS

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HARDCORE GARAGE

A Digidesign Control 24 serves as the centerpiece of the Garage. According to Scarface, "I like it, man, I use it. For what I do, that's really the best way to go — the Control 24. That is a super user-friendly piece of equipment right there. I'm running everything with it, it's a big-assed mouse with faders, man."

I need to replace something in my rack, I can take it out and not be lost. I can switch it out and put a piece of gear in and not be lost. It's all just so perfect, man, and the credit really goes to everyone who was involved in building the studio. It was really a team effort, without question."

Universal Language

For Scarface, owning a studio comes down to one thing: the music. "If the music's in you, then you've got it easy. But if you've been into baseball all your life and you want to jump into music or something, leave that to someone who can do it. You know what I mean? I mean, for me, I just naturally fell into music. I come from generations and generations of musicians. It's been in my life all my years, it's not just something I acquired. I've been studying music from Day 1. That's all I know is music.

"I can write songs for country western, I can write rock 'n roll, I can write R&B, I can write rap. If I could speak another language, I could probably write a song in it. Rap was just the outlet for me. It was a convenient way for me to get into the business.

"For me, there are no limits in music, it doesn't have boundaries. Sky's the limit in music . . . everything else has limits. You can never have too much music. Music is like the universal language, man. Everybody understands it, brother." SO

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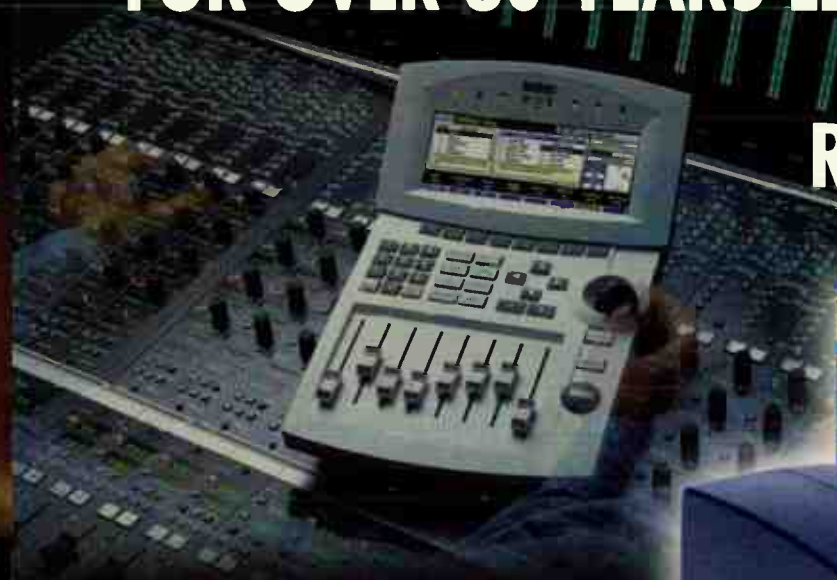

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augment that mic with a stereo pair pulled back to get some room sound, and give sonic depth and space.

But lately I've found a new favorite approach, especially for tracks that want a big sound or if the guitar is detuned and I need deep bottom end. To give credit where credit is due, I picked up the basics of this technique from one of Nashville's acoustic recording masters: Bil VornDick (Bela Fleck, Alison Kraus, Russ Barenburg, Ralph Stanley, Jerry Douglas, and many others).

Place one mic in front of the guitar, a bit further back than the "standard" position. Position a second mic to the player's right, and slightly in front, so it forms an equilateral triangle with the player's right ear and the front microphone. Experiment with the right mic's position; try it at knee level, looking up toward the guitar body behind the bridge, or at ear level looking down at the guitar body behind the bridge. The "meat" of the sound will come from the front mic, but placed correctly (move it around, you'll know when you hit the right spot) the right-hand mic will fill out the bottom end with tight, full, round lows. I've used this approach with steel- and nylon-string guitars; for nylon, pull the right-hand mic back, or turn it down in the mix a bit.

Here are a few other approaches to try:

■ Stereo small-diaphragm mics, 18–24" back, the same distance apart, with the mics pointing a few degrees in toward the guitar body.

■ Mid-side from a few feet back.

■ For those into overkill: one large-diaphragm condenser mic centered on the guitar, two spaced small diaphragm condensers a few feet back and a few feet apart. Two room mics, pulled back enough to capture a balance of guitar and room. For added versatility, track a pickup on the guitar as well. Use the large-diaphragm with some of the pickup as the main sound, use the spaced small diaphragms to give the sound width and richness, then add in the room mics for spaciousness and depth. This setup also works well for surround applications. Warning: Getting all those tracks in-phase may take some work.

CLASSICAL GUITAR

If you're doing a true classical guitar recording (as opposed to a nylon-string guitar played in another style, such as jazz or pop), purity is your priority. With a classical recording, documenting the performance is usually the goal. So, choose mics and preamps that are clean and uncolored — we don't want high-end hype or too much midrange presence boost. Often classical recordings have mics set farther away from the instrument/player than recordings for other styles. This means that the room will play a big part in the sound — try to record in a good one.

You'll see classical guitars miked in mono and stereo with the mic(s) placed

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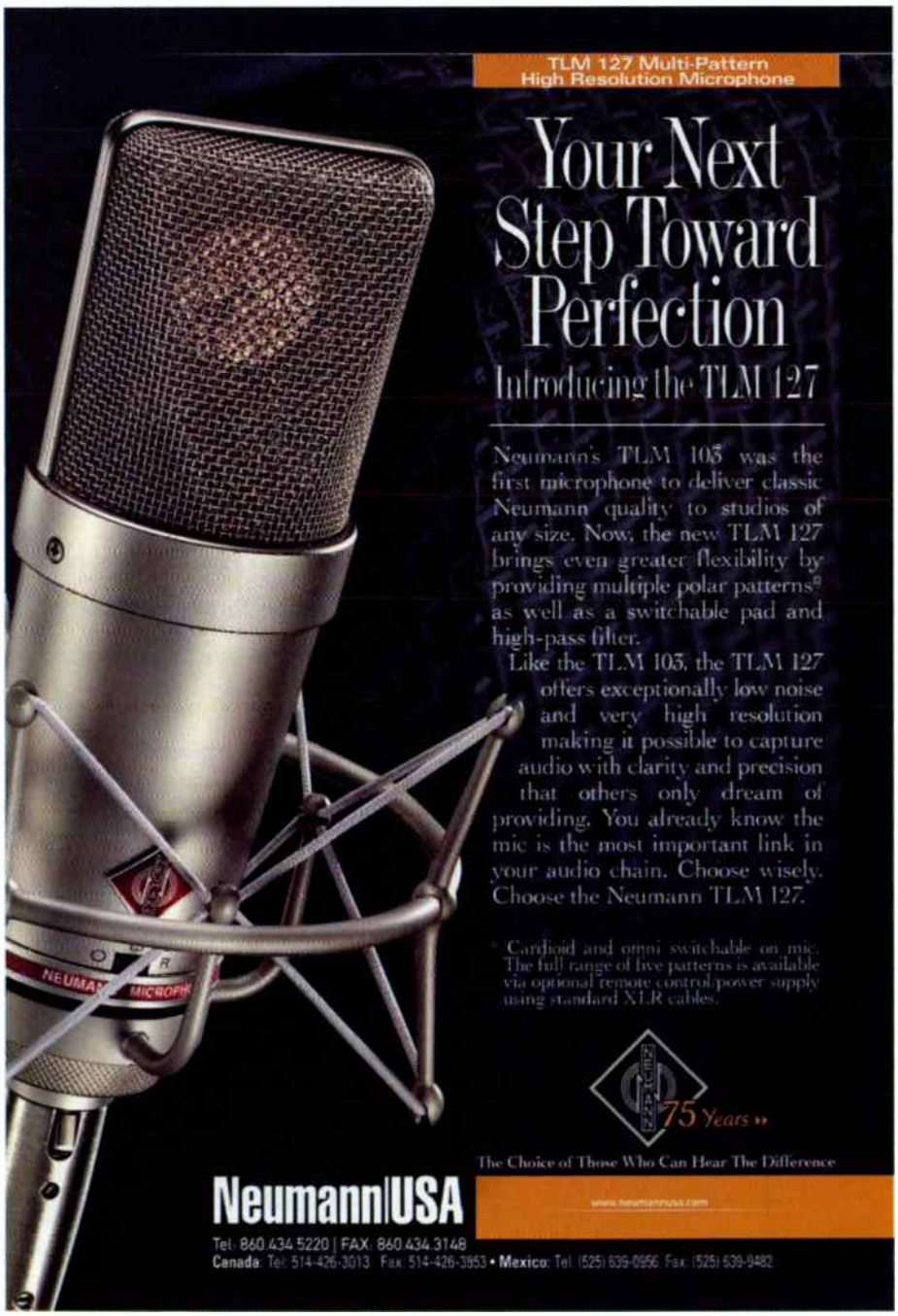
as far as five or six feet away, pretty much directly in front of the instrument. The idea is to capture what someone in the audience would hear. But classical guitar is a low-volume, delicate instrument. Get too far back, and you'll have too much room. You may also be forced to use so much gain that mic or preamp noise become an issue.

Lately I've been having good luck recording classical guitar with a spaced stereo pair of large diaphragm condenser mics in cardioid or omni pattern placed back about three feet from the instrument, and spaced about three feet apart. The result is bigger and more present than many "traditional" classical recordings, but it works for me. I've also been experimenting with mid/side recordings from three or four feet back — nice if you want control over the stereo width of the final tracks, and are set up for mid/side decoding.

I prefer to mic in stereo if the guitar will be solo; if it's a duet with another instrument, such as flute, I'll sometimes go with one mic for a tighter sound.



WHAT ABOUT PICKUPS?

While few listeners would confuse a piezo or magnetic pickup — or even one of those internal body mics — with a "real" microphone positioned well to capture the instrument, that doesn't mean a pickup can't be useful.

I've never found a pickup that could carry the entire guitar sound, despite years of trying different pickups and EQ and processing techniques. But if the guitar has a pickup in it, I almost always record it to its own track; with a DAW, there's little concern about burning up an extra track.

Depending on the guitar, the pickup sound, and the part being played, I'll mix the pickup in, often with heavy EQ — basically I'll use the pickup to reinforce a weak spot in the tone. For example, I'll use the pickup to fill in the bottom on a detuned guitar that needs help in the low end. I lowpass the pickup track, so that it's almost serving as a "subwoofer." Especially with bridge-mounted piezo pickups, I find the lows speak fast and tight, without getting boomy or mushy. With the right EQ, and proper phase alignment of the pickup with the mics — you'll often have to delay the pickup track by a few samples — the pickup should roll smoothly into the guitar tone, and not be audible as a separate component of the sound.

I've heard that some engineers use pickups to reinforce the midrange; to my ears this is too audible, but it may be a sound you like. Regardless, track the pickup along with the mics. You never know when it might be useful.

STRUM AWAY

Learning to track a great acoustic guitar sound — one that fits the song — isn't difficult. Like everything, it requires a bit of knowledge, a lot of practice, and some critical listening. Throw some mics up and start experimenting; before long you'll be hearing stellar acoustic guitar tracks of your own. EQ

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"I have become a huge fan of ADK Mics lately. After hearing the ADK TT, I was not surprised that Ray Charles and Johnny Matthis selected two of the TT tube mics for their vocals. The fact that the TL Decca-Tree set-up works well on Grand Piano was a nice bonus. But what surprised us the most was how many uses we found for the original model A-51s. Tracking Guitars for James Taylor to Drums and Horns, ADK Mics were everywhere at our 80 piece live orchestra sessions!"

–Terry Howard, Recording Engineer: Ray Charles, James Taylor, Michael McDonald, Willie Nelson, Pancho Sanchez, Ellis Hall

---

"I used the ADK TC microphone to record vocals for one of my artists who I usually use a Neumann® U87 or a Telefunken® 251 on. It blew me away. I love the "proximity effect" of this microphone. The body of the sound, the presence in the midrange, the smooth top end – I couldn't believe it!"

–Bob Rosa, Grammy®-Winning Mixer/Engineer: Whitney Houston, Mariah Carey, Ednita Nazario, Paulina Rubio

---

"The Vienna is an absolutely beautiful sounding microphone! It has all the warmth of a rare vintage mic, but adds a slight presence boost in the high end that just screams 'expensive'!"

–Ted Perlman, Producer, Arranger, Composer: Ron Isley, Bob Dylan, Burt Bacharach, Young MC, Chicago, Kellie Coffey

---

"ADK Commemorative Tube Mics are a Gas! We used them with the Cincinnati Pops Orchestra and our Vocals Really Soared!!"

–Tim Hauser, Vocalist, Manhattan Transfer

"I've now used the ADK Model "S" on almost everything including vocals, guitars, and drums. They remind me of very expensive German mics I have tracked with before."

–Adam Kasper, Producer/Engineer, Cat Power, REM, Pearl Jam, Soundgarden, Foo Fighters

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2. The Art of Recording: Adding External Hardware FX to Your DAW

Yes, the virtual and real worlds **can** live in harmony

That vintage hardware reverb that sounds so good . . . the tube compressor that cost a week's salary, but was worth every penny . . . are they all eBay candidates now that you're working in the DAW's digital domain?

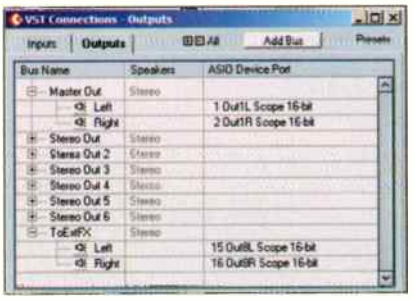
No way! All you need is a hardware interface with multiple ins and outs that can interface with your hardware (digital and/or analog, depending on what gear you want to connect), and a little knowledge of how to tweak tracks. All other routing can be done within the DAW. We'll use Cubase SX as an example, but the same principles apply to other DAWs.

In short, you assign one of your DAW's output busses to a hardware out on your interface, patch that to your effect in, then patch the effect out to an interface hardware input. You'll also need to make sure any drivers feeding the external ins and outs are enabled; you might want to dedicate certain I/O to using external effects for consistency's sake. For example, I use Creamware's PowerPulsar, so I've patched channel 8 (stereo) of its ASIO output drivers to the interface's stereo analog out. The card's stereo analog in feeds channel 8 (also stereo) of the ASIO input drivers.

When you create a bus to send the effect, name it something like "ToExtFX" to avoid confusion. Different programs have different ways of assigning busses to outputs. In Cubase, you use the VST Connections window.

To send a track's signal to the external effect, turn up its send control to the appropriate bus. The meters on your external hardware should show that it's receiving signal. Now turn your attention to creating an effects return within your DAW.

In Cubase, you don't want to use its dedicated FX tracks because they're designed for use with plug-ins. Instead, create a standard audio track, then set the track's Input field to the input that's receiving signal from the external effect.



In the VST Connections window, the ToExtFX bus is assigned to output 8 (left and right chennels) of the Creamware Scope out. Within Scope, this is assigned to the analog stereo hardware output.

WHAT ABOUT LATENCY?

You will likely need to compensate for delays due to the signal going out of the audio interface, through an effect, then back into the system. Here are your options:

- If the effect can blend dry and processed sound, set it for the desired blend. Then turn down the volume of the original track feeding the effect, set its Send to pre-fader, and listen only to the effects return. To compensate for latency compared to the non-processed tracks, slide the original track forward in time (to the left) by whatever amount compensates for the delay.

- If the effect provides processed sound only, "clone" the track to be processed, feed the clone to the external effects bus using pre-fader send, and turn down the clone's main volume so it doesn't

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The Art of Recording: Adding External Hardware FX to Your DAW

This shows the channels involved in feeding external effects. The left-most channel is a drum track, which is about to be trashed by a Line6 POD. Note that its effects send is enabled and set to pre-fader. The Master Out channel is simply the entire mix of the song. The ToExtFX channel is a bus that is assigned to the hardware out that feeds the POD. Finally, the FromExtFX channel receives the POD's output via a hardware interface input.

Return your rackmount processors to being productive members of DAW society.

contribute anything to the mix. The original (non-cloned) tracks provide the dry sound; bring up the effects return level for the desired amount of effect, then slide the cloned tracks ahead in time to compensate for latency.

- A final option is to record the audio produced by the effect into the assigned track, and slide that track ahead while mixing to compensate for any delay. You may need to do this anyway if you want to use lots of external effects, but don't have enough I/O to handle them all in real time: Insert one effect at a time, record the results, then move on to the next effect.

And now you know how to return your rack mount processors to being productive members of DAW society. I'm sure they'll be much happier. EQ

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by Mitch Gallagher

JBL LSR6300

Active monitor system with an acoustic twist

Type: Active monitors and subwoofer
Price: LSR6328P, $1,339 (each); LSR6312SP, $1,499; RMC Calibration Kit, $130, included free with LSR6312SP or a pair of LSR6328P speakers
Contact: JBL, www.jblpro.com

LSR6328P
Drivers: 8" woofer, 1" tweeter
Power amps: Low—250 watts, High—120 watts
Frequency response: 50Hz–20kHz, +1/–1.5dB
Maximum peak SPL: >111dB, 80Hz–20kHz @ 1m
Crossover frequency: 1.7kHz
Connections: XLR+1/4" combi input, 1/4" RMC bypass
Controls: Input trim, DIP switch for sensitivity, HF level, and boundary compensation, RMC Width, Frequency, and Depth, RMC enable
Cabinet design: rear port
Dimensions: 16 x 13 x 12.8 inches
Weight: 39 lbs.

LSR6312SP
Driver: 12"
Power amp: 260 watts
Frequency response: 28–80 Hz (L/C/R inputs), 28–200 Hz (Direct Input)
Maximum peak SPL: >115dB, 35Hz–80Hz @ 1m
Crossover frequency: 80Hz
Connections: Left, Center, Right, and Sub-Direct (LFE) XLR+1/4" combi inputs; Left, Center, Right, and Summed XLR outputs; 1/4" RMC bypass, LCR (bass management) bypass
Controls: Input trim, DIP switch for input trim, sensitivity, signal polarity invert, –4dB bass alignment (@50 Hz), and RMC defeat; RMC Width, Frequency, Depth, and Make-up Gain; Sub-Direct (LFE) Sensitivity
Dimensions: 25 x 15.5 x 11.5 inches
Weight: 39 lbs.

Your studio works acoustically as one big system: the room, the monitors and their placement, acoustic treatment, wall/ceiling/floor construction and materials, and so on. Two of the models in JBL's LSR6300 series — the LSR6328P and LSR6312SP are designed to compensate for some of the acoustic anomalies in the system.

The LSR6328P is an active 2-way design offering ±1dB of high frequency adjustment, 0, –1.5, –3, or –4.5dB of low frequency "boundary" compensation, and RMC (Room Mode Correction); a single-band of parametric EQ designed to correct for the worst room mode. The 6328 has handles built into its cabinet, making it easy to move and position.

The LSR6312SP is a 12", 260-watt subwoofer with –4dB boundary compensation and RMC. The 6312 has bass management for front left, right, and center (if you're doing surround) speakers, but none for the rears. For surround work it has a Sub-Direct (LFE) input, which can be set for 0 or +10dB sensitivity. A Sum out allows more than one 6312 to be chained. A big plus is the footswitch jack for bypassing the unit.

Before digging into RMC, I set the monitors up and did some listening. I have to

THE LSR6328P AND LSR6312SP MONITORS FEATURE EXTENSIVE TONE-SHAPING CONTROL, WHICH CAN BE USED TO HELP FLATTEN THE SPEAKER RESPONSE IN THE ROOM. THE BACK PANEL OF THE LSR6328P SHOWS THE ROOM MODE CORRECTION AND DIP SWITCH CONTROLS.

THE LSR6328P MAY LOOK LIKE ANY OTHER ACTIVE MONITOR FROM THE FRONT, BUT WORK YOUR WAY AROUND TO THE BACK AND THE DIFFERENCE BECOMES CLEAR. BONUS: HANDLES ARE BUILT INTO THE SIDES OF THE CABINET.

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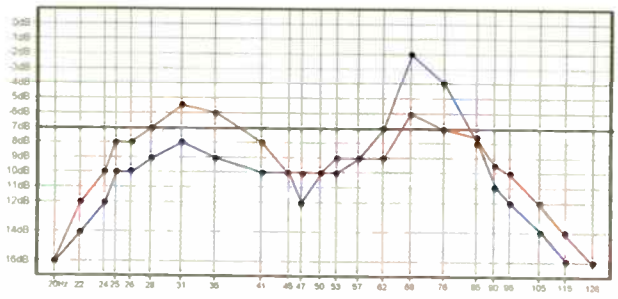

THIS IS THE RESPONSE CHART FOR THE LSR6312SP SUB IN MY STUDIO. THE BLUE LINE SHOWS BEFORE RMC CORRECTION, THE RED LINE SHOWS AFTER. IT WAS NO PROBLEM TO TUNE THE SUB TO WITHIN +1.5/-3DB FROM 24 TO 95HZ — QUITE EXCELLENT RESPONSE.

admit to going in with some bias; I've used a lot of JBL monitors over the years, and found many of the older models to be fatiguing to my ears. In contrast, the 6328 is smooth, clear, and nicely balanced. Taken as a "straight" monitor, the LSR6328P is first rate. It has particularly impressive low frequency abilities, and present, detailed midrange. The high frequency and boundary adjustments provide enough power to dial in the basics, although I didn't feel the need in my studio.

The LSR6312SP offers tons of low-end thump. It had no problem filling my largish control room without sounding strained. It transitions smoothly to the 6328. Being able to bypass the sub is a godsend.

SCALING THE PEAK

The Room Mode Correction in the 6328 and 6312 provides parametric EQ for taming a single room mode (resonant peak) between 24 and 95Hz. But wait, what if you don't know what frequency the worst mode in your room occurs at? And how do you set the bandwidth and depth?

Trust that JBL thought things through. They offer the RMC calibration kit, which includes a test CD, level meter, chart paper, width template, and a momentary switch for bypassing RMC in the speakers.

Here's the drill: one speaker at a time, you play the test tones on the CD. Using the level meter, you measure the level of each tone, and mark it on the chart paper. When you're finished, connect the dots and you have a basic idea of the response of the speaker in the room. With the Width Template, you measure the largest peak on the page, and using a look-up table in the manual, find the corresponding settings for the RMC frequency, width, and depth. Make the adjustments on the speaker and move on to the next one or the sub (if you have one).

It's easy, and almost foolproof — the only problem I had was that the flimsy plastic Width Template has a lot of slack in its action. I found it good for a rough guestimate at best. But by looking at the peak on the chart and the lookup table, I was able to get where I needed to go.

I tried the speakers in three positions in my room, and the sub in six places — which reminds me, make photocopies of the chart paper before you start. Once you start fooling with measuring different speaker positions, you'll go through charts fast. You'll learn a lot about your room doing this. For example, the right speaker in my studio had a peak, but the left didn't. It's also revealing to see how small of a distance you need to move the sub to make a big difference in response.

I'm proud to say that my room was virtually peak free, but then again, it's heavily bass-trapped. I finally manufactured a peak in the right speaker and the sub by putting them right against the wall, creating a moderate peak at around 68Hz. I couldn't get a significant peak in the left speaker regardless of placement. RMC was easily able to tame the peaks and even out the response.

THE LSR6312SP SUBWOOFER OFFERS PLENTY OF POWER FOR DRIVING THE LOW END. IT HAS BUILT-IN BASS MANAGEMENT FOR UP TO THREE SPEAKERS.

The CD and meter will also help to calibrate the sub level — at least it will get you close. To really dial in any sub, you need to use your ears. I find it best to be conservative; I use just enough sub to fill out an octave or so below the main speakers. You don't notice when it's there, but you miss it when it's gone.

CORRECTED

With or without RMC, the LSR6328P offers top-notch monitor performance. Even without the sub, there's loads of full bottom end. I'm impressed. With RMC dialed in, you'll find the lows tighten up and get more solid, and the mids gain clarity.

Add the LSR6312SP sub with RMC to the equation, and you have a flexible, powerful, full-range system that can serve either near- or midfield needs.

Some may argue that the measurement resolution of the room modes is too broad, or that one band of EQ isn't enough. But I'm here to tell you that RMC makes a big difference — this system works, and works well. EQ

Strengths:

- Footswitch bypass on sub
- RMC can be bypassed
- Handles on LSR6328P
- Frequency and depth measurements are easy
- Powerful tone shaping
- RMC makes a real difference in how monitors perform in room
- Clear, balanced detailed sound
- Good dynamics

Limitations:

- Difficult to make accurate Width measurement
- No handles on subwoofer
- Only three channels of bass management (LSR6312SP)

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Antares Auto-Tune 4

Getting in tune has never been easier.

by Mitch Gallagher

Type: Pitch correction plug-in
Price: TDM, $599; MAS, VST, RTAS, DirectX, $399. TDM upgrade (from any version), $149; RTAS, MAS, VST, DirectX (from any version), $99.
Contact: Antares, www.antarestech.com

Platform: Mac OS 9/X, Windows
Formats: TDM (Mac), RTAS (Mac, PC), MAS (Mac), VST (Mac), DirectX (PC). Audio Units (Mac) and VST (PC) coming soon
Minimum system requirements: OS 9 TDM — Pro Tools 5.3 or later; RTAS — Pro Tools LE 5.3 or later; MAS — Digital Performer 2.7 or later; VST — compatible host. OS X TDM — Pro Tools 6.2 or later; RTAS — Pro Tools LE 6.2 or later; MAS — Digital Performer 4.11 or later; VST — compatible host. PC RTAS — Windows XP, Pro Tools, or Pro Tools LE 5.3.1 or later; DirectX — Windows 98/98se/2000/ME/XP, DirectX 8.0 (8.1 or later recommended), compatible host
Copy protection: Registration code/challenge/response
Version reviewed: v4.1.2
Sample rates: up to 192kHz (depending on host software)
Tested with: dual 2GHz G5 with OS X 10.2.8, Pro Tools, Digital Performer, Nuendo, Live, Peak

When last we visited the world of Antares Auto-Tune (my review in the January 2002 issue), the plug-in had hit version 3. That version introduced some very useful additions such as voice-specific algorithms (soprano, low male, etc.), as well as a bass mode for use with bass guitar and other low-end instruments. Support for sample rates increased to 96kHz, and there was more as well.

Now Antares has upped the pitch-correction ante again, this time with version 4 of Auto-Tune. Seeing that we've covered earlier versions of Auto-Tune before, this review will focus on the new developments in v4.

WHAT'S NEW

The new version includes numerous enhancements in all areas of the plug-in: Auto mode, Graphical mode, and the user interface.

- Support for 192kHz sample rate (if the host software supports it).
- Greatly improved vibrato functions. You can set the vibrato shape, rate, depth, add amplitude modulation (which makes a surprising difference in how real the vibrato sounds), randomization, and more.
- Better pitch tracking due to a feature called "Improved Targeting," which allows Auto-Tune to more accurately find pitch despite vibrato in the source audio. You

THE EDIT SCALE DISPLAY CAN BE USED TO SPECIFY A SCALE BY TURNING OFF (REMOVING) CERTAIN PITCHES, OR TO BYPASS CERTAIN PITCHES — EFFECTIVELY BYPASSING AUTO-TUNE 4 WHENEVER THAT PITCH OCCURS. THE CENTS COLUMN SHOWS THE TUNING FOR EACH NOTE, A BIG HELP WITH MICROTUNED SCALES.

IMPROVEMENTS IN AUTO-TUNE 4 INCLUDE A VIRTUAL KEYBOARD THAT DISPLAYS THE PITCH OF AUDIO PASSING THROUGH THE PLUG-IN, AS WELL AS "IMPROVED TARGETING," WHICH HELPS DEAL WITH VIBRATO IN THE ORIGINAL SIGNAL, AND GREATLY ENHANCED VIBRATO GENERATION CAPABILITIES.

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* from airports in the continental United States

2nd prize

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World Radio History

Antares Auto-Tune 4

can still fool it with a wide vibrato, but it tracks much better on "normal" vibrato.

- Octaves As Played/All Octaves — when you're using MIDI to control notes, you can specify whether the MIDI notes affect a note in all octaves or just the octave the MIDI note is actually played in.
- The Scale Edit Window now has Set All, Remove All, and Bypass All controls for affecting how notes in a scale are treated across all octaves.
- The Virtual Keyboard displays which notes are being played via MIDI, as well as the pitch of the audio coming into the plug-in. It can also be used to set which notes will be removed or bypassed. There's a "momentary" mode that let's you "manually" deal with a single event in a track by clicking on a key, the return of cursor pitch display, and more.
- Graphic mode has been improved with new tools (the arrow can add and remove break points, and there's a scissors for cutting correcting curves apart), up to 20 levels of undo/redo, etc.
- Other user interface niceties include selectable color schemes for Graphic Editing mode, and knob control — choose whether vertical, horizontal, or radial mouse movement will turn the knob.

IN GRAPHIC EDITING MODE, AUTO-TUNE 4 CAN ANALYZE THE PITCH OF AUDIO ("TRACK PITCH"), AND DISPLAY IT GRAPHICALLY. THIS SCREENSHOT SHOWS A VOCAL NOTE WITH A VERY WIDE, SOMEWHAT ERRATIC VIBRATO.

A lot of improvements, but all with ultimately one purpose: to make the plug-in as transparent sounding as possible. This is mostly done by manually or automatically bypassing the pitch processing when it isn't needed, whether using the Edit Scale display, Graphic mode, Virtual Keyboard, Improved Targeting, or MIDI control.

And it works, if you take the time to tweak things into shape. If you just drop the plug-in on a track and accept the defaults, you're going to get results: The track will be more in tune when you're finished. But if you take the time to set up which pitches are being processed, or if you dig into Graphical mode and automate all the pitch corrections, you can get remarkably transparent tuning results. As with earlier versions, the biggest problem is resisting the temptation to tune everything. . . .

MORE THAN A TUNER

I rarely encounter people who are using

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ProSessions Sound and Loop Libraries are an outstanding collection of affordable top-quality samples created by some of today's hottest musicians, composers and producers. Designed for songwriters, producers and remixers, each CD delivers world-class samples in multiple formats for today's hottest Mac and PC software—AIFF, Acidized WAV and REX2.
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World Radio History

Antares Auto-Tune 4

Auto-Tune for more than simple pitch correction of vocals. It can do so much more if you're creative with it. One example: I had a song where I had created a "pad" from three E-bowed fretless bass tracks. The three parts were in constant motion, intertwining with each other. First, I used Auto-Tune in Bass Instrument mode to bring the three parts into better tune, and to add subtle vibrato. Next, I bussed the three bass tracks to new tracks, through Auto-Tune. The plug-in was set up constrained to one pitch for each new track. I then added multitap delay and reverb to the new tracks, creating a rich, tonal ambient background. With the new Edit Scale display, this kind of thing is simple: Just remove all the pitches except for the one you want to "resonate" in the background.

IN GRAPHICS MODE, THE RED LINE INDICATES THE TRACKED PITCH OF THE AUDIO. THE YELLOW LINE IS THE AUTOMATICALLY GENERATED CORRECTION AUTO-TUNE WILL APPLY. THE YELLOW LINE CAN BE EDITED USING THE TOOLS AT THE TOP OF THE GRAPH AND THE BUTTONS TO THE LEFT OF THE DISPLAY.

WORTH THE BUCKS?

So is Auto-Tune 4 worth the bucks to buy or upgrade? It's a tremendously powerful and advanced pitch correction tool — if getting things in tune is something you must do, Auto-Tune 4 offers an easy and elegant way to do it. And all the new features are powerful incentive to move to the new version. The plug-in sounds more natural than ever thanks to Improved Targeting and the new vibrato features. The new user interface is better, and offers more control possibilities. If you're working with scales — especially non-major/minor/chromatic — the improved Edit Scale display is a godsend.

Auto-Tune 4 is a worthy step forward for pitch correction. But don't take too narrow of a view; Auto-Tune 4 can be used for track doubling, chorus effects, to create tuned ambience, and more. As I said in my v3 review — and it's even more true now — "If you can't get in tune with this, you've got serious problems." EQ

Strengths:

- Up to 20 levels of undo/redo
- New vibrato features
- Improved user interface
- Sample rates up to 192kHz
- Editing Scale display
- Good tutorial material and manual

Limitations:

- Auto-Tune Bass for TDM requires full HD chip
- Still has no "Self Control" feature to prevent over-use

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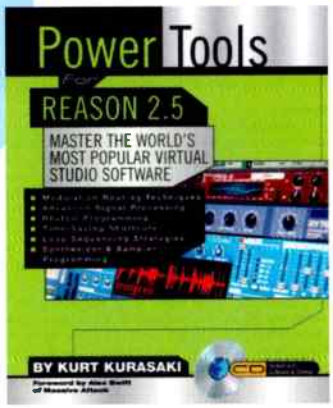

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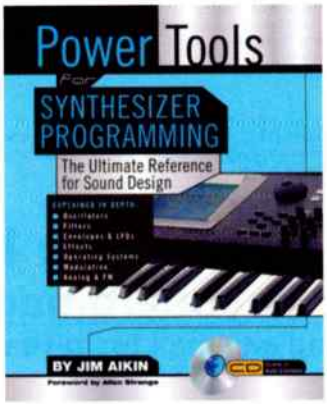

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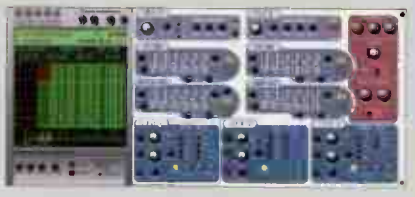

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cakewalk

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Kurzweil Rumour & Mangler

Hardware effects at plug-in prices

by John Krogh

Type: Hardware effects processors
Price: $649 each
Contact: Kurzweil, www.kurzweilmusicsystems.com

Audio connectors: stereo balanced analog I/O (1/4"), S/PDIF I/O
Supported sample rates: 44.1/48kHz
Supported bit depths: 16/20/24
# of presets: 192 each; 64 additional user memory locations each
Level metering: 3-LED input metering; output clip LED

Kurzweil may be not be a household name when you think of outboard effects. However, the seasoned engineers at Kurzweil have a long, celebrated history of programming some of the finest synthesis algorithms ever to be crunched by a microprocessor. More recently, they've brought their expertise to bear on the KSP8, a multichannel processor released two years ago. The KSP8 offered a dizzying amount of variety, flexibility, and programmability. It was also considered pricey by project studio standards, which is where Rumour and Mangler enter the picture. These two units are stocked with scaled-down versions of many of the same effect algorithms found in the KSP8, but at a price that puts them on par with a decent plug-in package.

As you might expect, some corners were cut to bring Rumour and Mangler in at $649, but that doesn't mean these boxes are dumbed down. Quite the contrary. Let's explore.

OVERVIEW

Rumour and Mangler comprise a subset of KDFX algorithms found in the KSP8 and K-series synths; reverbs and delays are Rumour's focus, while modulation, dynamics, lo-fi, and filter effects form the foundation of Mangler's repertoire. There's a bit of cross-over between the two units — you'll find some 'verbs and delays in Mangler, and a selection of compression and flange/chorus programs in Rumour. In total, there are 192 effects presets each; an additional 64 memory locations are available for user settings.

Signals are processed in stereo or dual-mono (if you need surround, you'll have to pony up for a KSP8), and can be patched in via 1/4" balanced jacks or S/PDIF on coax. Analog and digital outs are always active, so you can feed two separate destinations. This is useful in certain situations: Use the analog outs to drive a headphone amp, so you could "play" an effect while tracking, for example. But you could print the effected performance into a DAW without having an extra stage of analog-to-digital conversion.

Analog connections are switchable between –10 and +4 operating levels; the switch is located on the rear, which could be difficult to get to, depending on your setup. (I'd prefer switching levels via software, to avoid digging behind my gear, but I suspect software switching may have been cost prohibitive.)

I don't like having to fuss with switching hardware gear,

RUMOUR AND MANGLER EFFECTS ARE GROUPED BY TYPE INTO BANKS OF 16 PRESETS EACH. FOUR USER BANKS ARE AVAILABLE FOR SAVING EDITED PRESETS — THESE CAN'T BE USED FOR WRITING PROGRAMS FROM SCRATCH, HOWEVER.

World Radio History

if at all possible. For this reason, I left Rumour and Mangler set at +4 and routed –10 sources (mostly synths) into a MOTU 24i/o, which does offer software switchable levels. That way, I could bump the synths up to +4 on output from the 24i/o. It allowed me to stay at a "pro" level without reaching around the back of my racks.

Both units feature a global 3-band digital EQ placed before the effects engine, allowing you to shape the input signal separately. This might be of more use in live settings, where you'd want to eliminate offending resonant room frequencies, for example. However, the EQ isn't fully parametric — there's no control over Q, although you can dial in a frequency for low, mid, and high bands, with gain control ranging from –79 to +24dB.

In most cases, I found I didn't need the EQ, since many of the presets have some sort of tonal control. But in the case of effecting a close-miked drum kit, I was auditioning several rooms, and I wanted to reduce the low and low-mid boominess caused by the mics' proximity effect. By pulling the bass gain down, I was able to find a room that worked, without having to go into each preset and change EQ settings as I went along.

The stereo width control (also in the global EQ section) can be used to collapse a stereo image to mono. At 100%, it's full stereo, at 0% it's mono, and at –100% the left and right inputs are reversed. It may seem like an esoteric feature, but I managed to find a use for it. On one track, I wanted to rein in the image of an ultra-wide stereo percussion loop to better match the space of the other instruments. Lowering the width to around 60% did the trick without causing any unwanted cancellation.

Unlike the KSP8, effects can't be chained to create multi-effect configurations. A majority of presets are single effects, but more than a handful combine two or three effects that can be arranged in serial or parallel configurations. If it seems I'm being vague about the presets and algorithms, it's because the documentation is woefully incomplete regarding these. More on this later.

For beat-synchronized effects, tempos can be entered via the Tap Tempo button or by dialing it in from the value knob. Tempos can either be global or preset specific; however, fractional BMP values can't be entered. And unfortunately, fractional tempos (*e.g.*, 107.35 bpm) aren't properly recognized when sending MIDI Time Clock either. This may seem like nitpicking, but believe me, there are plenty of musicians and engineers who can hear when a delay is dragging or rushing, even if only by a few ticks.

Take Two

I asked engineer/producer Alex Oana (www.alexoana.com) to weigh in on Rumour and Mangler. Mostly, I produce music for picture and deal with advertising clients. In contrast, Alex is usually busy tracking and mixing rock and pop bands, so he has different needs when it comes to effects processing. Here's what he had to say.

At my studio, I work in Pro Tools, but I mix through an analog desk. Having the Kurzweil boxes available on an aux send gave me instant gratification, and seemed to sound wider and richer than the software plugs I'm used to hearing.

I used the Kurzweil processors while mixing the debut Olympic Hopefuls record, a new Minneapolis pop group on 2024 Records, made up of members from several of the Twin Cities' finest bands. Their candy arrangements feature loads of background vocals with counter melodies and rhythms that, to be fully appreciated, require a distinct sonic space from the lead vocal. For this I kept coming back to a Rumour preset called "Flange Echo" — a warm and spacious sound that has just enough gloss to be fun.

On another track, I wanted to get one of the delays synced in time with the session. The drummer didn't play to a click, so there was no record of tempos in the Pro Tools sessions. Fortunately, this wasn't a problem for the Kurzweil's un-twitchy and forgiving tap tempo feature. Rumour even allowed me to set a tempo for the flange rate — something that usually requires a calculator.

Bottom line: I love tools that are quick, distinct, and toneful. Kurzweil's Mangler and Rumour multi-effects boxes, in their own digital way, are just that.

NAVIGATION & EDITING

Operationally, Rumour and Mangler are identical. Presets are organized by type into banks such as "Chorus," " Large Rooms", "Gated/Rvrs/Compr," and so on, with 16 presets per bank. Two levels of editing are available, so you can get as deep as you'd like with programming, or you could stay on the surface.

From the Show FX Parameters (Master menu) you can choose between Basic and Advanced. With Basic, the number of editable parameters is limited to 16 — these are hardwired and determined by the type of effect. The choices Kurzweil made for which parameters are accessible in Basic mode make sense. This helps prevent option anxiety — in all cases, I was able to quickly locate the controls I was looking for, whether it was high-frequency damping, left and right predelay, LFO rate, compression ratio and attack,

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Kurzweil Rumour & Mangler

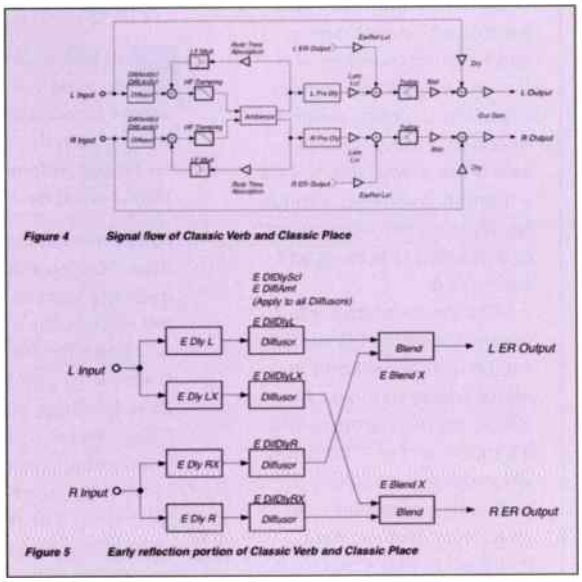

Figure 4 Signal flow of Classic Verb and Classic Place

Figure 5 Early reflection portion of Classic Verb and Classic Place

A LIST OF RUMOUR/MANGLER ALGORITHMS AND PARAMETERS IS AVAILABLE FROM KURZWEIL'S WEBSITE. SHOWN HERE, THE SIGNAL FLOW AND EARLY REFLECTION DETAILS OF RUMOUR'S CLASSIC VERB AND CLASSIC PLACE ALGORITHMS.

etc. without getting bogged down by too many parameters.

What's more, these 16 parameter "slots" are automatically mapped to MIDI controllers 1–16. By setting up two rows of knobs on an M-Audio Keystation Pro 88, I had immediate access to all of the 16 parameters, which made short work of fine-tuning my effects during a mix. To speed things along, I looped a verse and chorus section while I dialed in just the right mount of decay time, predelay, and diffusion on "Bigger Perc Room," which I used on tambourine and shaker. At no time did I hear any zippering as I adjusted values. I even automated the decay time over the course of my track to create more space during the verse, then tighten up the percussion during the busier chorus.

ALGORITHM MADNESS

The names of all the presets and the algorithm ID numbers are listed in the documentation. But the algorithms themselves aren't described — it's suggested that users download a 304-page algorithm guide from Kurzweil's site. This guide details the algorithm parameters, which is precious information for anyone looking to dig deep into programming. By my count, there are over 250 algorithms divided between Rumour and Mangler.

But this is my best guess. See, the printed manual lists the IDs, and the PDF references the algorithms by name and by ID, but inside the effects processors themselves there's no way to scroll through a list of all the included algorithms.

Mysteries aside, I was impressed by the amount and complexity of these effects. You can check them out at www.kurzweilmusicsystems.com/support.html?id=452.

SOUNDS

There's no way I can hope to cover all the presets from both processors, so instead I'll give you my "executive summary," starting with Rumour. There's a detail and definition to the reverbs, which range from small rooms to large halls. I detected no ringing or graininess to the tails, even when I increased the decay time beyond the limits of good taste. Smaller spaces, in particular, sound very believable. Halls were less realistic, but still pleasing, although they didn't have the kind of creaminess found in some high-end effects. For male and female vocals I found suitable plates that helped support the singers without overwhelming or being difficult to fit in the mix.

Despite its name, Mangler is much more than a destructive lo-fi box. Its palette is actually well rounded. Given Kurzweil's keyboard history, it may come as no surprise that the flangers and phasers sound convincingly old-school. My Rhodes took on an instant retro vibe when I patched it in. I wasn't as impressed by the Leslie effects, though. Something about the rotation characteristic didn't sound right. ➤

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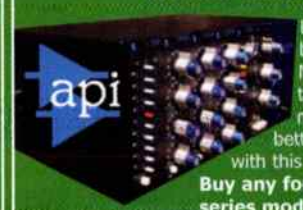

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Kurzweil Rumour & Mangler

There are lots of distortions to choose from, ranging from sharp digital sounds to thick, guitar cab-style emulations. On the whole, these are loads of fun, and plenty useful, but I'm not sure a true tone snob would be satisfied. For messing up drum loops and adding extra edge to vocals, though, Mangler's distortions are great.

> By combining quality algorithms in two cost-effective packages, Kurzweil continues to make a compelling argument for hardware effects.

CONCLUSIONS

In this day and age of convolution reverbs, striking amp simulations, and virtual re-issues of classic stompboxes and effects, hardware effects processors have it tough. It's not enough to offer a collection of great-sounding effects. Fortunately, Rumour and Mangler have these in spades. But Kurzweil has gone the extra mile to bring these boxes in at a reasonable price. By combining quality algorithms in two cost-effective packages, Kurzweil continues to make a compelling argument for hardware effects.

If you're looking to offload CPU-intensive reverb or sophisticated modulation processing, or just want a wide range of versatile and creative single-effect presets to be inspired by, Rumour and Mangler will not only meet, but most likely exceed, your expectations. EQ

Strengths:

- Detailed, quality rooms and ambiences (Rumour)
- Wild distortions and filters (Mangler)
- Stereo versions of high-end KSP8 effects
- Easy to use
- Affordable

Limitations:

- Algorithm parameters aren't detailed in the included documentation
- No power switch

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GIGASTUDIO3.0

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TASCAM
www.tascam.com

World Radio History

TASCAM 2488 Digital Portastudio

recording functions without cracking the manual, which is thorough and reasonably clear. (Do read the cautions, though, such as how to shut down the machine properly.)

While the interface is simple, it shows intelligence. For example, in the LCD menus, small pictures and text indicate a function — a picture of a hard drive for disk functions, a waveform for WAV, etc. Eye candy? Maybe, but in the heat of a session it can be easier to parse images than words.

EFFECTS

There are three effects types: "Mic" effects (compression, exciter, de-esser) you use while recording or insert into a channel; multieffects (distortion, amp model, modulation effects, delay, wah, etc.); and an internal send effect (reverb, delay, chorus, pitch shift, flanger, phaser, and gated reverb). Of course the mic effects will work with instruments, too, but you're limited to eight instances max, or four and the multieffects. To use a lot of effects either record with them, or bounce tracks.

There are also EQ and dynamics effects on the master stereo bus for "mastering" the overall sound.

COMPUTER GAMES

The internal hard drive is partitioned into one fixed, 4GB FAT-32 partition; up to four other partitions (4, 8, 16, or 32GB) are formatted in the 2488's native format. Only the FAT-32 partition communicates with a computer via USB 2.0 (USB 1.1 also works, it's just slower), so to back up a song, you save it to the FAT-32 partition first, then transfer it. (No computer? Back up to the 2488's CD drive.) Similarly, if you're importing files, WAV data, or SMFs, they must pass through the FAT-32 partition first.

Importing WAV data, from CD or USB, is weak. Files can't be within subfolders (root level only), and must be mono (44.1kHz, 16- or 24-bit) for compatibility with the virtual tracks into which they must be loaded. Want to load a sample CD, browse it, and import some loops? Sorry. To import a stereo WAV, you'll need a digital audio editor to break it into two mono files and import them separately. While doable, it's inconvenient.

SURPRISE!

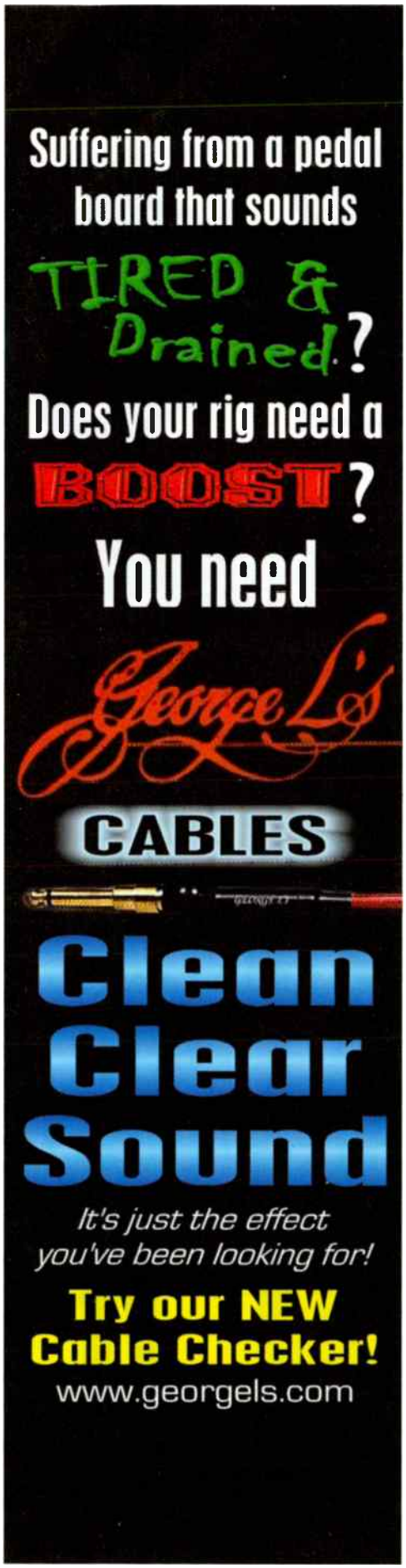
It's worth noting some clever variations on standard features. For example, the 100 scene memories aren't dynamic automation, but nulling indicators let you match physical fader positions with stored positions — essential when punching in from a particular scene. Another useful feature: You can assign an input to multiple channels, and there are some handy assignment and bounce screens.

Linking two adjacent channels links EQ, fader, effects send levels, etc. Another cool feature, Sub Mix, isn't just for bouncing but also can bring, for example, hardware MIDI instruments synched to the 2488's MIDI clock in through the eight audio inputs, for 32 tracks total.

There's one MIDI mystery: I enabled response to continuous controllers, which although not detailed in the manual, implies that it can control mixer parameters. I sent the 2488 a variety of controller numbers and channels from a Peavey PC-1600, but nothing happened. A future update, perhaps? (And where's the MIDI implementation chart?)

I like the jog wheel function, and that you can see waveforms in the display — important when seeking precise in/out points for cut/copy/paste/insert operations (which have undo/redo). And there's

> While the interface is simple, it shows intelligence . . . in the heat of a session it can be easier to parse images than words.



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TASCAM 2488 Digital Portastudio

varispeed (±6%) as well as a time-stretching mode that slows speed without changing pitch; this is designed mostly for rehearsal.

Finally, when recording audio CDs in Track At Once mode, you can change the order of songs in a playlist-type fashion,

This is all about price point, and the 2488 delivers the goods.

as well as edit the silence between them before finalizing an audio CD.

AND SO. . . .

TASCAM has reinvented the Portastudio for a new generation. This is all about price point, and the 2488 delivers the goods. You won't get dynamic automation, and being able to assign the multieffects to only one channel is a bit stingy, but this is a Portastudio — if you're not willing to do a bounce or two, go ahead and spend more.

TASCAM has reclaimed their heritage as the company that delivered multitrack recording to the masses. By delivering real value in an easy-to-use package, the 2488 has brought that lineage into a new century. EQ

Strengths:

- Extremely cost-effective
- Eight tracks of simultaneous recording, 24 playback tracks
- 16-/24-bit resolution
- Built-in CD-R/W drive
- No-stress user interface
- General MIDI module
- Communicates via USB 2.0

Limitations:

- Imports only mono WAV files
- Saving a song to computer requires transferring it to a special partition
- Scene automation only

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i3 DSP-Quattro

Truly cost-effective Mac audio editing

by Craig Anderton

Type: Digital audio editing software
Price: $129
Contact: i3 Software Engineering, www.dsp-quattro.com

Platform: Mac OS 8/9/X
Minimum system requirements: 604 CPU with second level cache (G3 recommended), 32MB RAM, 10MB free hard drive space, Mac OS 8.6 or later (OS X recommended)
Copy protection: Serial number on installation, license key from site
Version reviewed: 1.51
Supported audio drivers: SoundManager, ASIO (Mac OS 8/9) and CoreAudio (OS X)
MIDI support: OMS (Mac OS 8/9), CoreMIDI (OS X)
Supported file types: AIFF, WAV, SDII; can import/export anything that QuickTime handles (MP3, audio CD, AAC, etc.)
Internal resolution: 32-bit floating point
Supported sample rates: Up to 192kHz
Supported samplers: MIDI — SDS, Roland S50/S330/S550; SCSI — Akai, Roland, SMDI, E-mu, Kurzweil, and Yamaha
Plug-in support: VST (not Carbonized) for Mac OS 8/9, Audio Units and VST (Carbon and Mach-O) for OS X
Tested with: G3 225MHz PowerBook with OS 9.1, dual G5 with OS X

TC Electronic's Spark may be gone, but DSP-Quattro (DSPQ for short) fills that gap . . . and more. DSPQ takes an unusual, modular approach to editing. Input modules record what's at the physical hardware input(s), but you can also create a File Playback module to provide input, send realtime audio directly to the program (route ins and outs using ASIO or CoreAudio), and insert some of DSPQ's effects or use VST/AU plugs (global or per stream).

While you're at it, load a VST/AU instrument as an input, and trigger it via MIDI. While not as sophisticated for live performance as something like RT Player Pro, the processing, editing, and stretching functions (described later) open up highly creative sound design possibilities.

As you're not limited to one audio input stream, creating multiple input modules provides a limited form of multitrack recording. Each audio stream even has its own undo/redo history. (Although there's no common transport to sync all playback modules together, that's slated for the next update.) Adding an Output Recorder module can record whatever appears at the out, including realtime input along with a file being edited.

Of course, DSPQ does all expected editing/mastering functions — cut, paste, insert, replace or insert with crossfade, add fades, and so on. But if (for example) you're a sample developer, this program is aces: Play the instrument you want to sample while you process it, and record the results with an Output Recorder. Next, play back the recorded file as an input while playing an overdub, and record the combination (through processors if desired). Edit the result and find a perfect loop point, then blast it via MIDI or SCSI to any of the supported samplers.

For album assembly or creation of complex files, there's a Playlist option (each entry can have its own effects). When you're done, burn a Red Book CD (OS X version only), or export playlist and audio CD-ROM image files in a format compatible with Roxio Toast/Jam.

Whew! And that's just the overview. Let's dig a bit deeper and hit some highlights. ➤

DSP-QUATTRO INCLUDES SEVERAL EFFECTS. SHOWN ARE THE CHORUS, MULTITAP DELAY, ONE OF THE TWO REVERBS, AND A FOUR-BAND PARAMETRIC EQ.

THE MAIN WINDOW IS FOR WAVEFORM EDITING. THE DOCUMENTS MANAGER SHOWS OPEN FILES; THE MASTER OUTS WINDOW ALLOWS INSERTING EFFECTS, THEN EDITING THEM IN THE MASTER EFX WINDOW. THE OTHER OPEN WINDOW IS AN OUTPUT RECORDER, WHICH RECORDS WHATEVER APPEARS AT THE PROGRAM OUTPUT.

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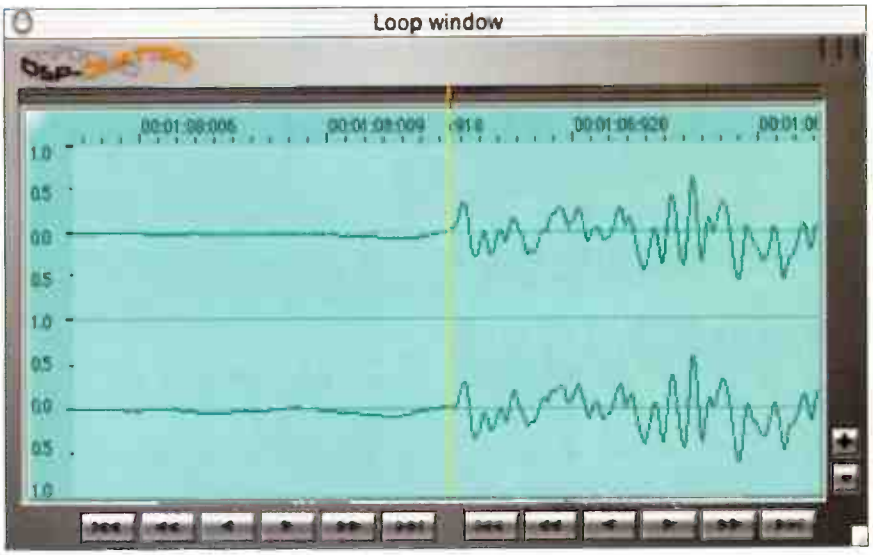
i3 DSP-Quattro



THE LOOP WINDOW MAKES IT EASY TO FIND LOOP POINTS THAT DON'T CHANGE LEVELS DURING THE LOOP TRANSITION.

DSP

You'll find the usual DSP: Remove DC, invert, reverse, swap left and right channels, and so on. But DSPQ does things a little differently. Normalizing works as expected — select, and the level hits 0. But when Normalizing To, a transport bar lets you preview the normalized level, as well as fast-forward or rewind through the file, or loop a portion for auditioning. It also displays a readout of the peak value, peak position (you can drop a marker there if you want), RMS value, and any clipped audio.

Time Stretching is impressive; a slider adjusts the algorithm, so you can preview while trying different algorithms. It won't do miracles, but changes of ±10% (and with some program material, even more) were surprisingly natural sounding. Pitch shift is basically resampling (like changing a tape recorder's varispeed), while Frequency Shifting changes pitch without changing duration, and sounded pretty good up to several semitones. As with Time Stretching, you can preview while auditioning.

Moving Pitch Shift sounded like rocking tape across a head (DSPQ does excellent scrubbing too), so I couldn't resist setting up an Output Recorder and

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i3 DSP-Quattro

recording the results. For sound design, processing the sound while recording the results is wonderful.

LOOPING FUNCTIONS

You can set loops according to BPM, detect BPM from a selection, do crossfade looping, and "lock" loop points so they slide together through a file. A Loop Window shows the audio before and after the loop point; this lets you fine-tune the loop points so they land *exactly* on transients, with minimal level shifts.

Crossfade looping is outstanding, as you can audition the effect of the crossfade. I often used crossfading not just to make a better loop, but an entirely different one.

PROCESSORS

DSPQ includes Chorus, Stereoizer, Delay, Dual Delay, MultiTap Delay, Reverb 1, Reverb 2 (they use different algorithms), and seven filters including Multiband Parametric, 7-Band Graphic, etc. There's no dynamics processor; you'll need a VST or AU plug for that.

An Effects Manager object (window) manages effects. It can insert in the Global out, and/or in individual data streams created by input objects. For each of the Manager's four effect slots, you can monitor the in or out, adjust the level, change the dry/processed mix, and save effects combinations as a preset for use in other Effects Managers.

BUT WAIT, THERE'S MORE. . . .

And there really is. For example, when you export a file, you can do just a loop, just a region, the whole file, convert stereo to dual mono or mono, export just one channel, etc. When you're into quick file navigation, check out the marker options — which include being able to move them as a group.

For years, Windows users have enjoyed a wonderful set of editing programs, while on the Mac, the only consistent commercial offering has been BIAS Peak. But DSP-Quattro has some features that aren't available on *any* of the Windows editors, while setting the bar higher for what one can expect from this type of program. At this price, the cost-effectiveness is unbelievable — but download the demo, and you *will* believe. This is an exceptional piece of software. EQ

Strengths:

- Hosts VST instruments
- Transfers to various samplers
- Included effects
- Can record and play back multiple audio streams
- Separate undo history for each open window
- Extremely cost-effective
- CD burning
- Playlist with effects

Limitations:

- Can't sync playback to SMPTE or MIDI clock
- No included dynamics processors

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The M24 is the only control surface to feature high-end, in-depth control of multiple plug-in effects at once, on a single channel or across several channels with automatic control assignments that follow the selected channel.

The M24 features a large LCD display necessary to keep track of channel names, control values and plug-in parameters. Static fader features enable any assigned channel or master faders to remain in place during bank swaps or offsets. Fader flip modes enable faders to control pan, auxiliary send levels and even plug-in values.

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Arturia Minimoog V

by Craig Anderton

Price: $199
Contact: Arturia, www.arturia.com

Strengths:
- Very cost-effective way to get the Minimoog sound
- Tasteful extras (processing, matrix modulation)
- Works as signal processor
- Great soft clipping option

Limitations:
- Somewhat processor-hungry
- Can hear filter cutoff control quantization if changed rapidly

Everybody loves Minimoogs . . . but some people love them enough to create software emulations. Arturia's entry captures the magic and authenticity, but as a bonus, you can "open up" the back panel to reveal some additional features: matrix modulation, arpeggiator, chorus, delay, MIDI sync, and dedicated LFO.

Minimoog V follows Arturia's "let's work with everything" premise — standalone, VST, RTAS, HTDM, MAS, DXi, on Windows 9X/ME/2000/XP and Mac OS 9/X. While Arturia's synths have a reputation for sucking CPU power, the average power draw seems a little more efficient than usual. Occasionally, though, you'll see more significant peaks.

I compared the Minimoog V to my fave Mini emulation, Creamware's Minimax. Differences are small, but Arturia's has a somewhat fuller bass and "smoother" sonic vibe. Unlike the Minimax, though, you can hear some of the filter cutoff control quantization when you sweep it rapidly. The Minimax has a slightly brasher and more "defined" sound, with a superior control response; but it's priced higher, and won't run without dedicated hardware DSP. Comparisons to a real Minimoog are more difficult, because of variations among models. Sonically, I'd use a guitar analogy: the Minimax is like a "single coil" Mini, and the Minimoog V, a humbucker. Either sits beautifully in a track, which is the bottom line.

Arturia has earned Bob Moog's endorsement, and it's easy to see why. The sound quality lacks any "digital grit" (thanks to Arturia's TAE process that minimizes aliasing), the graphics are outstanding, the additional features are respectful and musically useful, and the included presets help show off the program.

If you've lusted after a Minimoog but couldn't swing the bucks or deal with the maintenance issues, the Minimoog V is a honey-voiced emulation that will more than satisfy that lust — and at a far lower cost than the "real thing." EQ

M-Audio Octane

by John Krogh

Price: $749.95
Contact: M-Audio, www.m-audio.com

Strengths:
- Lightpipe output
- Word clock I/O
- Inserts on all eight channels
- Clean, clear mic preamps

Limitations:
- 1/4" inputs interrupt signal from the XLR connection, so you'll have to repatch to switch between both sources

For those of us going mixerless in our studios, Octane could very well be the missing link. It combines eight channels of mic preamplification with lightpipe out, so you could patch it directly into a MOTU 2408 or other lightpipe-equipped audio interface. Additionally, Octane can function simply as an A/D converter.

Microphone channels 1 and 2 also sport instrument inputs; channel 1 has a low-cut switch, and channels 2, 4, 6, and 8 have phase inversion switches. Phantom power can be turned on for channels 1–4 and 5–8; all mic inputs feature a 20dB pad.

On the rear you'll find word clock input and output, as well as eight balanced 1/4" line inputs and outputs. Here's where things start to get interesting. The outputs can function as channel inserts for the mic inputs, so you can add analog compressors and EQ to the signal path, and return them to Octane via the line ins, which get routed directly to the A/D converters. This adds up to enough mic preamps (and the option to add whatever outboard) to track a small ensemble or multi-miked drumkit straight into the computer.

There are a couple of drawbacks, though. Plugging a connector into the line in will interrupt the signal from the corresponding mic input. Ideally, I'd prefer to leave gear patched into the line ins, and switch between the mic preamps and 1/4" inputs as I wish. But instead, users will have to repatch cables, depending on the kind of source they're working with.

We're lead to believe the preamps are descendants of M-Audio's Tampa mic pre/compressor; however, Octane doesn't offer variable impedance. What it does have is a set of very nice, uncolored preamps. With vocals and acoustic guitar, I was impressed by Octane's focused, clear, and open sound. Patching a synth into two 1/4" ins revealed no additional character whatsoever (a good thing!). This is not a color crayon nor is it a glorified low-pass filter, as some budget preamps tend to be.

M-Audio's product designers seem to have an uncanny knack for recognizing what musicians and project studio owners want, and giving it to us at a price that's hard to beat. Octane is a perfect example. If your studio is lightpipe-equipped, Octane will be one of those Swiss Army knife-like tools for which you'll find numerous uses. EQ

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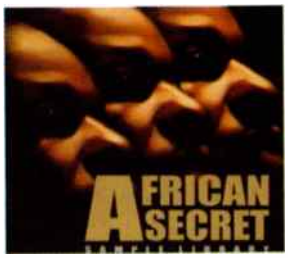


BIG FISH
African Secret

Contact: Big Fish Audio, www.bigfishaudio.com
Format: 1 CD-ROM (WAV), 1 Audio
Price: $129.95

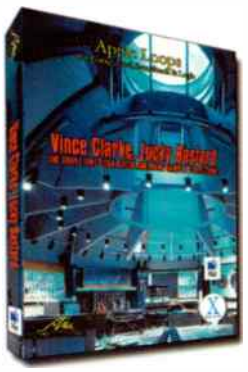
From dual-guitar Kenyan pop to South African high life, there's a lot of great music coming out of Africa. This 530MB CD of mostly loops tries to capture the essence; while the overall effort is uneven, it has some definite high points.

African Secret is not a construction kit, but more of a collection of files. Don't count on being able to mix and match loops, as some have very different rhythms (of course, the variety of rhythms is also a strong point). As to key, more consistency would have been welcome: Most of the acoustic guitar loops are in *G*, but the traditional guitar ones are in *A* or *E*. Meanwhile, the marimbas are in *C* and *E*♭, the harmonicas in *A* and *G*, and *all* the dry female voices are in *G*. Furthermore, the rhythmic acidization isn't very good. For example, slow the marimbas down a bit, and most will flam; a few of the otherwise excellent drum loops don't include acidization markers.

Despite all this, certain combinations of loops produce some real magic, and most of the individual loops (particularly congas, the excellent guitars, drums, harmonica, and sax) work extremely well as ethnic accents to other forms of music. *African Secret* is a good start, but the definitive African pop sample CD has yet to be made. Given the music's fluidity and character, that's not an easy task. —CRAIG ANDERTON

AMG
Vince Clarke, Lucky Bastard

Contact: AMG, www.samples4.com
Format: Reason ReFill CD-ROM
Price: £ 30 ($52 approx.)



Synth legend Vince Clarke (Depeche Mode, Erasure, Yazoo) has been ReCycled and virtually recreated in this sonically potent refill. At the heart of *Lucky Bastard* is a collection of REX'd modular/analog sequences and electronic drum loops. Specifically formatted for Reason, this library contains all the material from the original audio version of *LB*, as well as new REX, Malström, and Subtractor

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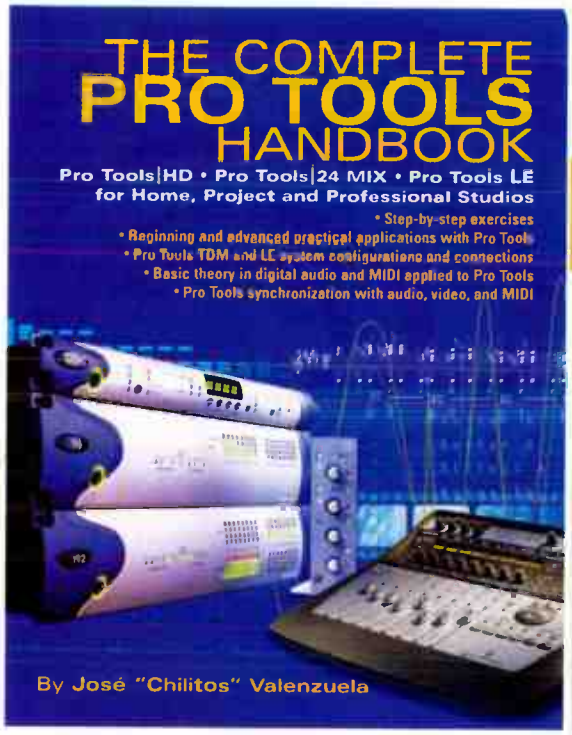

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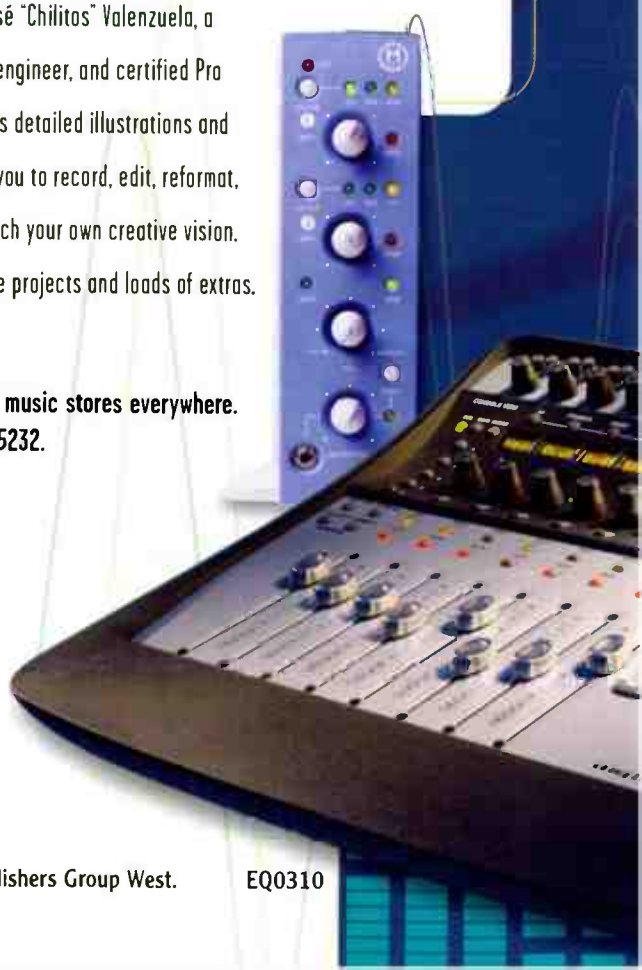

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"Coming Attractions" are previews of new products that haven't arrived in the marketplace. These aren't product reviews, but are designed to bring you up-to-the-minute information on the next generation of cool recording tools.

COMING ATTRACTIONS

Adobe Audition 1.5

Amazing new features, amazing low price

by Mitch Gallagher

What is it? The latest version of Adobe Audition (née Cool Edit Pro) includes new features such as ReWire and VST support, as well as innovative editing capabilities such as Frequency Space Editing and Center Channel Extraction.

Who needs it? Windows-based audio and video producers and engineers.

Why is it a big deal? New features such as Frequency Space Editing take Audition to a new level. Improved integration with Adobe video products improves workflow for video professionals.

Shipping: Spring 2004

Retail Price: $299. Upgrade from Audio 1.0 or Cool Edit Pro 2.x for $69. Upgrade from Cool Edit Pro 1.x or Cool Edit 2000 for $169.

Contact: www.adobe.com/audition

Cool Edit Pro long enjoyed popularity with Windows-based audio producers and engineers. When media software giant Adobe purchased Cool Edit Pro, there was concern about the future of the product (which was re-released as Adobe Audition 1.0). Now the company has addressed any reservations about Audition with a major update: Audition 1.5.

Audition offers multitrack recording, editing, mixing, and processing for up to 128 tracks, including up to 32 live inputs. Audio resolutions up to 32-bit/10MHz (yes, 10Mhz) are supported. The program comes packaged with many DSP processing tools, as well as an extensive royalty-free loop library — in fact, with v1.5, Audition's loop library has grown by 500 more loops to a total of more than 5,000.

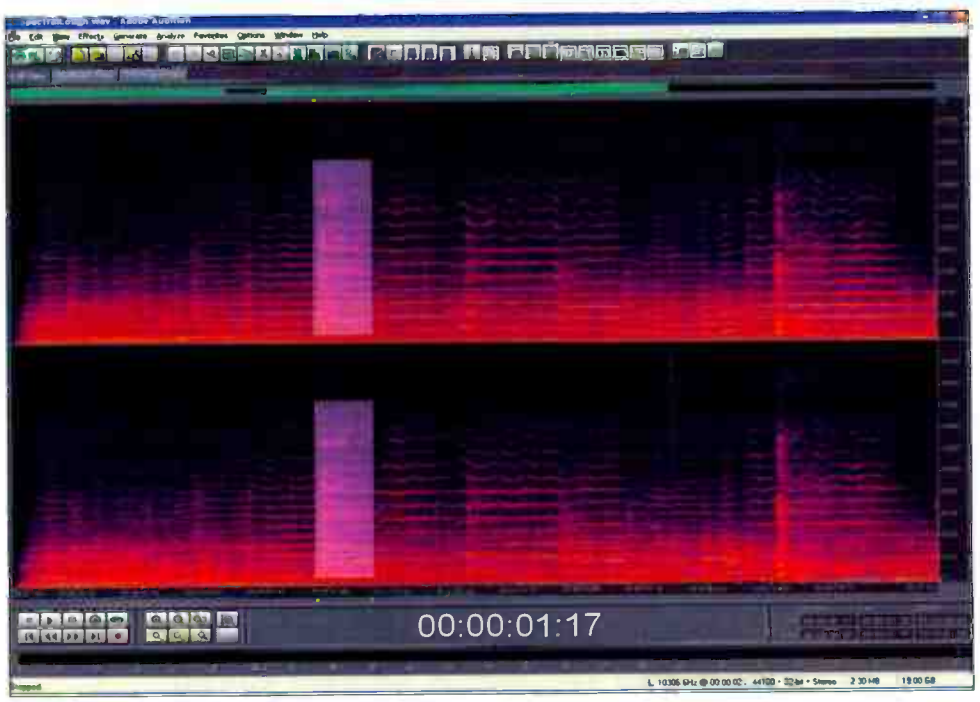
New capabilities include support for ReWire. This allows Audition to interact with programs such as Propellerhead Reason and Ableton Live, as well as other programs and software instruments. VST support has also been added to the existing DirectX support, opening Audition up to the myriad VST plug-ins available. Among the plug-ins that ship with Audition is the new Studio Reverb, which provides high-quality reverb without heavy demand on CPU resources.

Perhaps the most amazing of Audition's new features is Frequency Space Editing. Frequency Space Editing can remove or modify just a range of frequencies without affecting other frequencies. You could cut out, for example, a cough or car passing by during a take — even if the noise occurs while music is playing. You could also compress just certain frequencies, or add effects to only specified frequencies.

Other new features include integrated CD burning, automatic click and pop elimination, clip time stretching, built-in pitch correction, and vocal/instrument extraction. Not only can you remove center-channel vocals to create karaoke tracks, but you can reverse the process: keep only the center-channel vocals, while eliminating everything else, easily creating *a cappella* tracks.

As you'd expect with an Adobe product, video is strongly supported in Audition. Version 1.5 offers support for MPEG, DV, and WMV format video as well as the AVI format previously supported. Video now appears in a "thumbnail" track as well as in a separate video window.

Audition 1.5 also features improved workflow with Adobe's video products, including Premiere Pro, After Effects, and Encore DVD. Interface behavior, menu arrangement, and command names, along with other user interface elements, are now more consistent across the family of products.



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World Radio History

by Todd G. Tatnall

Troubleshooting Windows XP

Having covered Mac OS X troubleshooting last month, we'll address Windows XP troubleshooting this time. Experts surround me when it comes to DAWs and the Microsoft Windows platform, from my in-house tech support and install specialists, to our colleagues at MOTU, Synthax, Aardvark, and M-Audio. With help from these experts, I've assembled tips on troubleshooting DAWs in Windows XP.

Start On The Right Foot

Buying the right computer is the best way to prevent problems. Start by planning the system around your audio and MIDI needs. Consult the manufacturer or authorized reseller on computer recommendations. Then be sure that the PC — as well as all peripherals such as hard drives — complies with the requirements for your DAW.

Clean House

Once you've got your PC, audio and MIDI hardware, and your DAW software, it's time to optimize your system. Most product developers and resellers post "PC Optimization" guides, which often give great detail on how to tweak your system for best DAW performance. While you may be able to perform other tasks on your PC, such as office work and gaming, you'll find that these applications may rob your DAW of valuable resources. Realistically, the best PC-based DAW is one that is dedicated to — or a least optimized for — audio and MIDI production.

PC, Interrupted

Hardware peripherals in Windows use IRQ ("Interrupt Request") numbers as "flags" to tell the CPU that a device needs attention. If two or more peripherals share the same IRQ, problems could occur. Reducing the number of IRQ's used in your system can help free up valuable bandwidth and other resources.

You can check for IRQ conflicts in Device Manager, by going *View*, selecting *Resources By Connection*, then expanding *Interrupt Request*. A great way to reduce conflicts is to remove extra peripherals such as unused PCI cards. Uninstall drivers for items that are removed from the system by using Device Manager. Right-click *My Computer*, select *Properties*. Select the hardware tab, and choose *Device Manager*. Here you'll find drivers for devices that have been removed. Right-click on the driver to choose the Uninstall command.

You can dig deeper into the world of IRQs by entering BIOS. Follow manufacturer instructions to boot the system into this mode. Some built-in devices can be disabled so that the system ignores the device or port during boot up. In some cases, you can manually change IRQ numbers within BIOS.

Don't Start With Me. . . .

XP systems often ship with some applications set to run at startup. This means that even if you're not using an application, it may be running and using valuable RAM and other resources in the background. You can disable these "Startup" items by clicking *Start>Run*, and entering the command "MSCONFIG." In general, you'll want to disable applications that aren't integral parts of the system. Avoid disabling items that show they are located in Windows/System32. If you're not sure what a particular startup item does, ask an expert before disabling it.

Drivers

When audio and MIDI hardware doesn't respond properly, check to make sure the hardware drivers are installed correctly. Visit Device Manager again and look for "?" or "!" accompanying your audio or MIDI drivers. These marks may indicate that the drivers aren't installed properly or are having problems. Try uninstalling and reinstalling drivers. Whenever possible, download the latest drivers from the hardware developer's website.

Updates

Software updates often solve problems that other troubleshooting tips don't fix. Be sure to check for updates frequently. The easiest way to do this is to click *Start>Windows Update*. This action will log you in and allow you to scan for updates available for your specific computer. Look especially for "Critical updates and Service Packs" as well as "Driver Updates." Since Windows-based systems use various types of computer hardware, be sure to check for chipset drivers and BIOS updates from manufacturer websites. Update DAW applications and hardware drivers as recommended.

Start From Scratch

When troubleshooting, updates, and utilities don't help, it's sometimes necessary to uninstall and reinstall the problem application. In some cases, you can save hours of troubleshooting by reinstalling Windows, your DAW software, and drivers. Before you take the plunge, be sure you've got important settings and configurations documented carefully. Have at least one backup copy of your system and all data. Some utilities offer the ability to "clone" your data including system settings.

Call For Help

While I've hopefully given you some ideas to start with when troubleshooting your PC, it's quite possible that you'll need more information. If all else fails, consult the experts. If you do call for tech support, be ready to report the problem to the tech support specialist, including what you've already attempted in the troubleshooting process. EQ

Todd G. Tatnall is the Senior Tech in Sweetwater's Technical Support department.

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by Lisa Roy

Guitar: Zakk Wylde

"When we were on the last Ozzfest tour, between blasting my brains out with the wall-of-doom Marshall stacks and the Les Paul, I would get on the bus and we'd have a 22-hour drive ahead of us," says Zakk Wylde, one of rocks most celebrated guitarists. "I'd sit up front with our driver Lee and Tim Bolin, who is my tour manager and the president of Black Label. We'd be crankin' Seger, Neil Young, Eagles, Allman Brothers, ya know drivin' music. And I said 'Black Label should do an album like this, a record you want to put on in your car when you're drivin' for a while' . . . so we did."

When it came time to make his "drivin'" record, Wylde turned to Barry Conley to not only engineer but also executive produce . . . and the results? One test drive of *Black Label Society – Hangover Music Vol. VI* made me want to run out and steal something! Instead I dialed up Conley and Wylde to get the inside secret to the drivin' guitar sounds.

DATE: October – December 2003
STUDIO: Ameraycan Studios
LOCATION: North Hollywood, CA
ARTIST: Zakk Wylde
PROJECT: *Black Label Society — Hangover Music Vol. VI*
TRACK: tracking acoustic and electric guitars
PRODUCER: Zakk Wylde
EXECUTIVE PRODUCER/ ENGINEER: Barry Conley

ROCK HARD SIGNAL MAP

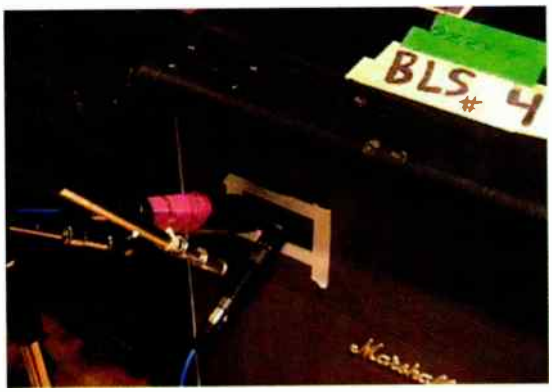
"I used an AKG C414 and an AKG C451 on Zakk's acoustic guitar," shares Conley. "Those were going to an SSL-G mic pre on the board and a blend of that was going to Quantegy 499 [2" tape] at +6/185." The results of this set-up can be heard on track 5, "Takillya (Estyabon)."

"I used a Yamaha classical, I've had it for years," says Wylde. "A buddy of mine gave it to me when I was 16. I just strung it up and jammed on it. "Takillya" is my ode to all the guys I love, like Al DiMeola, Paco de Lucia, and Eddie Van Halen doing "Spanish Fly."

"For dirty guitars I used my Les Paul Custom, the one I usually always use," continues the guitar slinger. "I call it the Rebel, it's got beer caps and a rebel flag on it. It's been beat up, lit on fire, the neck's been broken, and that's pretty much the one I use for the dirty stuff. Marshall made me a custom signature head, the JCM-800, a 2203 model, and my cabinets have four 200-watt ElectroVoice speakers in them."

"I use a Shure SM-57 and a Sennheiser MD421 on the same speaker of the Marshall 4x12 cabinet," adds Conley. "Both of these mics are going through Neve 1073 mic pre/EQs and then to tape.

"On Zakk's clean guitars we were going through a Roland Jazz Chorus 120, which I miked with two AKG C414s using the board [SSL G-series] mic pres. Zakk mostly used this amp with his '57 Les Paul Junior (with one dog-eared P-90 in the bridge position), which Ozzy gave him."



An on-axis '57 and an off-axis '421 are used to capture Zakk Wylde's guitar onslaught.

MIC POSITION *A LA* BLACK LABEL SOCIETY

"I put the 414 at the bridge position on Zakk's acoustic guitar and I used the 451 at the bout position," shares Conley. "On the dirty guitars I set the SM57 on-axis on the speaker cone and the 451 off-axis on the same speaker. For the clean electric guitars I positioned both 414s right on each speaker of the stereo amp."

HANGOVER PROCESSING

"Zakk likes a real natural sound and so do I," Conley confides. "He likes his guitar to sound like his guitar, so not much processing is used. But on the dirty guitars I ran both mics through the 1073s with a touch of top end boost and a lot of bottom boost (220Hz/110Hz). On the clean guitars I ran the mics through G-series mic pres with a touch of upper-midrange EQ boost."

BLACK LABEL ANALOG NOTES

"All we use is 2-inch analog. The only reason for us to bring in Pro Tools is, instead of cutting the 2-inch tape with a razor blade, we'll edit in Pro Tools; like if a part is too long, like the ending to a song," concludes Wylde. "I'm not into just playing one guitar pass and then 'Pro Tooling' the rest of the performance, it's phony and fake. I'll perform it all."

"Zakk was adamant about using analog," concurs Conley. "The studio wanted us to use the Pro Tools rig, but when Zakk walked in he pointed to the rig and said, 'do you really want to use that?' I told him I'd rather not, and Zakk said, 'Let's not use it, let's dial up the 2-inch.' Analog warms up the guitar sound . . . it's such a beautiful format and it's so musical.

"Zakk and I have worked together since 2001 and he's open to doing new and different things," concludes the multi-talented Conley. "I'm always trying to expand the horizon a bit, too. On this record I used a Minimoog, sang a little bit, and played the really low rumble bass parts. When it came time to mix, I did some pretty crazy little tricks like using my Buchlas and a Leslie cabinet for processing vocals and guitars." EQ

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World Radio History

by Craig Anderton

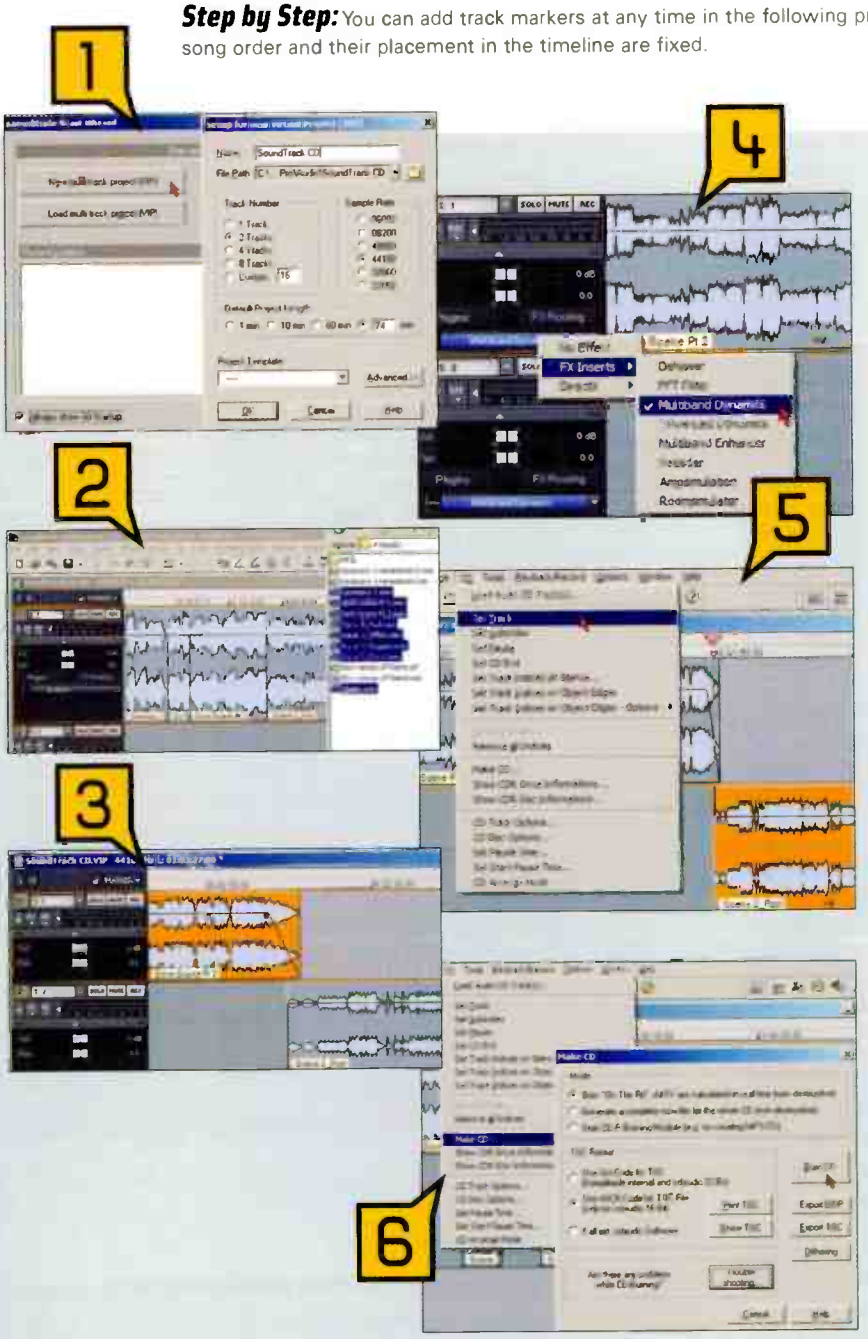
Magix Samplitude 7

You've made the music, now make a CD

Objective: Master your tracks, then burn a CD in Samplitude.

Background: Samplitude (and its bigger brother, Sequoia) make it easy to assemble your tunes, add mastering effects, adjust levels, set track markers, then burn a CD — all within the standard VIP multitrack environment.

Step by Step: You can add track markers at any time in the following process, as long as both the song order and their placement in the timeline are fixed.



1. Create a new VIP project with two tracks, default time 74 minutes, and 44.1kHz sample rate. You can always add more tracks later if needed.

2. Drag the files that you'll use in the CD into one of the tracks. They'll be arranged end-to-end.

3. Arrange your tunes in the desired order. If necessary, zoom in to adjust the silence between songs, or create fades.

4. You can add effects to entire tracks (as shown here), to individual objects (right-click on an object and select Object Editor), or in the Mixer window master bus.

5. Set the cursor where you want a track marker, then go *CD* > *Set Track*.

6. Go *CD* > *Make CD*, leave the defaults as is, then click on "Burn CD." You'll be presented with some recording options (speed, number of copies, whether to add CD text, etc.); after specifying what you want, click on "Write."

tips

- As with so many aspects of Samplitude, you can go a lot deeper than this, especially with respect to mastering effects. Read the manual and use the help files.
- There's a patch on the Samplitude website that allows burning to additional CD-R drives, as well as writing to DVD-R.
- Samplitude and Sequoia also have a "Burn Project Backup on CD" option under the File menu, which creates a data CD.

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World Radio History

by John Krogh

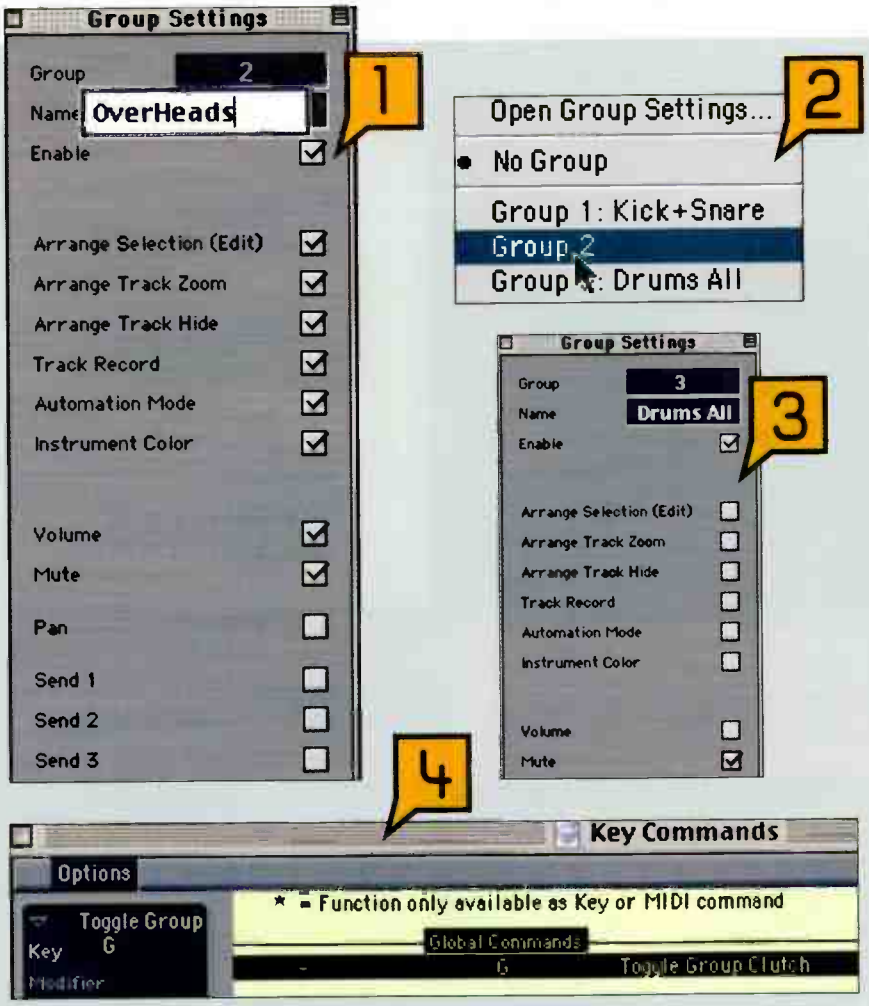
Emagic Logic

Track Grouping

Objective: Learn to use Logic's group features.

Background: Logic has sophisticated grouping features that allow you to work with a number of channels simultaneously. For example, channels can be linked so when you edit a region on one channel within a group, regions on other channels in the group will be edited as well. You can also write automation for a number of tracks using a single Logic Control fader or MIDI controller.

Step by Step: Using groups can make mix sessions go faster.



1 In this example, I'll use multitrack drums. You could use a 2-mic guitar session or multitracked vocals. In any case, it's important to consider which channel/track parameters you'd like to group. In Step 1 I've assigned two tracks of overheads to their own group because I want edits, along with solo/mute and volume automation, applied to both tracks.

2 To assign a track to a group, choose a group number from the yellow flip menu located above the track's automation mode display.

3 A channel can belong to more than one group. One possible use for this is to set a "mute" group, which could include all tracks of a multitracked drum session. Additional groups could be used for linking similar types of tracks such as room and overhead mics or close-miked toms. To assign an additional group to a channel, press Shift while choosing a group from the flip menu.

4 Grouped tracks can have separate levels, and they'll retain their relative balance when adjusting the levels from a fader. However, you might need to change the relative levels after the tracks have been grouped. Rather than disabling a group from the flip menu, you can temporarily disable all groups using the Toggle Group Clutch Key command.

tips

- Groups can be quickly assigned or cleared by holding Option when clicking on a channel's group display. (The currently selected group will be assigned or removed.)
- Be smart about which channel settings you choose to enable for a group. Don't go crazy enabling *every* parameter for *every* group. In many cases, essential parameters such as mute, volume automation, and track record will be enough. It's probably not necessary to link send levels and pan settings for every track in a group, for example.
- For Logic Control users: Tracks can be assigned to groups remotely by pressing and holding the Group button, then pressing the track Select buttons.

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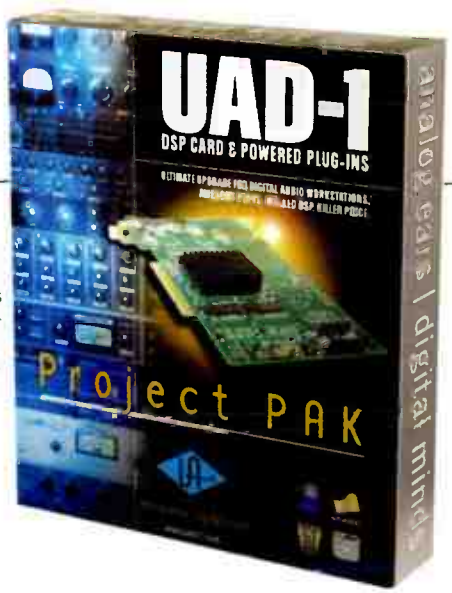


World Radio History

by Craig Anderton

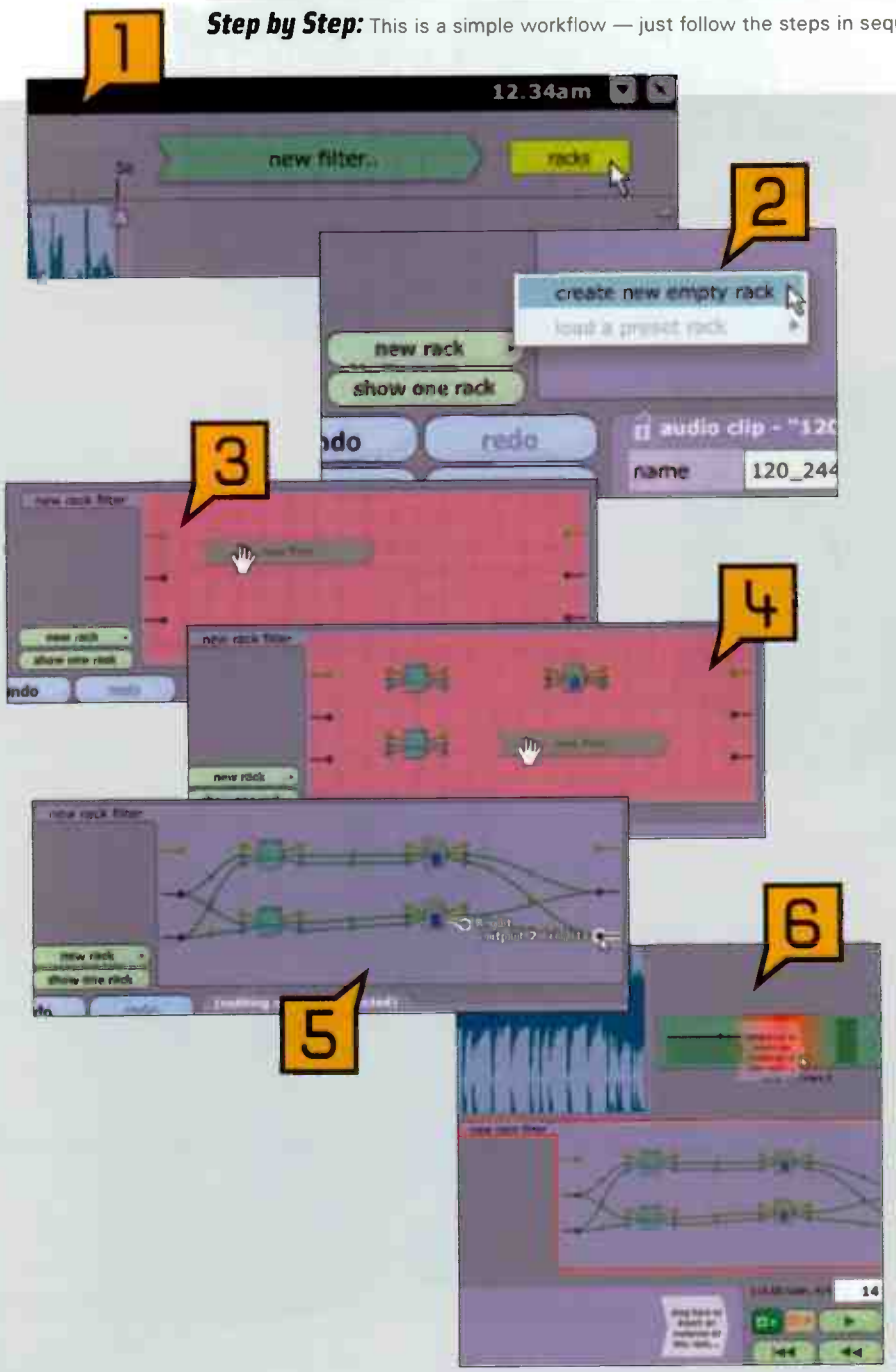
Mackie Tracktion

Use racks to set up sophisticated effects routings

Objective: Set up a series/parallel effects "filter" that can be dragged into a track's signal chain.

Background: A Tracktion rack is a signal processing module that can host multiple plug-ins, patched in any combination of series and parallel routings. You can then insert the completed rack into a track.

Step by Step: This is a simple workflow — just follow the steps in sequence.



1. **Click on the Racks box to show the rack configuration area.**
2. **Click on New Rack and select Create New Empty Rack.**
3. **Drag a new "filter" (potential plug-in) into the rack. When you release the mouse button, select the desired plug-in. When asked if you want to auto-connect the filter, say "no."**
4. **Keep adding plug-ins by dragging filters into the rack.**
5. **Patch the plug-in ins/outs together by clicking on one point, dragging it to another, then releasing. In this example, two pairs of effects have been wired in series, and these two series chains have been patched together in parallel.**
6. **Click within the rack filter to select it (as indicated by a red outline). Drag the object that says "Drag here to insert an instance of this rack" into the desired location in the track's signal chain. Note the red background that shows where the rack will end up after being dragged.**

tips

- To edit a rack plug-in, click on it. Its interface will float if it's a non-Tracktion effect; otherwise the interface will appear in the Rack Filter Properties panel.
- To disconnect a "software patch cord" within the rack, click on the cord itself (not an end), and drag it away.
- From within the Rack Filter Properties panel, you can rename/add/delete inputs and outputs, as well as manage rack presets.
- Click on the Racks button again to hide the rack filters, thus allowing more screen space for tracks.

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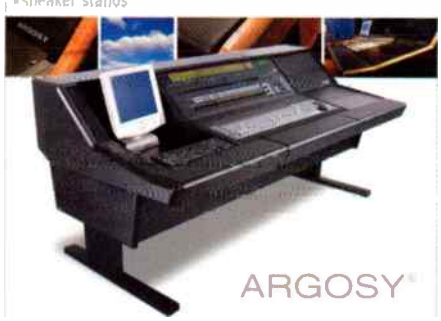

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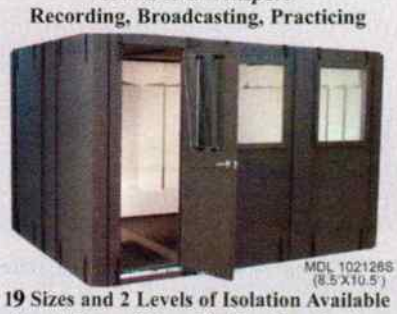

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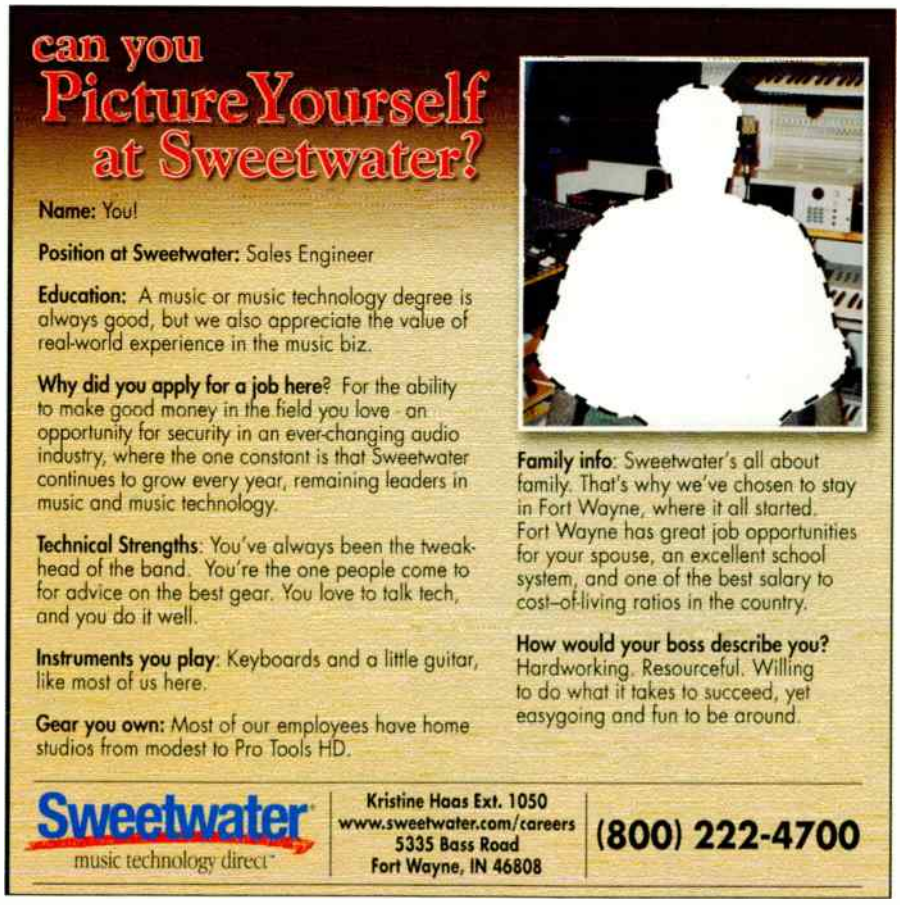

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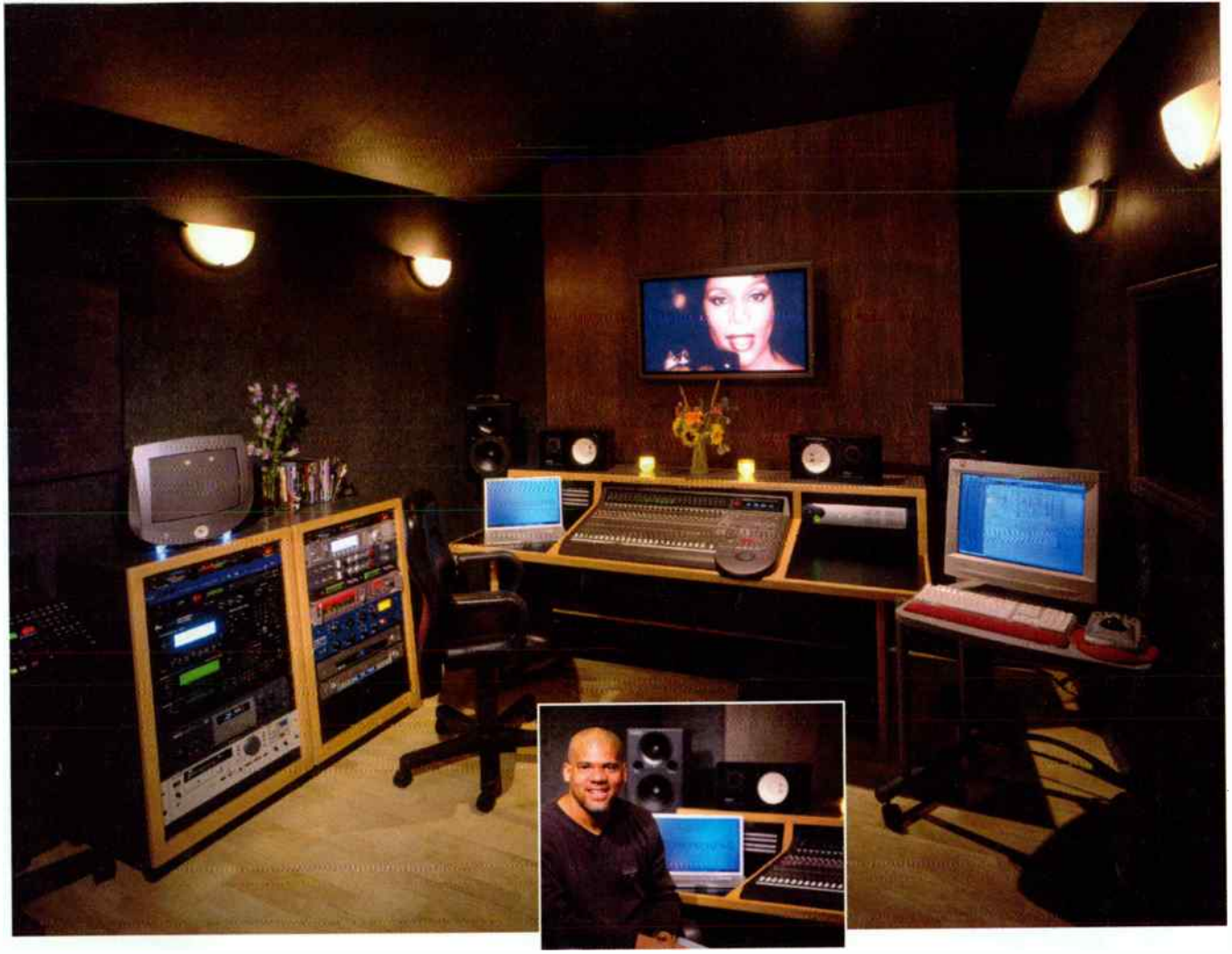

Room with a VU

by Mitch Gallagher

STUDIO NAME: Tonysound
LOCATION: Van Nuys, CA
CONTACT: www.tonysound.com
KEY CREW: Tony Shepperd, Yasmin Shepperd
CONSOLE: Mackie d8b
RECORDERS: Panasonic SV3800, Otari RADAR II, CDR-18
MONITORS: Yamaha MSP-10, SW-10, NS10mn
AMPLIFIERS: Bryston 4B (2), Hafler P1500
OUTBOARD: Tube Tech CL1B (2), Apogee Big Ben, dbx 160xt (2)
EFFECTS PROCESSORS: Kurzweil KSP 8, Yamaha SPX 90 II, dbx 120xp
MICROPHONE PREAMPS: (2) Neve 1073, Aphex 1100, 1788
MICROPHONES: Sony C800G, Neumann M149, AKG C12VR, Marshall MXL603S, MXL2003; Shure SM57, Rode NT2
SAMPLERS/KEYBOARDS/MIDI: Kurzweil 2500RS, Roland JV-1080, JV-880, JV-90; Seiler grand piano
COMPUTERS: Apple Macintosh G4/1.25 GHz, G4 17" PowerBook
DAW: Digidesign Pro Tools HD3 Accel, 192 I/O (2), MIDI I/O
SOFTWARE: Digidesign Pro Tools 6, Emagic Logic Audio 6, MOTU MachFive, iK Multimedia SampleTank 2
STUDIO NOTES: Tonysound owner/operator Tony Shepperd tells us, "What you are looking at is my 17x19-foot garage in Southern California. As a father of four children, and as an engineer/producer, I was spending way too much time away from home. So the garage had to go! In the four years that I've had my project studio, I've recorded and mixed such projects as Kenny Loggins' *It's About Time*, Whitney Houston's *One Wish* Christmas album, as well as many additional projects from such artists as Take 6, Backstreet Boys, Michelle Williams of Destiny's Child, and many others.

"I started building the studio four years ago. A couple of good friends of mine, Doug Pearson and JT, started helping me one hot summer afternoon, ripping everything down to bare walls and concrete. We floated a new 2x4 floor on 1/2" neoprene rubber. We then capped the floor with 1/2" plywood and 5/8" particle board. The walls are 1/2" soundboard and 5/8" sheetrock. The walls also float from the floor and ceiling. Because the garage was an A-frame, the apex of the ceiling is about 14-feet high, so the room feels very big.

"For the past two years I have been mixing totally 'in the box.' Now that I have bumped my system up to an HD 3 Accel, I am even more excited about mixing everything inside of Pro Tools. However, as great as HD is, having the Apogee Big Ben master clock instantly improved my imaging — I can actually hear the tails of the reverbs.

"There are a few tools that I think every mix engineer should have. One such tool is SampleTank 2. On almost every project that comes through my door, I end up enhancing the sounds in the mix. SampleTank and [Digidesign] Sound Replacer are invaluable for that."

HEY, *EQ* READERS. WANT US TO FEATURE YOUR STUDIO? SEND PICS AND INFO TO mgallagher@musicplayer.com.

World Radio History

PUT NEW FIRE IN YOUR MOTIF ES!

- RECORD GUITARS, VOCALS AND OTHER INSTRUMENTS TO YOUR COMPUTER—WITH EFFECTS
- RECORD ES SOUNDS DIGITALLY DIRECT TO YOUR COMPUTER (UP TO 16 CHANNELS AT TIME)
- USE THE ES FADERS, KNOBS AND BUTTONS FOR COMPLETE HANDS-ON CONTROL OF YOUR DAW
- ADD MOTIF'S REVERBS, DELAYS, AND MASTERING EFFECTS TO YOUR DAW MIXES
- EXPAND YOUR SYSTEM WITH OTHER MLAN PRODUCTS LIKE THE YAMAHA 01X DIGITAL MIXING STUDIO

The Motif ES is the most powerful keyboard workstation on the planet. So what could possibly make it better? Imagine that you could transform your ES from being just a synth into the most important part of your computer studio!

What if you could connect guitars and mics to the audio inputs on your ES, add any of the ES Insert effects and then record directly into your computer's software? What if you composed on the Motif's built-in sequencer and then simultaneously recorded all 16 ES tracks into Sonar, Logic, Cubase or Digital Performer? What if you could turn the ES into a complete DAW control surface and use its faders, knobs and buttons to open windows, move faders, set panning and EQ—even control and view VST/AU plug-ins directly from your ES? Well, if you could do all that, why not take 4 stereo audio buses from your computer, send them to the Motif's superior reverbs and mastering effects before sending the fully mixed computer tracks via the Motif's audio outs to your monitor speakers?

Imagine a Motif ES and a computer could make up this completely integrated professional computer studio. And for good measure, demand to do it with just one FireWire cable connected between your ES and your computer.

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audio hardware for your audio software

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- High Definition audio interfaces
- On-board latency free mixing
- Plug-and-play expansion
- Universal compatibility

M X Me 2K XP

828mkII

96kHz FireWire

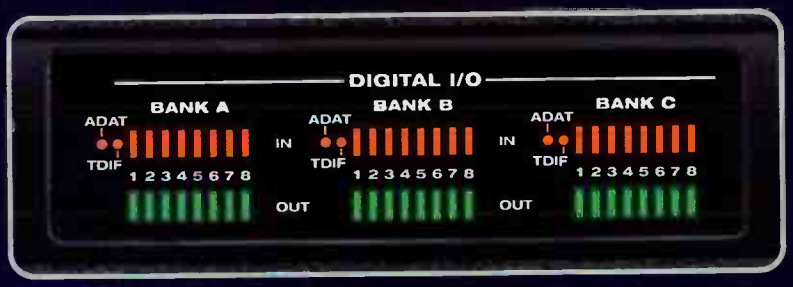
- Compact — great for laptops
- Stand-alone mixing/routing
- Front panel LCD programming
- 2 mic ins, 8 analog, 8 optical

896HD

192kHz FireWire

- High definition 192kHz FireWire
- 8 mic inputs with individual 48v
- Luxurious metering
- AES/EBU with rate conversion

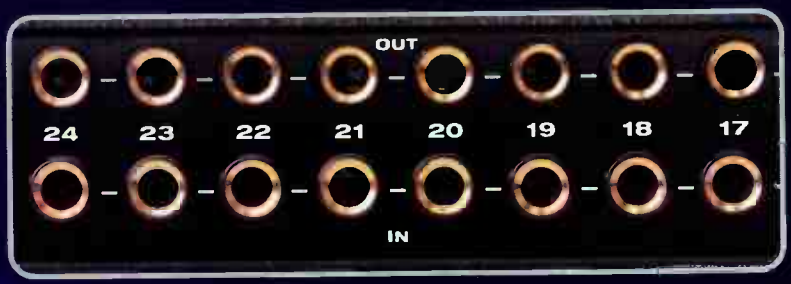
mix and match up to four PCI interfaces



2408mk3

PCI

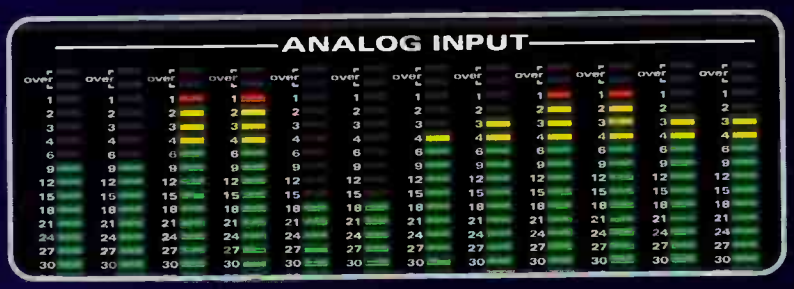
- Swiss Army knife audio interface
- Analog, ADAT, TDIF and S/PDIF
- 24 channels of ADAT / TDIF
- 12 channels of 96kHz ADAT / TDIF



24 I/O

PCI

- 24 analog TRS in/out in one rack
- Expandable to 96 channels
- 5-segment LEDs for all channels
- Mix and match w/other PCI I/Os



HD192

PCI

- 24-bit 192kHz recording
- Superb audio quality: >120dB S/N
- 12 analog XLR in and out
- 19-segment LEDs for all channels
- Expand to 48 channels of 192kHz

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