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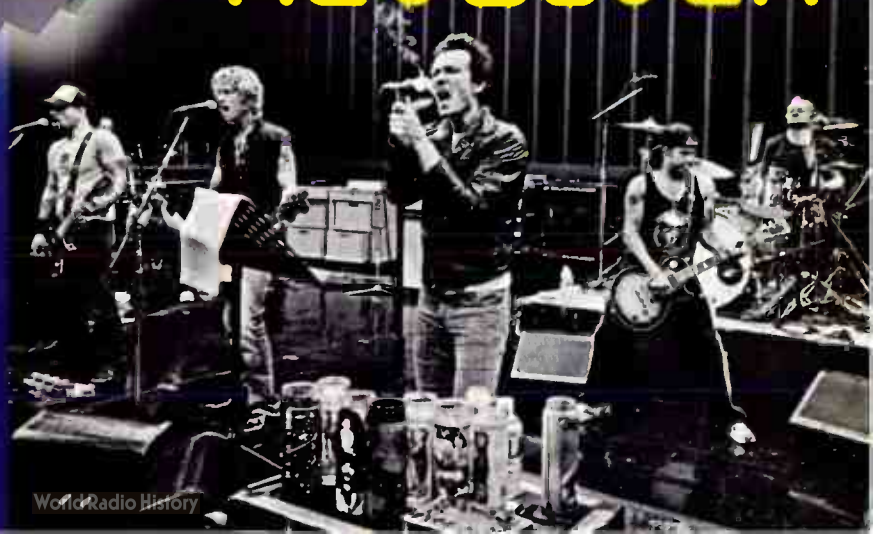

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NEW! US-2400

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.

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Joystick for surround sound panning.

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.

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.

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

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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!

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.

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- In/Out point buttons
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PORTASTUDIO 25th ANNIVERSARY

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SONAR 3

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Inspiration > Speed > Precision

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Talk Box

ALL ABOUT US

When was the last time you checked out the *EQ* discussion forums at www.EQmag.com? If it's been a while, it's time to drop back in and become part of the action. There have been some changes lately. First up: It's time to bid industry legend George Massenburg farewell as forum moderator. George was one of the original moderators on our forums, and we'll certainly miss the wealth of knowledge and experience he dispensed so freely to forum visitors. Thanks for all your hard work, George!

But on the plus side of the equation, two important new forums have been added. The first is an acoustics forum moderated by Ethan Winer — you probably recognize Ethan from the excellent acoustics articles he's been writing in these very pages lately. Ethan's forum is the hottest place to go on the net for advice on any topics related to studio acoustics.

Also new is Phil O'Keefe's project studio forum. Phil is a California-based professional project studio owner himself. He brings to the table extensive real-world knowledge garnered from serious project studio work, as well as a unique positive approach to recording technique and getting the most possible from your studio's gear.

While I'm throwing out this shameless self-promotion, how about a plug on behalf of the hardest working magazine crew in the business: Congratulations to the entire *EQ* staff on being named as finalist in two categories of the 53rd annual Maggie awards. The Maggies are awarded by the Western Publications Association, a trade organization for magazines, so they're recognition from our journalistic peers. *EQ* is honored to have been recognized in the Most Improved Publication/Consumer and Music/Consumer categories.

The awards ceremony was held in April in Los Angeles — it was quite the gala event. The awards process included more than 1,700 magazine entries, which were narrowed down to a few finalists in over 80 categories. We didn't take home the Maggie statues, but we're thrilled to have been among the select few that made it to the finals. Besides, *Muscle & Fitness* magazine won the Most Improved category, and they probably would have crushed our weenie little music industry butts if we'd beat them. . . . —*Mitch Gallagher*

The BAND STAND

What changes have you made to your engineering or production approach lately?

Mitch Gallagher, Editor
I'm doing a lot less recording with the mic jammed in tight on the source. I'm not talking about using room mics, rather, I'm finding that pulling the mic back a bit — a foot or two — allows the sound to develop more, and results in the final tracks needing less (and often no) EQ. The tone is fuller, it breathes more, and it sounds more natural to my ears

Craig Anderton, Editor at Large
I'm obsessing less, and enjoying it more. The more I do live performance, the more it confirms to me that the vibe is what music is all about. My priority now is capturing that "feel" in the studio, and being careful not to edit too much. I'm still a huge fan of digital technology — but the emphasis is increasingly about the digits on the end of my hands.

John Krogh, Technical Editor
I've been more closely watching the gain structure from one plug-in to the next in a series of inserts. In the past I wasn't as aware of overs within a chain — I mostly made sure none of the faders showed any clipping. Now I take more time to adjust the levels going in and out of each plug-in, making sure that the levels are optimized for each

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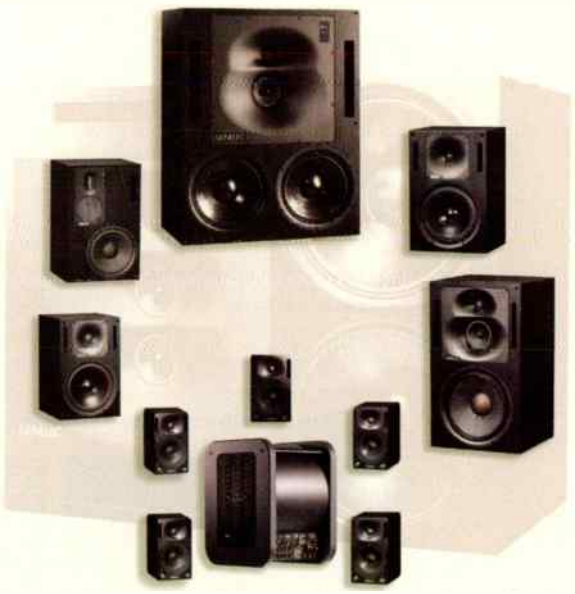

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World Radio History

Frankfurt Musik Messe 2004

By Craig Anderton

IT'S ALL ABOUT THE MUSIC

Short form description: Even at the world's largest music industry trade show (1,470 exhibitors from 50 nations), there weren't a lot of breakthrough products. Thievery is precipitating a shift from software to hardware. Anxious economic times in Germany, with comparatively high unemployment and a hot Euro currency that makes exports too pricey for the rest of the world (a lot of list prices announced at NAMM in U.S. dollars went up by 25% to 33%), added an overlay of nervousness.

As an official Messe organization press release said, with a degree of candor you would never find in the U.S., "The long-running decline in demand for musical instruments, musical literature, and accessories in the German market has led to drops in revenue that many companies were unable to counter solely by cost-cutting measures. The resulting bankruptcies and mergers have contributed to a process of concentration, the end of which cannot be predicted. The enormous pressures of cost was the reason . . . to shorten this year's Musik Messe by one public day."

Pretty heavy stuff, but then *why wasn't the Messe a bust?* Because it's not just about business and units moved, but about music. It's about Novation introducing their X-Station — which speaks recording, live performance, and synthesis — at an obscure, hip club in East Frankfurt rather than at the Messe itself. It's about performances that stop you in your tracks as you walk the show floor, and about after-show parties — like Ableton's — that celebrate the music, in the context of Frankfurt's own "Velvet Rope" where industry people are let in without hesitation, while the hardcore clubbers wait their turn in a line that snakes around the block.

Wait: *EQ*'s a magazine about recording, isn't it? What's this about parties and clubs?

Well, *EQ* is about recording *music* (and narration, and sound tracks, and whatever else wants to be recorded). Sure, we care about gear: But only because we care about *recording something* with that gear.

And that's where the Musik Messe represents a unique experience. There's an area ("Music4Kids") for kids to play with music. An "acoustic village" where you can decide to just get away from the hustle and bustle of music industry commerce and hear some incredible acoustic guitarist. Or the Agoura Stage . . . or the Music Arena where you could hear Eric Burdon, Bobby Kimball (from Toto), or the Paul Reed Smith band. In Musik Media's Europa room, Joe Satriani was graciously signing autographs on behalf of Germany's premiere music publications; meanwhile, in the DJ section, you could see DJ Q-Bert or pioneering German musician Klaus Schulze at the Alesis booth, then catch Santana's bass player, Gary Grainger, holding forth at the Axis Sound Equipment booth. And there was Jeff Beck at the Fender stand. . . .

Or a Roland press conference where a Russian singer, an Italian accordionist, and a super keyboard player from L.A. all strut their stuff on behalf of a Japanese company — while one of their Canadian product specialists fills me in on what it took to create a modeled accordion, a Korean buyer translates the English spec sheet to his associate, and I sit next to a friend from a Dutch music magazine.

If music is the universal language, then the Frankfurt Musik Messe is the place where fluency rules. It's a global social club for the people who really care about music and recording, whether it's acoustic folk music, string quartets, heavy metal rock, or DJs whose sole goal is to get people moving on the dance floor.

Welcome to four intense mornings, days, and nights when all that mattered was all aspects of music. It may not have been the ultimate Messe of all time, but by any standards, the Messe always rocks. And in some respects — such as intra-industry cooperation — it rocked harder than ever.

Welcome back, my friends, to the show that never ends. . . .

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You can get information on products introduced at Musik Messe anywhere, from manufacturer websites to internet forums such as www.musicplayer.com. But what you can't find as easily is analysis — the stories *behind* the stories.

So for this report, we're putting a magnifying glass on the significant trends that shaped the world's largest music industry show. You'll also see "product pointers" scattered around the report — quick descriptions of products that might otherwise slip under the radar, and a Web link you can pursue for more information. We hope you find this new format informative and interesting, and we're always interested in your feedback.

Connections

MAKING CONNECTIONS IN THE MODERN WORLD

Now that we have all this gear, how do we get it to work together in an efficient, workflow-enhancing manner? As it turns out, that was one of the main themes at this year's Messe. Let's start with the big news. . . .

YAMAHA/STEINBERG STUDIO CONNECTIONS

A few shows ago, Yamaha announced the development of **OPT** (Open Plug-in Technology), an interface technology between host applications and hardware editors that transmits mainly data (*e.g.*, MIDI) as opposed to the audio and control signals of a technology such as VST. One of the first practical uses was in Sony's Acid 4.0, which used OPT to implement a MIDI editor for the first time within the Acid environment.

Then Steinberg abruptly announced that MixerMaps would be history within Cubase SX 2.0. There was grumbling — "how could they do that?" — and I was among the disappointed. Little did I know that these two events were the precursors to something far more interesting than either one by itself.

The heart of the **Studio Connections** concept is the ability to have controllers for studio hardware show up within a host DAW using OPT2 technology, which draws on OPT but is no longer Windows-only. In other words, hardware controls appear with a tasty graphic interface within your DAW, just as virtual instruments and audio plug-ins do now.

STUDIO CONNECTIONS

So why is this different from something like Cubase's MixerMaps or Cakewalk's Studio Panels? Because the OPT2 spec means that these interfaces can just drop into *any* program that supports the Studio Connections initiative, on either Mac OS X or Windows 2000/XP.

It also means that just like plug-ins, *all the hardware parameters can be saved within a project and recalled.* Of course, you can do that now by a semi-tedious process of loading sys ex from as much gear as possible into a host that can store sys ex, then creating a sequence that blasts the sys ex out into the gear. But I'd much prefer clicking on "save" and knowing that all associated hardware settings will come back exactly as expected.

Although Yamaha and Steinberg did the joint announcement, the object is an industry standard. According to one Yamaha representative, "We wanted to work with Steinberg because of their cross-platform expertise. Once we devise a set of solutions with them, it will be much easier for other companies to come onboard. I've contacted quite a few of them at the show, and they're definitely interested." Charlie Steinberg himself emphasized the importance of making this something that works for the industry when he said, "A very important goal of this project is to create open cross-platform solutions with protocols that will be available for adoption by all audio hardware and software developers." An SDK (Software Development Kit) is slated to appear before the end of the year.

Returning to the present, the first phase of the Studio Connections initiative is designed to integrate a new version of Yamaha's Studio Manager technology (which hosts a range of editing software for hardware products such as digital mixing consoles, synthesizers, effects processors, etc.) within Steinberg's Cubase SX and Nuendo. Tantalizingly, though, total recall of music and media production systems

TAPCO S•8 MONITORS

Basics: **8" version of S•5 nearfield monitor gives an extended low frequency response.**
Info: www.tapcogear.com

- 2-way, bi-amplified monitor
- Dual 120w RMS amps (60w each for the woofer and tweeter)
- Rear panel controls include low-frequency boost and high-frequency cut/boost switches.
- Inputs include 1/4" TRS/XLR balanced and RCA unbalanced.

ROLAND DS SERIES MONITORS

Basics: **Two-way active digital reference monitors come in three models.**
Info: www.roland.com

- DS-5 is a 45w, 5" 2-way system
- DS-7 is a 60w, 6.5" 2-way system
- DS-8 is a 120w, 8" 2-way system
- XLR AES/EBU digital input (24-bit, up to 192kHz) and coaxial/optical jacks for integration into DAW/workstation environments

World Radio History

is considered as only a "specific Phase One goal of the Studio Connections initiative." Yamaha and Steinberg are simultaneously collaborating on further standards to provide a greater degree of integration and increased functionality for post-production as well as music.

Stepping back for a second, we have the company that brought us VST and ASIO allied with the company that was an early supporter of MIDI and the driving force behind mLAN. It will be very interesting to see what happens next, especially given that other companies want to join the party. Once again, the music industry is ahead of the curve in showing the world the benefits of collaboration coupled with friendly, positive competition. www.steinberg.net, www.yamaha.com

MADI'S BACK IN TOWN

It's not quite the same as a network, but there's been a need for a MADI device that can serve as a missing link between MADI devices of any manufacturer (MADI is a spec that provides for inter-device transfer of typically 56 channels among compatible units). Enter RME's **MADI Bridge**, which is a patch bay, distributor, signal buffer, and input selector. Up to 16 devices can connect with each other by six coaxial (BNC) and two optical input and output pairs. All input signals are routed unaltered to the desired outputs at any sample rate, even if they include special invisible control commands, out-of-spec data rates, or violations of the MADI protocol. Coaxial cable lengths of 100 meters are permissible, even between several devices.

The device stores the last settings when being switched off and offers nine memories for presets. The front-panel display features a 64 LED matrix field that displays all routings. MIDI control is also possible; a free Windows application communicates with the MADI Bridge via a computer's MIDI port. As the ADAT protocol starts to look more dated with its 8-channel limit, MADI and mLAN represent two different ways to get lots of audio from one point to another. www.rme-audio.com

MIDI GOES ETHERNET

D-Mexx (a joint venture between pro audio developers C-Mexx and DSound) demonstrated **Ethermidi** — the first MIDI technology for Windows XP that can address any standard MIDI interface via Ethernet networks, thereby allowing virtually unlimited ranges and wireless connections.

Regardless of where, how, and when they are linked in the network, even multiple Ethermidi interfaces and their MIDI ins and outs are instantly accessible by any stationary or mobile PC with an Ethermidi Windows XP-compatible driver installed. Furthermore, all Ethermidi devices' ins and outs become available to any MIDI-aware software running on that PC, just as if the machine had a MIDI interface connected directly.

Possible applications include theater, live performances, stage control, TV shows, mobile recording units, and broadcast trucks, as well as fixed installations. A typical application would be to control MIDI components using a WLAN-equipped notebook that needs to stay mobile and MIDI-connected at the same time.

Ethermidi 4x4, the first product in the Ethermidi product line, with a list price of 579 Euros, provides ports for connecting up to four MIDI devices per unit. www.d-mexx.com

THE AUDIO-MIDI FIREWIRE LINK

Here's another interesting solution from D-Mexx for doing real time audio/MIDI streaming between Windows computers. Basically, you connect two computers together via FireWire. The "primary" computer runs an ASIO-compatible DAW application (Nuendo, Sonar, Cubase, etc.), while the second runs a VST host such as RT Player HiDSP or V-Stack. The plug-ins on the secondary computer show up as plug-ins within the DAW, with everything glued together by FireWire ASIO drivers and the FireWire cable itself — no sound card is required in the secondary computer.

As VST plug-ins and instruments continue to demand more power, this represents a way to distribute the load over two computers as long as they are both FireWire-compatible.

STEINBERG HALION 3

***Basics:* Update of the MIPA Award-winning HALion 2 VST soft sampler (399 Euros).**

Info: www.steinberg.net

- RAMSave memory-saving technology facilitates loading large sample programs
- New effects section includes 27 effects — apply per sample, program, or bank
- Includes a database, indexing functions, and a sound categorization system
- Adds import for Kurzweil, ZeroX BeatCreator, and Kontakt files

IK MULTIMEDIA STUDIOPHONIK

***Basics:* Virtual instrument plug-in ($399) dedicated to serving as a "virtual band" with a multi-gigabyte sound library of drums, percussion, guitars, bass, keyboards, etc.**

Info: www.studiophonik.com

- Extensive effects insertable on each instrument channel
- Mix controls for adjustment of dry and room mics for drums, direct ins and mics for guitars, pickup selection for basses, etc.
- Integrated search engine
- Windows/Mac compatible with RTAS, VST, DXi, MAS, and AU support

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

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".

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fax: 865-909-9245

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BEHRINGER ULTRAPATCH PRO PX3000

Basics: **Balanced 48-point patchbay in one rack space ($69.99).**
Info: www.behringer.com

- 1/4" TRS connectors
- Three selectable modes per channel via top-side switches: Normal, Thru, and Half Normal
- Steel construction

ZERO-X BEATQUANTIZER

Basics: **Standalone program provides multitrack audio quantizing for programs like Nuendo, Sonar, Pro Tools LE, etc.**
Info: www.beatcreator.com

- Includes polyphonic time stretching
- Imports and exports a variety of file formats, including WAV, REX, etc.
- Slicing can be based on transients, or a given note length
- Based on BeatCreator technology

ZEBRACASE

Basics: **Rugged, inexpensive, injection-molded ABS plastic cases.**
Info: www.zebracase.com

- Sizes from 9x6.5x3.25" **($25)** to 21x15x7" **($119)**
- Polyurethane foam liner
- Steel hinge-pin, large integral handle

PROSONIQ ORANGEVOCODER3

Basics: **Successor to the immensely popular OrangeVocoder VST plug-in for Mac/Windows (99 Euros).**
Info: www.prosoniq.com

- Advanced MIDI control for the built-in synth
- 24 assignable filter bands
- Automatable "phoneme dial" can string together sentences for vocal synthesis
- Mono mode with glide for classic R&B talkbox imitations
- Filter bank with effects: formant freeze function, filter bank sample and hold option

ROLAND FR-5 AND FR-7 V-ACCORDIONS

Basics: **Five years in the making, these instruments model physical behavior and sound to faithfully reproduce an acoustic accordion's nuances.**
Info: www.roland.com

- Customize tone, pitch, resonance, and tuning characteristics
- Onboard digital amp and NiMh battery pack (optional on the FR-5)
- 1/4" output and headphone output; FR-7 incorporates a pair of woofers and tweeters
- Simulate up to 30 different accordion sound sets, and 22 Roland orchestral sounds
- Uses no moving parts to generate sound so the instrument is always in tune
- Onboard MIDI functionality

Hardware

HARDWARE CONTROL: NO LONGER MIA

General-purpose control surfaces (from Mackie, Radikal Technologies, Evolution, M-Audio, Peavey, etc.) have helped fill the need for human control of software programs. But the idea of dedicated controllers, optimized for specific programs, has been slow in coming.

Now Native Instruments — hardly thought of as a hardware company — introduced not one, but two dedicated hardware controllers at Messe. The **B4D**, manufactured by German organ company Dr. Böhm, provides the buttons and drawbars needed to provide hands-on control for their B4 virtual drawbar organ. It's no cheap piece of plastic, but made of metal and real wood (with a price to match — $449).

The B4D includes nine mechanical drawbars, two rotary knobs, and 22 buttons to access percussion, rotary speaker, vibrato, chorus, overdrive, volume, and preset selection. All control is handled via MIDI; there are additional inputs for a parameter pedal and two additional footswitches. Two or more controllers can be chained together via MIDI to provide simultaneous control over more than one of the B4's drawbar sets.

And we now have more details on the hardware foot controller included with **Guitar Rig**, the virtual guitar rack previewed in the April 2004 issue. It has four footswitches and a control pedal, but interfaces using neither USB nor MIDI, but audio. You plug your guitar into the foot controller's preamp/buffer

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Magic Wand

The cold, hard facts of room acoustics challenge every studio, large and small. JBL engineers thought it was time for a little magic. Introducing the LSR6300 Studio Monitors, the first reliable solution for tackling the real-world problems inherent in every room. Featuring the exclusive JBL RMC™ Room Mode Correction system, you can accurately measure boundary-induced low frequency modes with the included hand-held acoustic analyzer and then adjust each speaker's 1/10th octave parametric equalizer to correct problems in your room. Designed from the ground up, the LSR6300's uncompromising specs and features give you total control of your music production. See your JBL Dealer today and experience the power of LSR6300 Studio Monitors with RMC - magic you can really put your hands on.

LSR6300 Studio Monitors – Mix Without Boundaries.

Learn more about the power of the LSR6300 Studio Monitors and RMC at www.jblpro.com/LSR

JBL PROFESSIONAL

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input; two audio outs from the foot controller go to your audio interface's stereo input, with one out carrying the guitar sound, while the other carries audio signals that trigger the switches and/or represent pedal movement. No MIDI, USB, or latency need apply. www.native-instruments.com

DJ MEETS COMPUTER MEETS KEYBOARD

When people first saw the Open Labs **Neko**, a common reaction was "Has potential, but exactly what kind?" One answer was on the Messe floor, where one of Neko's module slots was filled with an **Evolution X-Fade** and other DJ-related controls (along with a fader bank). NI's Traktor was running on Neko, and DJ Richard Devine was scratching on the touch-screen LCD. His sets were great — the guy knows what he's doing, which was reflected in the nearly constant crowd as his fingers flew over the faders. But in the bigger picture, it seems the name "Open Labs" was well-chosen — Messe saw it opened up to DJs, and clearly, that's the first custom application of many to come.

ESI E.ON KEYBOARD CONTROLLER

Basics: **Bigger brother to the NeON and A.ON 25-key controllers introduced at NAMM**

Info: www.esi-pro.com

- 61 keys with aftertouch and split zone mode
- 16 assignable data knobs, eight assignable faders, eight assignable encoders
- Audio interface with 24/96 resolution
- USB port for computer connection
- 1-in/2-out MIDI port

CREAMWARE SCOPE SYSTEMS

Basics: **The company is back from Chapter 11, with a simplified interface product line that consists of three Mac/PC offerings, and a lower price on their Noah hardware synthesizer.**

Info: www.creamware.com

- **SCOPE Home ($499)** has stereo analog and S/PDIF I/O (expandable for additional I/O) and three SHARC DSP chips, along with 35 effects, Modular II Synthesizer, 16/32-channel mixer, and STS-4000 sampler.
- **SCOPE Project ($999)** has expandable analog, S/PDIF, and ADAT I/O and six SHARC DSP chips, along with 50 effects, nine virtual synthesizers, Modular II synth, 24/48-channel mixer, and STS-4000 sampler.
- **SCOPE Professional ($1,798)** boasts 14 SHARC DSP chips and offers three different I/O options, a 48/96-channel mixer, over 50 effects including mastering effects, and all synthesizers in SCOPE Project.
- The **Noah** synthesizer **($1,299)** now includes the ProTone in addition to the Minimax, B2003 drawbar organ, Vectron Player, Lightwave, synth, and Vocodizer.

GROOVE HARDWARE MEETS GROOVE SOFTWARE

Roland's **SP-606** stand-alone groove box seems at first to be another in their family of groove-oriented tools, with 4x4 velocity-sensitive pads, D Beam and V-Link control, USB/CompactFlash compatibility, slice and dice editing, 40 effects, and an 18,000-note, 4-track MIDI sequencer with BPM sync and time stretching. But what makes this baby different is that it comes with Cakewalk's **P606** software, which functions as a phrase generator/virtual groovebox, integrating with the SP-606 via the USB MIDI/audio interface. So not only is the SP-606 a stand-alone device, it also serves as a hands-on controller for the P606 software.

Three kinds of software synthesizers — analog modeling, groovesynth, and Acidized file player — are offered, as well as a loop sequencer, eight effects plug-ins, and onscreen control over Mix. As a master controller, the SP-606 can import, edit, and playback P606 tracks. www.roland.com

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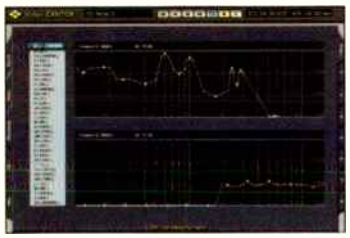
VIRSYN CANTOR



Basics: **Vocal synthesis program for Mac OS X/Windows XP that lets you enter lyrics in English, then "sing" them just by playing the melody on a MIDI keyboard. Really!**
Info: www.virsyn.com

- Add realistic expression with realtime parameters (*e.g.*, vibrato rate and depth)
- 8-part vocal synthesis engine
- Change the vocal characteristics from female to male
- Phoneme editor allows altering the basic "grains" that make up the vocal lines
- VST/AU/RTAS/ReWire support

TC-HELICON VOICELIVE

Basics: **Vocal processor (840 Euros) optimized for stage use.**
Info: www.tc-helicon.com

- Effects include EQ, compression, pitch correction, harmony synthesis, and effects (*e.g.*, delay and reverb).
- Eight footswitches, various switch modes, and an expression pedal provide realtime control.
- Instrument input for effects and mixing straight to the PA is ideal for solo artists.
- Studio-quality mic preamp, 48v phantom power, and soft limiter optimized for voice.
- Highly roadworthy construction.

LINE 6 VARIAX WORKBENCH

Basics: **USB interface and Windows/Mac OS X software combo is a "virtual custom shop" for Variax 500/700 guitars.**
Info: www.line6.com

- Select from a collection of guitar bodies, pickups, and controls.
- Tweak placement and settings to obtain a unique guitar design.
- Librarian program stores, shares, and backs up guitar models.
- Guitarists can fill each slot on the Variax Model knob and five-way switch with a custom guitar collection.

CAMEL AUDIO CAMELEON 5000

Basics: **Virtual additive synthesizer plug-in ($199) with morphing and resynthesis capabilities. Version 1.2 introduces several new features.**
Info: www.camelaudio.com

- Import any BMP image for Metasynth-like sound design capabilities
- Improved morph timeline functionality, including new morph X/Y editor
- Preset library with over 600 presets
- Windows VST, Mac OS X VST/AU

TC ELECTRONIC UPDATES

Basics: **V1.1 software for Reverb 4000, and a Mac version of the TC ICON editor program for the 4000, are available for free.**
Info: www.tcelectronic.com

- Update includes emulations of 20 presets from the TC Electronic M5000, including Gold Plate, M5000 Hall, and GM Hall.
- Preset sample rates have been increased to 96kHz.
- TC Icon software controls the Reverb 4000 via Mac OS X/Windows USB port.

LINE 6 EDIT SOFTWARE

Basics: **Free, downloadable program includes a graphic editor for Line 6 products, a "Tone Locker" for memory backup and file management, and online Tone Library.**
Info: www.line6.com

- Works with PODxt, PODxt Pro, Vetta II, HD147, Flextone III, and POD 2.0 via MIDI or USB
- Tones can be shared with other users and imported/exported among select Line 6 products.
- PODxt and PODxt Pro connect directly via USB

CAKEWALK GUITAR TRACKS PRO 3

Basics: **Windows 2000/XP program ($209, various upgrade paths available) embraces "new school" guitar techniques.**
Info: www.cakewalk.com

- Virtual "re-amping" with IK Multimedia's Amplitube LE amp plug-in
- Use input effects while recording
- Looping tools for creating backing tracks
- Suite of guitar-oriented plug-in effects
- Up to 32 tracks of 24/96 audio

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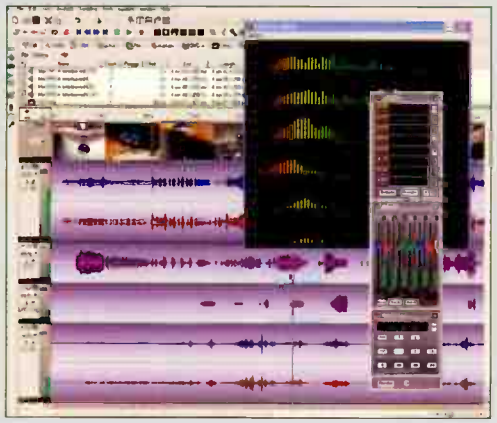
Surround Star

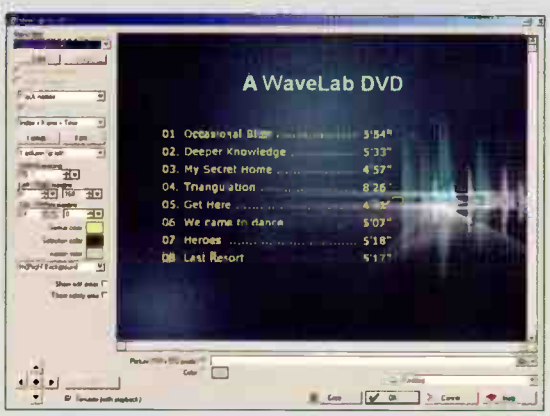
THE SURROUND STAR OF THE SHOW

Surround wasn't huge at the Messe; in most respects, 5.1 continued its slow, steady upward climb. But there was one major exception: Steinberg's **WaveLab 5**. This popular editing program for the Windows 2000/XP platform received a huge update that not only took the surround spotlight, but will give a huge boost to DVD-Audio.



The multi-channel surround audio support accommodates up to eight audio channels for recording, editing, processing, and mastering, and for down-mixing to stereo. It also handles stereo effects, such as Steinberg's Surround Edition, and can export WMA Pro 5.1 and 7.1 format files (for surround export in the Windows Media format), as well as support these formats natively for direct opening and saving. That's a lot of surround.

But there's more, because WaveLab 5 does complete DVD Audio authoring. This is no stripped-down, basic version, but includes Playlist editing, on-screen video menu design, picture slide shows, DVD burning, and DVD text. Add this to the extended Red Book CD capabilities (yes, you can print labels and covers directly from within the program, and do CD error checking/repair), and you have quite a package. Whether you're working with old school Red Book or new school DVD-A, WaveLab 5 does the job for a list price of $699.



WaveLab 5 also fills a hole in previous versions by including a video thumbnail track for audio-for-video work, which is particularly important in light of the new surround capabilities. It also supports the MPEG 1 Layer 2 (M.U.S.I.C.A.M.) file format as used in digital broadcast systems as well as Broadcast WAV, but adds to this new scripting capabilities on top of the existing batch processing functions. Pretty impressive. www.steinberg.net

STEINBERG CUBASE SX 2.2

Basics: **New version adds more soft synths, other enhancements.**

Info: www.steinberg.net

- New VST instruments: Monologue monosynth, Embracer "pad synth" with some surround patches
- New multimode filter plug-in called Tonic
- Support for generic remote controllers
- Extra MIDI features

TC ELECTRONIC/NOVATION V-STATION|POWERCORE

Basics: **Novation has developed a multi-timbral virtual synthesizer (299 Euros), based on the company's K-Station, that runs on TC Electronic's PowerCore platform.**

Info: www.tcelectronic.com

- All important sound-shaping controls are on the main screen.
- Three additional screens access more detailed sound parameters.
- An arpeggiator with programmable speed, synchronization, and sweep range is available within each instance, enabling beat-synced effects.
- The software ships with a library of 200 factory sounds.

ADERN SCOPE PLATFORM TOOLS

Basics: **Third-party tools and software for Creamware's Scope platform.**

Info: www.adern.com

- **FleXor2** provides over 150 DSP modules for the Creamware Modular II and III. The modules include new oscillator types, wave shapers, futuristic granulators, various sequencers, new filter types, etc.
- **Phil** is a filtering effect device with more than 40 new filter types and 1,600 combinations, along with syncable modulation sources, two distortion sections with 16 effects types, and a configurable signal chain with multiple routing options.
- **GrainMiller** brings granular synthesis to the Scope platform with multiple granular synthesis engines, syncable modulation sources, a built-in sample player, and more.

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PRO SESSIONS
sound + loop libraries
presents

JEFF RONA'S LIQUID CINEMA

"Over the years I have developed a method of scoring for film, TV and records that keeps things fresh, interesting and cinematic. I continually develop palettes of sounds and rhythms that I can draw from for the project at hand. Like a painter, they're my palettes of colors before I touch brush to canvas. I've collected many of these unique sounds—and created a lot of brand new ones—and put them together in Liquid Cinema. This collection delivers excitement and inspiration for film, television, commercials, music production, trailers and games." —Jeff Rona, composer ("Traffic," "Homicide," "Black Hawk Down," "Chicago Hope," "The Mothman Prophecies")

CINEMATIC IMPACT
Massive hits and whooshes that strike the audience right between the ears

CINEMATIC AMBIENCE
Beds, drones, pads and washes conveying space, size and texture

CINEMATIC PULSE
Organic, tonal rhythms designed to get things moving

TABLA SCIENCE
Exotic hand percussion that adds global energy to any track

THE HOLLYWOOD PLAYERS LATE NIGHT SESSIONS Vols. 1 & 2
Cool, retro 'Vegas' stylings

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Fresh percussive performances using found objects

AMBIENT BEDS, RHYTHMIC LOOPS, HITS, & WORLD SOUNDS IDEAL FOR FILM, TV, COMMERCIALS AND SONGS
7 CD VOLUMES AIFF | WAV | ACID | REX2 FORMATS* DEMOS AND DOWNLOADS AT WWW.M-AUDIO.COM
PRODUCED BY JEFF RONA

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*CINEMATIC IMPACT, CINEMATIC AMBIENCE AIFF | WAV FORMATS ONLY

EOWAVE BUG PROCESSORS

Basics: **Deviant analog stereo effects, in stompbox form, that provide unusual sonic effects for stereo instruments.**
Info: www.eowave.com

- **FilterBug** is a stereo 24dB/octave lowpass filter with envelope follower and LFO.
- **Ring o'Bug** is a stereo ring modulator.
- **Sci-fiBug** is a stereo, 8-step sequencer hooked up to a 12dB/octave lowpass filter.
- **SpaceBug** is an "analog-like" delay with feedback and modulation.

ADAM AUDIO MONITORS

Basics: **ADAM introduced three new speaker systems, including compact active and passive models, along with a new P-Series speaker designed to deliver extended bass response.**
Info: www.adam-audio.de

- **The Apple** two-way, nearfield monitor **($1,450/pr)** is designed for rooms where a small footprint is essential. It's magnetically shielded, offers balanced XLR inputs and unbalanced RCA jacks, and features a new tweeter design for frequencies above 1.8kHz.
- The **ANF 10** passive studio monitors **($700/pr)** combine a tweeter and 7" woofer in a relatively small bass reflex cabinet; high efficiency allows use with even smaller power amps (around 25w).
- The latest P-series model, the **P33A**, uses a dual-speaker design, larger cabinet volume, and built-in 100w amplifiers to deliver frequencies down to 34Hz at relatively high SPLs.

RME FIREFACE 800

Basics: **This interface (approx. $1,500) is the first RME device that connects via Firewire.**
Info: www.rme-audio.com

- Utilizes both Firewire 400 and 800 connections
- Ultra-low latency (as low as 48 samples)
- Four mic preamps, MIDI and digital I/O
- Instrument input with speaker emulation
- Eight channels of AD/DA conversion

EMES KOBOLD MONITOR

Basics: **This 2-way active system ($649/pr) is designed for minimum size consistent with maximum stereo imaging.**
Info: www.synthax.com

- Dual 70w amps
- Mechanically isolated base
- Vented port system with airflow-cooled speaker
- Polypropylene membrane driver with vented coil system

Mac Editors

THE MAC EDITOR MAGIC TRICK

Now you see 'em, now you don't. Unlike Windows, whose stable of digital audio editors has remained pretty constant over the years, the Mac has seen Blank Software's Alchemy, Digidesign's Sound Tools, and now TC Works' Spark disappear. But take heart: Until June 31, BIAS is offering a **Spark to Peak** crossgrade for **$299**. And i3, the Italian company behind much of the programming in Spark, is now up to Version 1.5 with their **DSP-Quattro** software **($129)**. This is a serious editor that can record multiple inputs (and HD outputs) in real time and through plug-ins, offers Red Book CD burning, includes a programmable PlayList with realtime (and non-destructive) editing, and features internal and/or VST/AU plug-in effects and crossfades between tracks.

DSP-Quattro is also designed for live playing of virtual instruments (sort of like DSound's RT Player software) which you can record into the editor, or simply use for live performance. We grabbed a copy for the *EQ* test bench at the Messe, and look forward to checking this program out in detail. www.dsp-quattro.com

DSOUND RT PLAYER PRO 2.5/GT PLAYER 2.5

Basics: **These PC/Mac OS X programs, which host plug-ins for live playing and other applications, have been updated with new features.**
Info: www.dsound1.com

- Rewire support
- Hot keys for track player control
- Looping within the track
- Record live performances to a stereo file on your hard drive

MAGIX SEQUOIA UPDATES

Basics: **Sequoia is being upgraded to Version 8.**
Info: www.magix.com

- "Elastic audio" gives audio the same type of flexibility as MIDI data, including resampling and pitch shifting
- ReWire support
- New media explorer and file browser
- Surround engine with surround effects, MIDI drum and controller editor, and an "analog modeling suite" of signal processors

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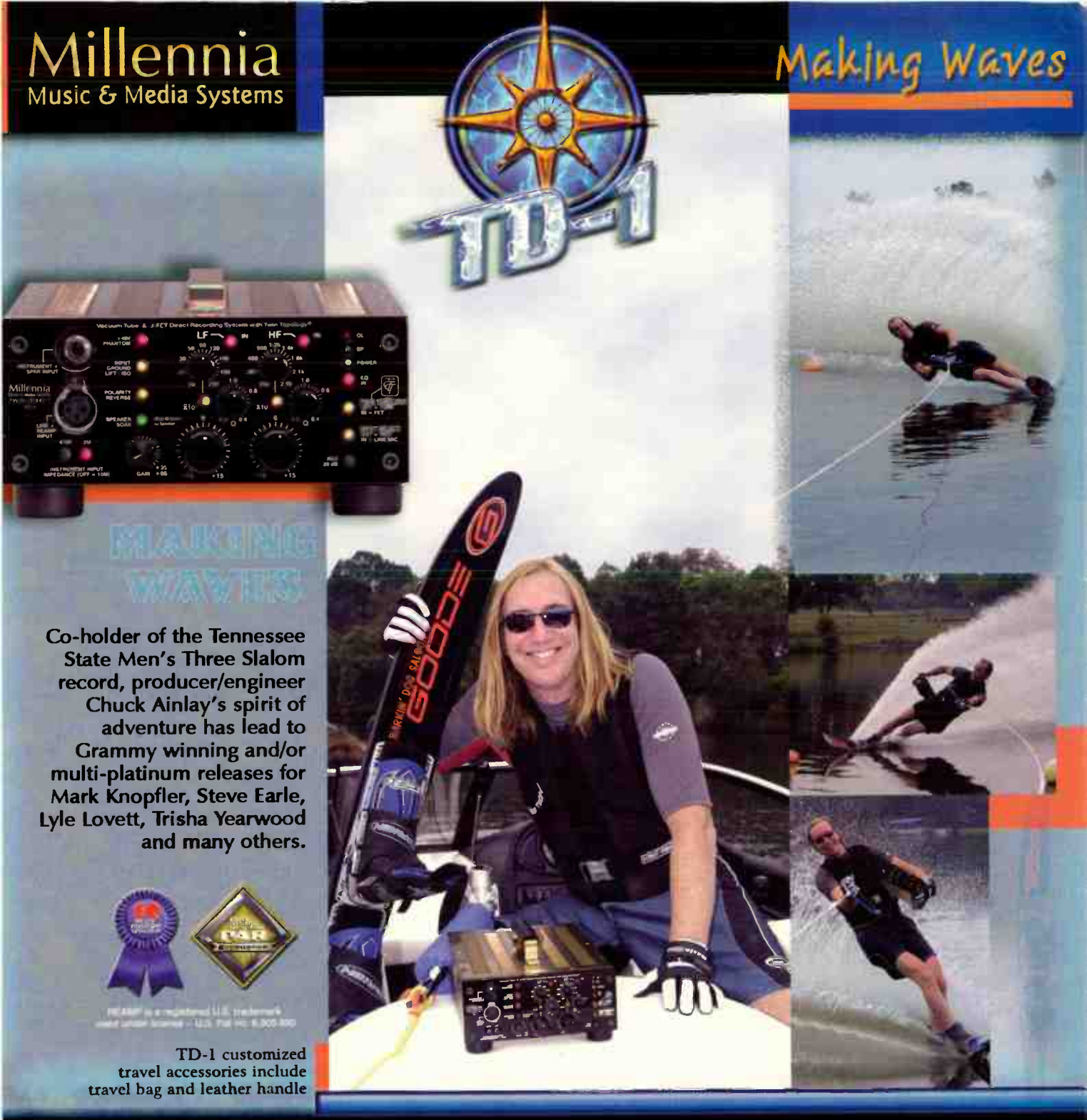
Millennia
Music & Media Systems

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

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

"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

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HEIKE HÜNING MEDIA JACKET

Basics: **A jacket designed specifically for people who use electronic devices in the field, this jacket protects your portable gear as well as you.**

Info: www.heikehuening.de

- Includes pockets for mics, portable DAT recorder, cell phone, etc.
- Outer jacket uses Gore-Tex material that is waterproof, breathable, and impermeable to wind.
- The inner Windstopper 3-layer laminate material is breathable.
- Elasticated cuffs inside the sleeves stop rain from entering when working with your arms overhead.

TERRATEC INTERFACES, MIDI GUITAR

Basics: **Terratec had a bunch of new products at Messe, including a surprise acquisition.**

Info: www.terratec.net

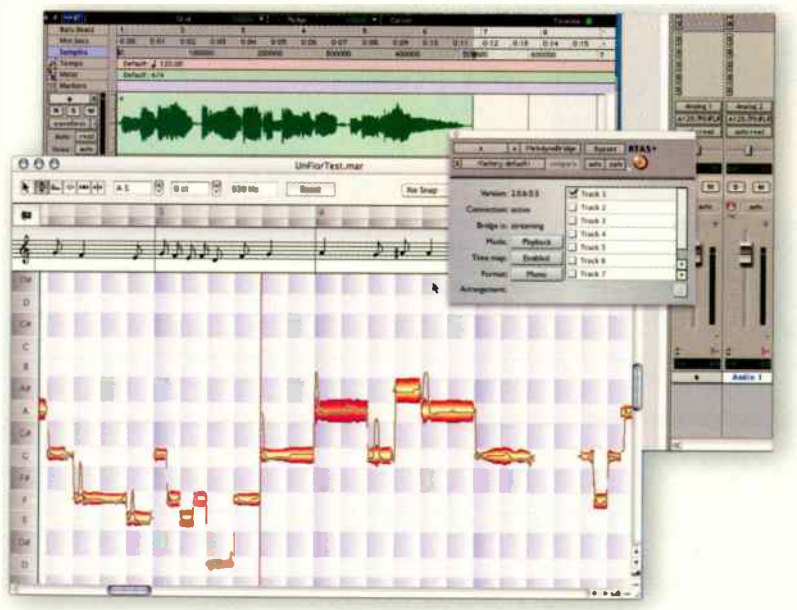
- **Axon**'s MIDI guitar technology has been acquired by Terratec; the AX100 guitar-to-MIDI converter costs **799 Euros**, or **899 Euros** with integrated sound card.
- The **Phase 24 FireWire** audio interface **(249 Euros)** offers two balanced analog mono ins/outs, digital I/O, and MIDI I/O, with audio resolution up to 24-bit/192kHz.
- The **Phase 88 Rack (259 Euros)** is a rack version of the Phase 88 FireWire interface. It features 24/96 resolution, eight analog ins/outs (two with XLR mic connectors and 48v switchable power), word clock I/O, dual MIDI interfaces, and optical S/PDIF digital I/O.
- **MIDI Hubble (79 Euros)** is both a USB MIDI interface with two MIDI ins/outs as well as an integrated 3-way USB 1.1 hub with three additional ports. All inputs/outputs include status LEDs that indicate ongoing MIDI operations.

NATIVE INSTRUMENTS SYNTHS AND PROCESSORS

Basics: **They showed nothing new at Winter NAMM, but NI unveiled several products that were within weeks of shipping at the Messe. The instruments run with just about any host that works with Mac OS X and Windows XP (and also function in stand-alone mode).**

Info: www.native-instruments.com

- **Elektrik Piano ($229)** includes the electro-magnetic sounds of the Fender Rhodes Mk I and II, Hohner Clavinet, and Wurlitzer piano.
- **Xpress Keyboards ($119 for a bundle of three, $49 each as downloads)** are "lite" versions of B4, Pro-53, and FM7. They offer highly streamlined interfaces along with presets designed to make them all "plug and play."
- **NI Komplete 2 ($1,149)** bundles Reaktor 4, Kontakt 1.5, Absynth 2, FM7, B4, Pro-53, Kompakt, Intakt, Battery, Vokator, and Spektral Delay on two DVDs with a single serial number and a cost-effective price.
- **FM7 Sounds Volume 2 ($59.90)** is now available with 256 spankin' new presets.
- **Guitar Rig ($499)**, previewed in the April issue, made its official debut and now boasts the ability to "patch" effects in series, parallel, and series/parallel routings using any arbitrary number of effects.



CELEMONY MELODYNE 2.5 STUDIO EDITION

Basics: **This software allows manipulating monophonic audio data as if it were MIDI, and now supports Digidesign's RTAS format in addition to VST, DXi, AU, and standalone.**

Info: www.celemony.com

- Simplified file handling compared to earlier versions thanks to new Melody Manager functionality
- Internal MIDI out can now feed VST instruments hosted by Melodyne.
- Free downloadable upgrade for registered users of Version 2.0 and higher

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CELEMONY/UEBERSCHALL LIQUID SAX

Basics: **This virtual instrument (159 Euros) includes Melodyne functionality for easier sound customization.**

Info: www.celemony.com and www.ueberschall.com

- Consists of a library of sax phrases
- Users can easily change pitch, tempo, and timing as needed — just like MIDI data.
- It's possible to change individual notes within a phrase.
- Samples can be loaded into Melodyne for additional editing.

MUSE RESEARCH RECEPTOR

Basics: **The Receptor rackmount hardware plug-in host sprouts more outputs.**

Info: www.museresearch.com

- An ADAT light pipe output will be provided on all units.
- The total number of outputs, including stereo S/PDIF and analog, is now 12.
- A future software update will allow multi-channel outs over the ADAT connection, not just multiple stereo outs.

NoDNA MIDIGLOVE

Basics: **A glove controller that generates MIDI data.**

Info: www.midiglove.de

- Translates finger motions into the equivalent of jog wheel and fader movement
- Up to five controllers per hand, two hands total
- Includes GloveBox controller interface that turns these signals into MIDI data and includes a USB interface

Mixers

WHY MIXERS STILL MATTER

Here's another way in which hardware is making a comeback: Despite all the hoopla about mixerless studios, some find the human interface and convenience too good to ignore (and of course, try playing live without a mixer).

ALTO AIMS HIGH

One of the most interesting offerings was Alto's **Typhoon** series (16 ins, $1,600; 24 ins, $1,900; and 48 ins, $3,800). They're only a little over 1.5" thick, and the 48-input model weighs around 50 pounds. The mixers include four EQ bands (high shelf, low shelf, two parametric mids) and eight aux sends per channel, 100 mm faders, eight groups, and eight mute groups.

Interestingly, the mixer folds in three places — it's flat for carrying in the optional road case, but when you set up, the main faders lie flat, the auxes and other controls bend up at about a 30-degree angle, and the rear panel with all the connectors slopes down gently, so it's easy to access the rear panel even while standing toward the front (the 24-input model is shown).

There's an internal power supply, but also a backup switching supply (about the same size as a laptop power supply); if the primary supply fails, then the backup takes over automatically.

So how can be a mixer be so thin, so light, and cost so little, relatively speaking? It's not just offshore assembly, but the technology. The picture shows the EQ and mic preamp modules, which use surface wave mount chips (which also means a minimal signal path). These drop right into the circuit board to which the pots and switches are soldered. The various circuit modules are small, are light, draw little power, are easy to manufacture, and are even relatively easy to service should something develop a problem. www.altoproaudio.com

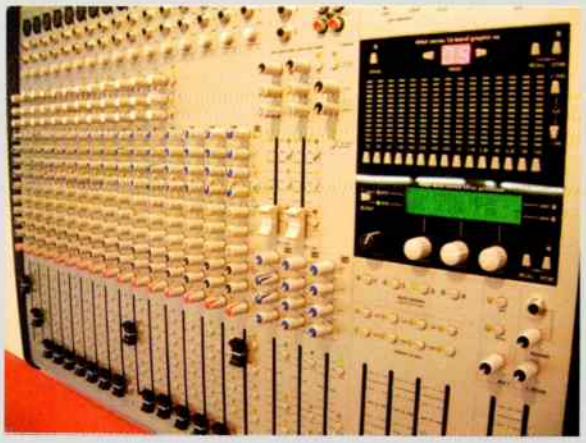
LEM ULTIMIX

Another mixer that turned heads, LEM's **Ultimix**, had the distinction of being a digital mixer dedicated for live, realtime mixing — no layers or menus, and the one-control, one-function design philosophy of analog. For those who think of the mixer as a musical instrument, it would be at home in the studio as well as on stage. There are 22 inputs and 13 outputs, two built-in stereo effects, 15-band master stereo graphic EQ, stereo digital input, stereo digital output for "from-the-board" live recordings (both are optical/coaxial), 24-bit converters, 40-bit internal processing, internal switching power supply, three monitor and two effects sends, compressor and noise gate on each mono channel, and two effects returns.

LEM is also pushing this as a portable mixing solution by contending that it doesn't require an external rack of dynamics processors and other effects. This is a trend confirmed by

World Radio History

several other mixers; even budget, 8-input mixers are including as many effects as possible. The whole idea seems to make mixers smaller, more portable, and more capable. www.lemaudio.com



A NEWER WIZARD

Allen & Heath showed their third generation of Wizard mixers, the **Wiz^3** series (available in 12:2, 16:2, and 14:4:2 configurations). Compared to their predecessors, they offer a new preamp design, an extra mono out fader (*e.g.*, for subwoofer), individual phantom power switches, new styling, and channel signal meters. Another modern touch: The digital effects can be edited using Wizard-FX editor software, a free download from the A&H website. www.allen-heath.com

SMALLER YAMAHA DIGITAL

Yamaha showed the **PM5D** and **PM5D-RH**, more compact and inexpensive versions of their PM1D flagship digital mixer for sound reinforcement. Granted, live sound isn't our prime directive here at *EQ*, but it's interesting to see digital consoles being accepted for more and more live work. The PM5D includes 48 XLR analog mono inputs and balanced TRS insert I/Os with manual mic preamps, along with an additional four stereo line-level inputs. The PM5D-RH includes 48 XLR analog mono inputs with recallable mic preamps, and four stereo inputs that will accept mic-level signals.

On the surface the PM5D looks like a 24-channel console, but it actually offers a total of 130 input connections, simultaneous mixing of up to 64 inputs to stereo or LCR stereo, and 24 mix busses, all with 500 scenes of total recall. There's also a ton of onboard processing: 56 gates, 92 compressors, 97 delays, 12 graphic EQs, and eight units of SPX2000-type multieffects. All this fits on a 950 x 1,551 mm footprint; the console weighs less than 230 lbs. and is powered by a 3U external power supply that weighs only 23 lbs. Once again, it's in keeping with the "smaller-lighter-does more-costs less" theme for mixers at the show. www.yamaha.com

ARX USM16

Basics: **This 16-channel summing amp is designed for those who prefer to sum DAW outputs through analog circuitry.**

Info: www.arx.com.au

- Faders accommodate eight stereo pairs
- Monitor out with volume control
- Inserts on main outs
- Headphone out with volume control

KORG UPDATES

Basics: **Korg announced several product updates.**

Info: www.korg.com

- **D16XD/D32XD** digital recorder operating system V2.0 can record more tracks simultaneously in 24-bit recording modes (12 tracks at 44.1/48kHz, six tracks at 96kHz). These's also a Noise Reduction function in track edit mode, larger drive partitions, and dynamic automation for the D16XD similar to the D32XD's existing capabilities.
- **Electribe•S MkII** includes new presets, new cosmetics, and a new mod delay effect.

TRIDENT AUDIO NEW PRODICTS

Basics: **Trident has introduced several new pieces of gear to celebrate John Oram's 40th anniversary in the music/pro audio business.**

Info: www.oram.co.uk

- The **4T Celebration Channel Strip ($999)** is a 1U stereo channel strip with mic pre, EQ, dynamics, and an instrument input.
- The **S140 Headphone Amplifier/Stage Monitor Mixer ($2,795)** provides 16 outputs for headphones or stage monitors. Eight separate mixes of eight inputs drive individual headphone amps; each can drive two sets of headphones.
- The first product from **Oram Digital Developments** is a digitally controlled version of the Hi-Def EQ. It will also form the basis of a new console based on the original Series 48 console.

ULTIMATE SOUND BANK ULTRA FOCUS

Basics: **A virtual instrument based on a huge amount (8GB!) of sampled synth sounds including analog, FM, wavetable, modeling, etc.**

Info: www.ultimatesoundbank.com

- Mac OS X/9, Windows, VST/RTAS/AU/MAS/DXi/MachFive
- Runs on the UVI sound engine
- Lots of synthesis tools (multimode filter with overdrive, LFOs, envelopes, and a global section with *more* filters and LFOs)
- 29 multieffect algorithms
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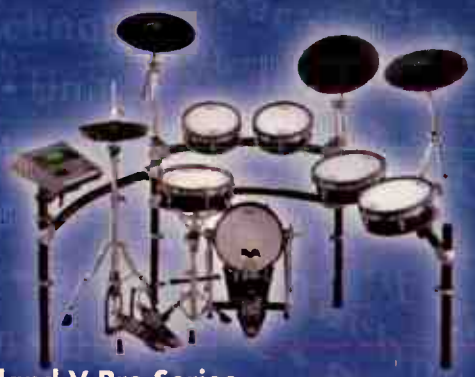

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U-HE ZEBRA 1.5

Basics: **This Mac AU/Windows soft synth ($199) goes beyond its original hybrid subtractive/additive synthesis approach by incorporating modularity.**
Info: www.u-he.com

- Drag-and-drop control interface allows creating virtually endless variations of synthesizer circuits
- Modulation matrix can target over 150 parameters, including those in the effects section.
- AltiVec optimization for G4/G5 systems.

TAYLOR GUITARS K4 EQUALIZER

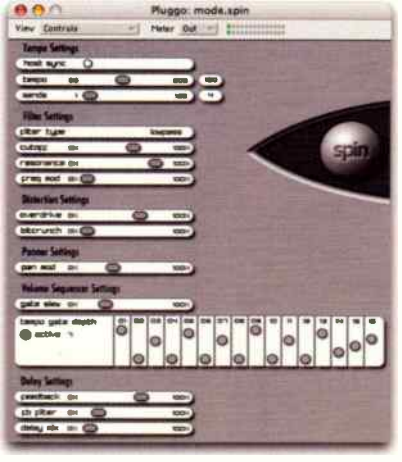
Basics: **With circuit design by Rupert Neve, this is a high-end preamp and EQ for acoustic guitar.**
Info: www.taylorguitars.com

- Balanced, transformer-coupled I/O
- High and low EQ tailored to acoustic instruments, along with sweepable parametric EQ
- Balanced effects loop
- Dedicated tuner out, headphone monitoring output

CYCLING '74 MODE 1.0

Basics: **The package ($295) includes three instrument and two effects plug-ins for VST, MAS, and RTAS host applications running under OS X.**
Info: www.cycling74.com

- **Bang** is a single-voice percussion module that combines sample playback, FM synthesis, and analog modeling drum synthesis.
- **Mono** is a monophonic synth that combines the warm filter effects of an analog synthesizer with the control and clarity of an FM engine.
- **Poly** is a polyphonic synthesizer loosely based on classic DCO synths, with waveforms sampled from some of the most popular vintage digital and analog instruments.
- **Spin** is a rhythm-based effects processor that features a state-variable filter, panning effects, rhythmic gating, delay, distortion, and bit-reduction.
- **Wash** is an effects processor built around an interconnected network of six fully controllable recirculating delay lines.



NOVATION X-STATION

Basics: **Is it a synthesizer, audio interface, or fader box? Actually, this small, ergonomic package does all three.**
Info: www.novationmusic.com

- 8-voice synthesizer
- Audio interface (with two XLR ins)
- USB connection for hooking up to your computer
- Multiple faders, with templates for a variety of popular sequencing programs and virtual synthesizers

The MIPA Awards

For the fifth year, the prestigious Music Industry Press Awards ceremony was held at Frankfurt. 58 magazines (including *EQ*) from around the world voted for the best products of 2003/2004, in more than 40 categories.

Following are the winners for categories of interest to *EQ* readers. For the complete list of nominees and winners, photos of the event, and a link to download a Keith Emerson video commenting on the "MIPA Lifetime Achievement Award" presented to Mr. Tsutomu Katoh (Korg's founder), go to www.mipa-award.de.

- *Most Innovative Product:* **Line6 Variax**
- *Drum Microphone:* **Audio-Technica AE 2500**
- *Hardware Synthesizer:* **Roland V-Synth**
- *Sampler (Hardware/Software):* **Steinberg HALion**
- *Keyboard Workstation (tie):* **Korg Triton Series, Yamaha Motif ES**
- *Sound Libraries:* **Vienna Symphonic Library**
- *Software Instrument:* **Arturia Moog Modular V**
- *Mixing Desk (Project Studio):* **Yamaha DM1000**
- *Mixing Desk (High End):* **Solid State Logic 9000XL K-Series**
- *Studio Microphone:* **Røde K2**
- *Studio Monitor (Nearfield):* **Mackie HR824**
- *Surround Tools:* **Steinberg Nuendo 2.1**
- *Recording Software:* **Steinberg Cubase SX 2.0**
- *Desktop Recording Workstations:* **TASCAM Digital Portastudio 2488**
- *Recording I/O Devices:* **RME HDSP 96/32**
- *Hardware Controller (Mixing Desk):* **Yamaha 01x**
- *Recording Hardware:* **Digidesign ProTools HD**
- *Recording Effects (Hardware/Software):* **TC Reverb 4000**
- *Groove Box:* **Korg Electribe Series**

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– EQ

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Frankfurt Musik Messe 2004

PHONIC T8200

Basics: **This tube-based stereo compressor features 12AX7 tubes for the compression circuitry, and a solid-state gain preamp.**

Info: www.phonic.com

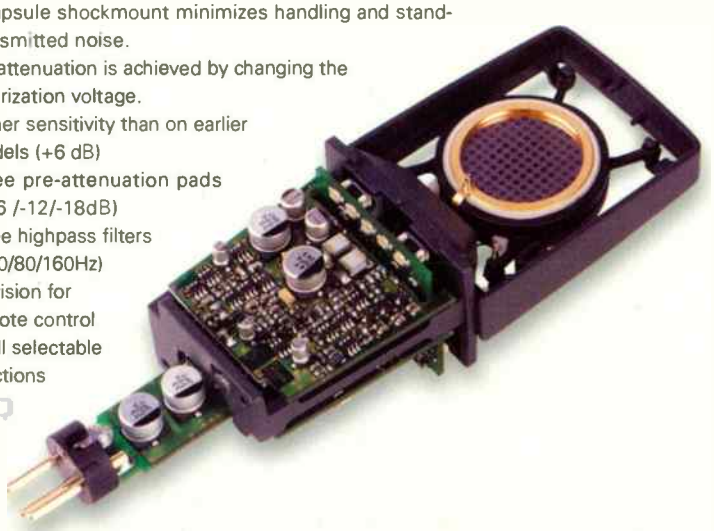
- Separate controls for high- and low-frequency compression
- Programmable crossover
- Relay-controlled bypass
- Eight vintage VU meters

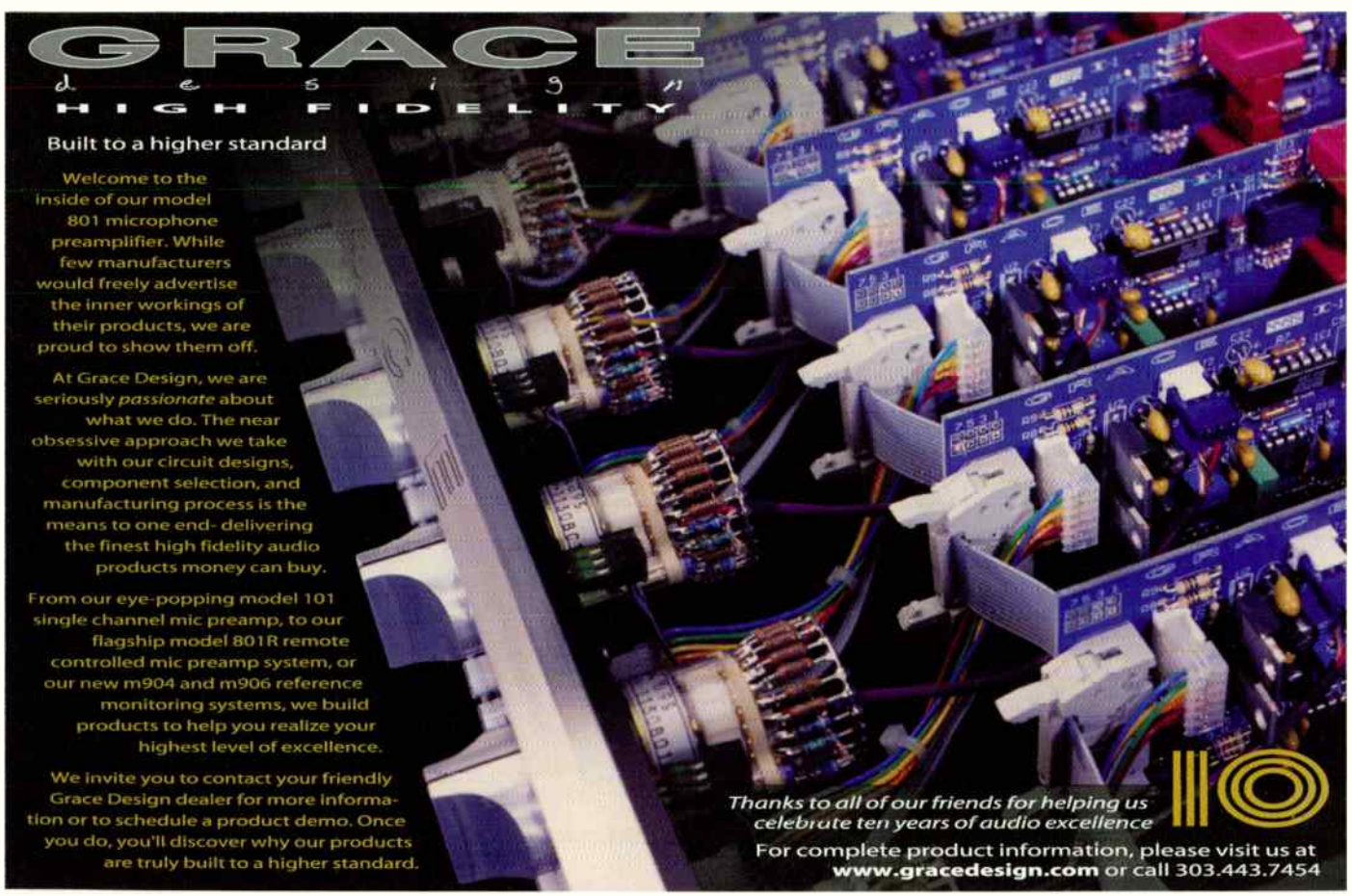
AKG C 414 UPDATES

Basics: **Long a studio standard and reference mic for recording, the C 414 has been redesigned as the C 414 B-XLS (ultralinear) and C 414 B-XL II (transformerless). The new models include 15 new features, new accessories, new packaging, and new styling.**

Info: www.akg.com

- A fifth polar pattern (wide cardioid) has been added to the original set of four.
- All switch positions, mic output overload, and power on/off status are indicated by LEDs.
- A capsule shockmount minimizes handling and stand-transmitted noise.
- Pre-attenuation is achieved by changing the polarization voltage.
- Higher sensitivity than on earlier models (+6 dB)
- Three pre-attenuation pads (0/-6 /-12/-18dB)
- Three highpass filters (0/40/80/160Hz)
- Provision for remote control of all selectable functions





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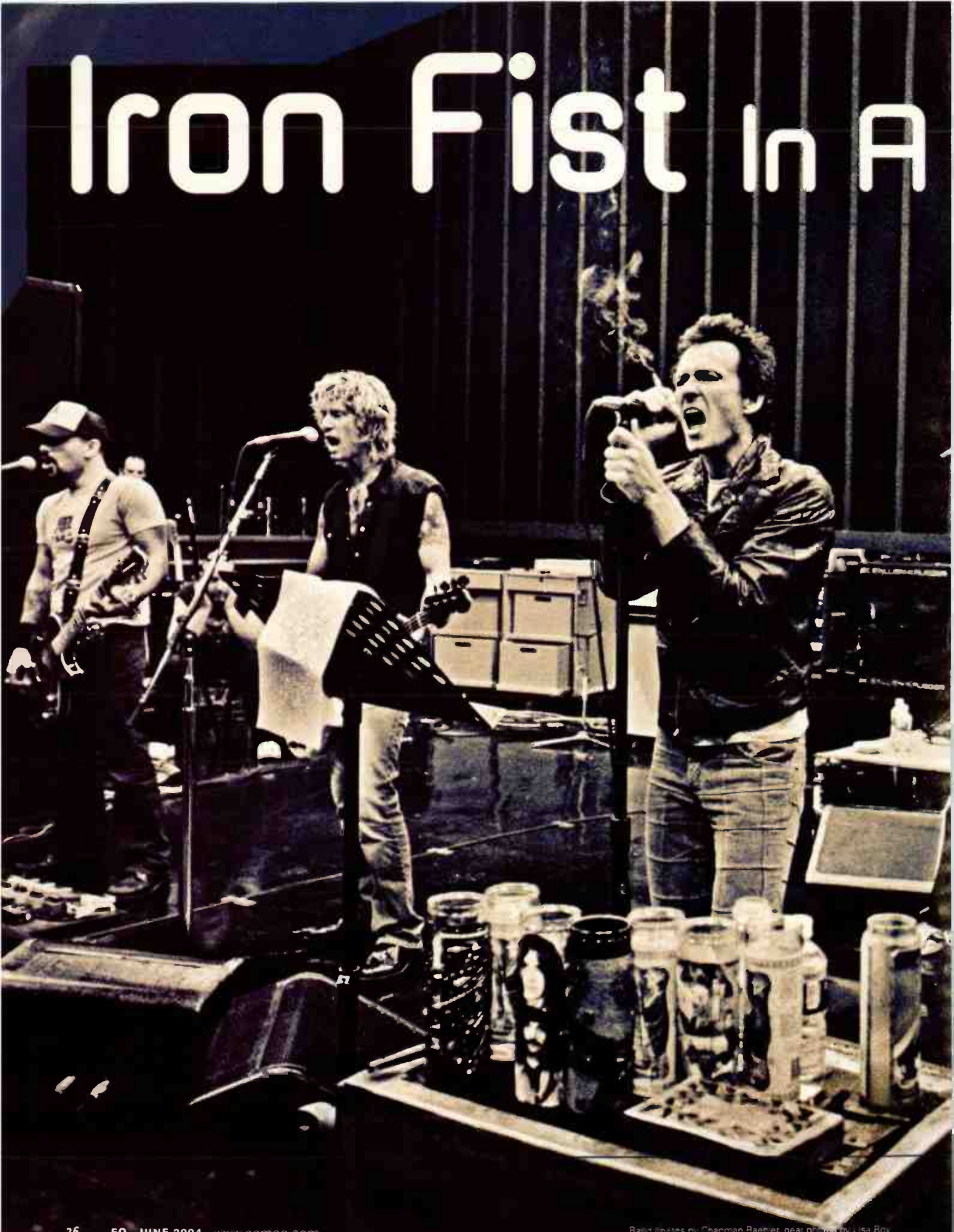

Band photos by Chapman Baehler, gear photos by Lisa Roy

World Radio History

Velvet Glove

When Guns n' Roses and Stone Temple Pilots meet, rock 'n' roll is the result

by Lisa Roy

Among the most highly anticipated rock records of 2004 is Velvet Revolver's RCA debut *Contraband*. Unless you've been buried under a rock, you've heard of the excitement surrounding the release of this record. It began with a jam session that reunited ex-Guns n' Roses bandmates Slash, Duff McKagan, and Matt Sorum, spurring a chemistry that caused them to form "The Project," as they were originally titled. Then came the auditions for a lead singer . . . a spot eventually filled by provocative former Stone Temple Pilots leader Scott Weiland. With ex-Wasted Youth guitarist Dave Kushner added to the line-up, all that was left to complete this rock 'n' roll fantasy was the right person to co-produce the record for the now officially named band, Velvet Revolver.

The "winning" producer, Josh Abraham is no stranger to producing heavy-hitting rockers, with bands such as Staind and Limp Bizkit in his discography. Guitarist Slash explains that they all just knew that Abraham was "the guy," which made their selection process easy. "There were a lot of different producers to choose from, some of whom I'm not really familiar with," Slash reports. "We narrowed it down to a couple that we all liked, and Josh was one of them. First we tried out a couple of other people and we weren't totally thrilled with the results of the test shots that we did. So then we went in the studio with Josh and he just got great sounds. The tape we went home with that night was just exactly what we were looking for."

Contraband includes 12 of the more than 50 tracks the band co-wrote before and after Weiland joined the line up last spring. Some of the most buzzed about tracks are "Sucker Train Blues," "Fall to Pieces," "Super Human," "You Got No Right," "Set Me Free," and "Head Space," not to mention the first single, "Slither." The band and Abraham invited *EQ* for an inside look at the making of this phenomenal disc. ➤

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Left to right, at Pulse Recording in Hollywood at the SSL4000G desk: Josh Abraham, Slash, Ryan Williams.

THE PROCESS BEGINS

Lead vocalist Weiland says that the five band members were all after a collective goal: musical rebirth. "We're looking to get back that same feeling we had when we all first started making music — the sense of doing it for the pure joy of making music. This music is just vicious, very aggressive, and it forces you to lace your boots up and sort of get ready for the fight." In his opinion the album turned out to be the "perfect marriage" of the styles of Guns and STP's music. But how did they get there? For that we turned to Abraham for answers.

Although Abraham had known Weiland, Sorum, and Kushner for quite a while and been an enthusiastic fan of Slash's signature sound, it wasn't until one day in a Los Angeles studio that he came upon the group. After he asked them to listen to some music he had been working on, a professional relationship became a possibility. It was at that time the band agreed to let Abraham come in and demo one track for a shot at the co-production gig. That track, he recalls, was "Head Space."

"We went in, we recorded for two days, very casually. It seemed very stress-free and we got a lot done. It was smoking and they were all excited about it. We took it to the next stage, which was making a record." The band entered famed rock studio NRG Studio B to lay down drums, bass, and a few guitar tracks. Later they changed recording venues, utilizing both Abraham's Hollywood studio Pulse (for guitars) and Weiland's Burbank studio Lavish (for vocals; for more on Lavish, check out the Dec. '00 issue).

When recording Abraham likes to have the best of both worlds — digital and analog. He shares his philosophy behind using both to deliver a warm, fat-sounding rock record. "There is always that argument over which is better, but for me the combo of the two is the right fit," he continues. "I got used to doing records in a house environment where there were no tape machines. So I used Pro Tools and it does sound phenomenal. But there is a certain glue, for drums and bass, that the tape machine provides."

Abraham's engineer of choice for this project, Ryan Williams concurs. "We used Pro Tools only as a recording medium," he said noting that using plug-ins on Slash's and Kushner's guitars was absolutely unthinkable. "It does sound great now that it is 96k HD. It is convenient to be able to fly things around occasionally, but I still know how to cut tape," he confides. "People still flip when I take a razor blade to the analog tape."

TRACKING DRUMS

Abraham relies on Williams' expertise when the tracks are going down but there was one moment at NRG where a "guest star" took center stage. While laying down the drums and bass for the track "Loving The Alien," Matt Sorum learned that legendary rock engineer Eddie Kramer was working in a studio down the hall. Sorum ran into him, and after consulting with Abraham and Williams, he asked Kramer if he would be willing to mic his kit like he did John Bonham (Led Zeppelin drummer). "I had a little vintage 1963 Ludwig kit," he said of his red-sparkle drum set. "I had it baffled off in the corner. Eddie came over and miked it up. That was so cool. Eddie being a legend, I said 'it would be an honor if you'd come over and help me mic this kit. I'm doing one song and I want it to have that big Beatles' compressed sound . . . kind of old school.'" Kramer entered the studio and proceeded to put a D30 in front of the kick drum and three Neumann U 47s over the top — left, right, and center. Williams ran the results through an EMI stereo limiter (". . . to give it the

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At NRG Studios in Studio B in North Hollywood during tracking: left to right, Scott Weiland and Duff McKagan, (seated) Josh Abraham and Matt Sorum.

pinched, sort of 'Ringo' sound. . . .") and a Pultec EQP1A. The result, says Sorum, ". . . sounded amazing! We ended up going with U 47s and one D30. No other mics at all."

Sorum admits that with a set up like this he definitely had to play to the microphone more. "When you are looking at the great drummers — Bonham and Ringo and Mitch Mitchell — they have a certain sensibility; but you play to the microphones. That was the idea. What you heard in the headphones is what you heard going down. It wasn't like you could pull one tom up, turn it up. What you got was what you got. So if you hit one cymbal too hard or something, a lot of times you would have to go back."

That track with his Ludwig kit was a departure from the norm for Sorum. For the bulk of the tracks for *Contraband* he used his Pork Pie kit. He explains, "I endorse DW so I played DW for all my touring and I did one track where I used my DWs. But for most of the album I used the Pork Pie kit with a Gretsch kick drum — I used a 22-inch and a 24. One kit had sort of an ambient stage in the room. I used it on more of the slower demo songs, it had more air," he concludes. "The Pork Pie has bigger drums, more rock, and I had a whole Gretsch kit sort of underneath a lower ceiling. I used it on a song called 'Illegal Eye.'"

BEHIND THE MUSIC

That track, "Illegal Eye," is one that all of the band members seem to mention at one time or another. Kushner revealed what was at the heart of the song: "That was the song on the album that I wrote. My wife (who was my fiancé at the time), Christine, and I actually had an argument and I was pissed off. I wasn't just in a bad mood. I was pissed off and I needed to get it out. I wrote that song in like half an hour. The fight worked out and we made up — but it did inspire the song. I think you just have to slow down long enough to let things in life inspire you. Sometimes you just think 'oh, I've got to write a ballad' or 'I've got to write a mid-tempo rock song now' and you just do it because you're a musician and that's just what you do. Unfortunately, at times like that there is no inspiration." ➤

Left to right, in control at NRG Studios: seated in back is Slash, seated on sofa behind Slash is Duff McKagan and McBob, standing in center is Matt Sorum, seated at desk is Ryan Williams, and seated facing Sorum is Josh Abraham.

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Because you never know when inspiration will strike, Kushner recommends that all musicians and writers have some sort of economical "bedroom recording" option. "You can get a Mac and a [Digidesign] Mbox. I think an Mbox even comes with a free version of Pro Tools, and you don't really need anything else except speakers, you know."

"I made really good sounding demos and I had a PC. I had a version of [Emagic] Logic, I had a regular stereo power amp with a sound card that my roommate gave me with just eight RCA ins and two RCA outs, and that was it. That was my big home studio. PC and Logic and a home stereo! It sounded killer. Just sit around with headphones and that is how you do it."

FINGER ON THE PULSE

JOSH ABRAHAM KEEPS HIS PULSE STUDIO WELL STOCKED WITH COOL GEAR. HERE ARE A FEW OF THE HIGHLIGHTS:

Console: SSL 4064 G
Recorder/Editor: Digidesign Pro Tools HD
Monitoring: Yamaha NS10 and Genelec 1038
Outboard: Neve 1073 and 33609, API 16-channel sidecar and API 560, Pultec EQP1A, blackface UREI 1176, Empirical Labs Distressor and Fatso Jr., dbx 160
Effects: Eventide, Lexicon, Yamaha, TC Electonic, and a good selection of vintage amps, guitars, and pedals

GUITARS, GUITARS, AND MORE GUITARS

You can't think of really rockin' guitars and not think of Slash. And you can't think of Slash without thinking of the Les Paul, his guitar of choice. For *Contraband* Abrahams, Williams, and the rest of the guys all agree Slash did some experimenting, but he insists that he didn't stray far from the norm. On the band's debut single, "Slither" he confides that he kept it really simple using a Les Paul and a Marshall all the way through. "I did use a delay in the beginning of the song for that 'swallow' effect but that one was a pretty simple Slash set up," he says. When pressed, he admits to changing things up a bit here and there. "I experimented with a couple of different amps for different sounds. I used a couple of different pedals for certain kinds of textures for certain parts of songs, and I used more than just my one Les Paul. I used a couple different guitars. On 'Falling To Pieces' I used a Gibson 335 through an old Fender mixed with a Vox for a clean sound. I found that I was just really a lot more open-minded about each song as opposed to the way I used to do it in the old days, which was just get one basic sound and use it throughout," shares Slash. "That is sort of my live approach, but these songs really demanded a little bit of a more creative approach technically. It was a lot of fun to do it. Also, at this point I would've felt really stale just sticking with the one formula." For the secrets behind Slash's set up we turned to Ryan Williams.

Slash's recording chain included his trusty Marshall amps.

SET UP SECRETS

Williams, a guitarist himself, says Slash's set up varied, but never strayed too far from the Les Paul/Marshall combination. For the track "Falling to Pieces" he ran two Marshall heads: one Slash's signature model and the other a JCM800. Williams continues, "We also managed to use a Vox AC30 in the chain as well, which I don't think he's really used before. It's kind of a matter of mixing all the different amps to come up with one good tone. Each of them plays their own little part in creating the tone. I think he kind of digs that. Most of the tracks we started with that and then went from there."

Williams recalls that the amps were miked with Shure SM57's because Slash likes "a nice, bright tone with a lot of presence." Williams ran the mics through Neve 1073s and

Dave Kushner's pedalboard provided textural contrast with Slash's tone.

Kushner's main amps for recording were a Marshall and Mesa/Boogie.

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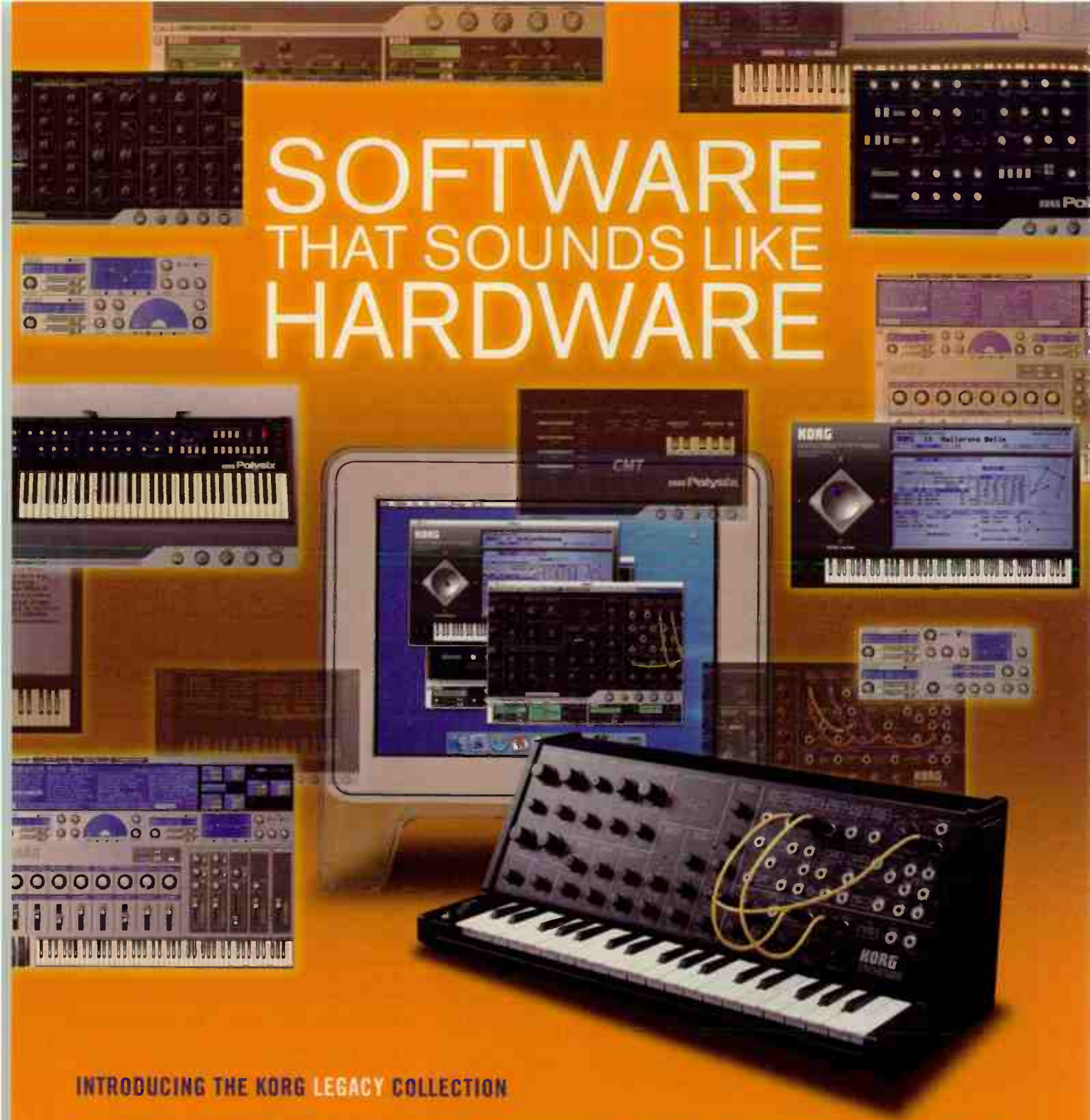
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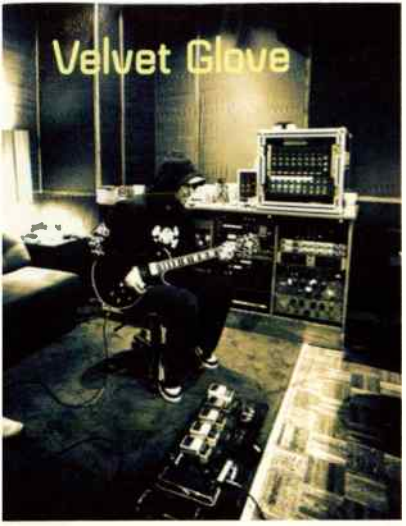

On the left: at Pulse Recording Studio in Hollywood, Dave Kushner. In control room at NRG (right): Duff McKagan with bass. Seated in back of room: McBob — guitar tech.

mixed them together into one track. "I don't like complicated things all spread out on different tracks. Mix all those amps down to one track to create one sound and that goes through a Pultec for a little more EQ and that's it," he concludes.

When miking the amps Williams positioned the mics very close to the cabinets and a little off-center, making sure all the mics were the same distance from each speaker. "I just try to eyeball it and make sure the mics are the same distance from all of the speakers, because if you mix a couple of different amps, then there's always phasing issues. So, just to keep the mics an inch off the grille cloth on all the cabinets that I'm miking helps me keep the phase in check."

Williams relies on experience and technique, but reveals the greatest tools are common sense and a great pair of ears. "Of course Slash is an amazing guitar player, and Dave as well, so I just make sure it's the right guitar, it's the right amp, and make sure it sounds good standing in the room. I always stand in the room and listen to what's coming out of the speakers first. I make sure that's right before I start reaching for a ton of knobs to try and fix things. If it is sounding good coming out of the cabinet then there is no reason you shouldn't be able to throw a mic on it and go."

Williams has high praise for the styles of the two guitarists in Velvet Revolver and knows that fans will immediately see that they complement each other well. He notes that Slash is an all-out rocker with an identifiable style and distinct attitude to his tone. By contrast, he says, Kushner exhibits more of an effects-driven sound with nice textures to round out the sound. He and Abraham's goal for this project was to try to get them sounding different tonally. "I think Dave's natural tendency is different than Slash's anyway when it comes to the tone. And so we made sure that they didn't sound exactly the same, just so they're kind of separated. When you listen to it we're really approaching it almost like they were live. Put Slash on the right and put Dave on the left and you've got two different tones and that's kind of what it is."

He goes on to describe Kushner's set up as ". . . pretty direct. He has his own pedal board that he's put together that he's been using for all the rehearsals and songwriting and everything. He has his normal amp setup, but we ended up going through something similar that we've used in the past. Just a

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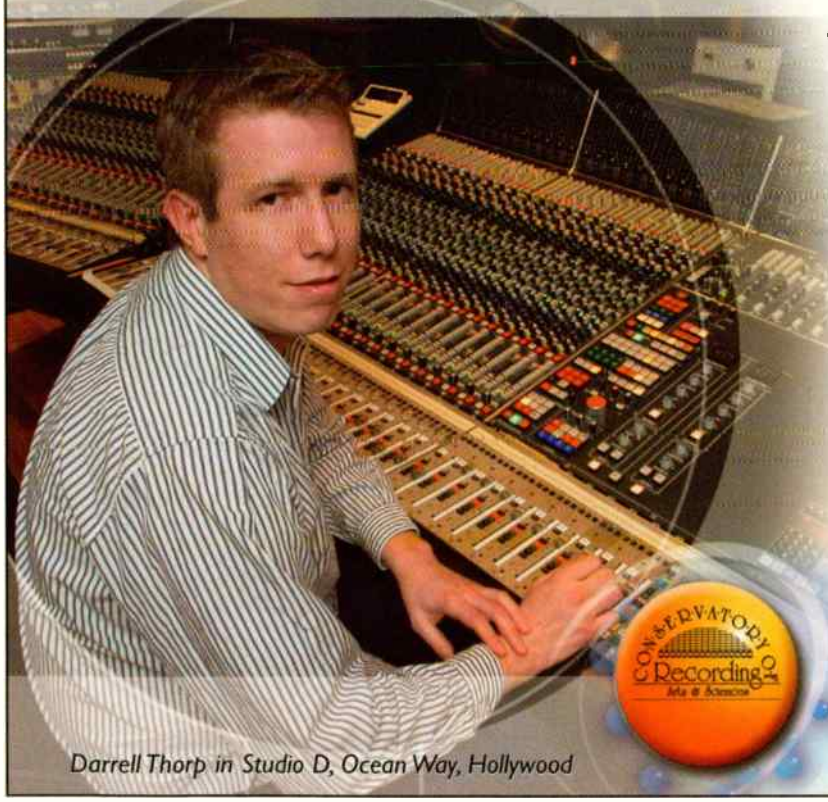

Darrell Thorp in Studio D, Ocean Way, Hollywood

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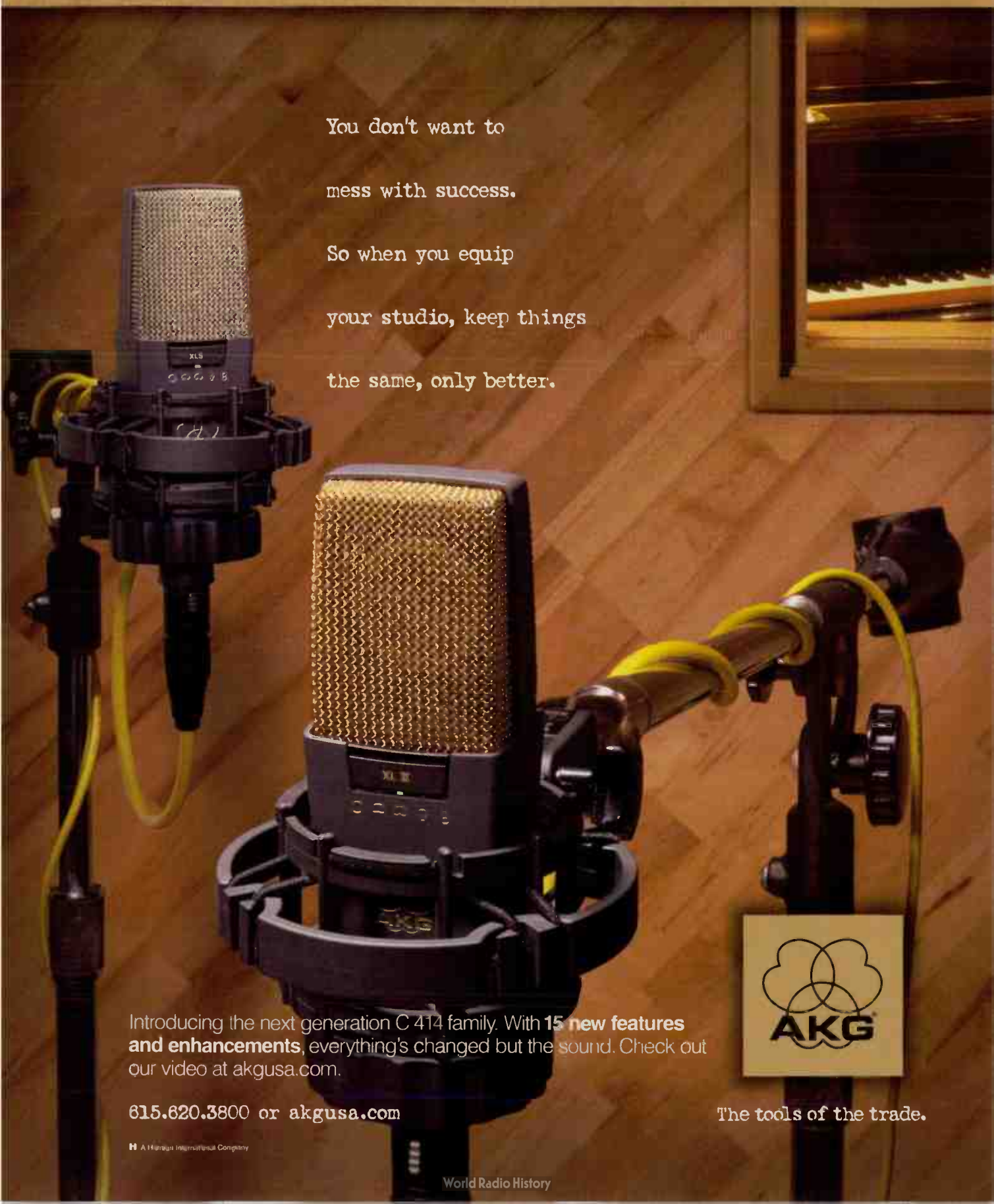

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mic and modified Marshall JCM800 as well as a Mesa/Boogie Triple Rectifier. We used the Mesa/Boogie only for the low end that it provides. If I actually soloed that track by itself, the way that we have it set it probably wouldn't sound that great. But it just provides its own part of the sound for the 800 because the 800 has great top end vibe, gain to it. We just rounded off the bottom with the Triple Rectifier. Then he's got his pedal board in the front that he runs as well as a couple of other Line 6 pieces that will pop in the chain sometimes. Also I'll use a TC Electronic Fireworx sometimes if we really want to tweak out the sound and make it weird. That seems to be the go-to box for stuff like that."

Abraham, who at the time of this interview was in the middle of recording Kushner's guitars at Pulse, says that there was no method to their madness. "Between Ryan and myself we have tons of different heads, cabinets, and guitars, from Marshalls to old Fender tweed amps to a lot of combo amps. I have maybe a couple hundred pedals that we just dig up. When I hear a part I'll say, 'Hey, why don't we try this pedal that has the weirdest name from Germany' or 'the pedal that doesn't even have a name for that matter, because they're all old and just beat up.'" Abraham's states that his objective as co-producer of this project was to be honest and try to pull out of the guys a different level of performance by making them think about what they were doing at every turn.

"Just to get these guys to think, not so much tell them what to do . . . it was really about getting in their heads, breaking down and analyzing certain sections and getting them to come up with what I think I can pull out of them. We would just break down his [Slash's] guitar solos and spend hours fine-tuning and getting it right. There was a point where Slash would do many solos and he'd leave the room and I'd piece them together." When questioned about how he and Williams approached editing Slash's performance with Pro Tools, Abraham is emphatic this his intent was keeping the performance pure. "Slash just has a feel. I think today with Pro Tools, a lot of engineers and producers think there is a formula that they go by, and that's just chopping up drums and chopping up guitars to make things perfect. I use Pro Tools when I have to for specific reasons, but this isn't that type of record. We let Slash float around the track. If it's a little behind or a little on top; that's his feel. To change his feel would defeat the purpose of Slash picking a guitar up."

With that said Slash added, "I love doing what I do. I live for what it is I do. Everything else that I do in life is still sort of dictated by music. So actually the recording or the playing live or the writing, all that stuff is sort of like the fuel for my whole existence. Not to sound corny or anything, but that's why I do it."

Abraham sees the making of this record as a true learning experience. "I have the best job in the music business. Day after day I am here learning, whether it is from a drummer, an engineer, or a guitar player. Its just information I am constantly being fed." He concludes, "I'm the luckiest guy to be able to work with talented people like Velvet Revolver and some of the other multi-platinum bands I have worked with. Making this music is better than winning the lottery!"

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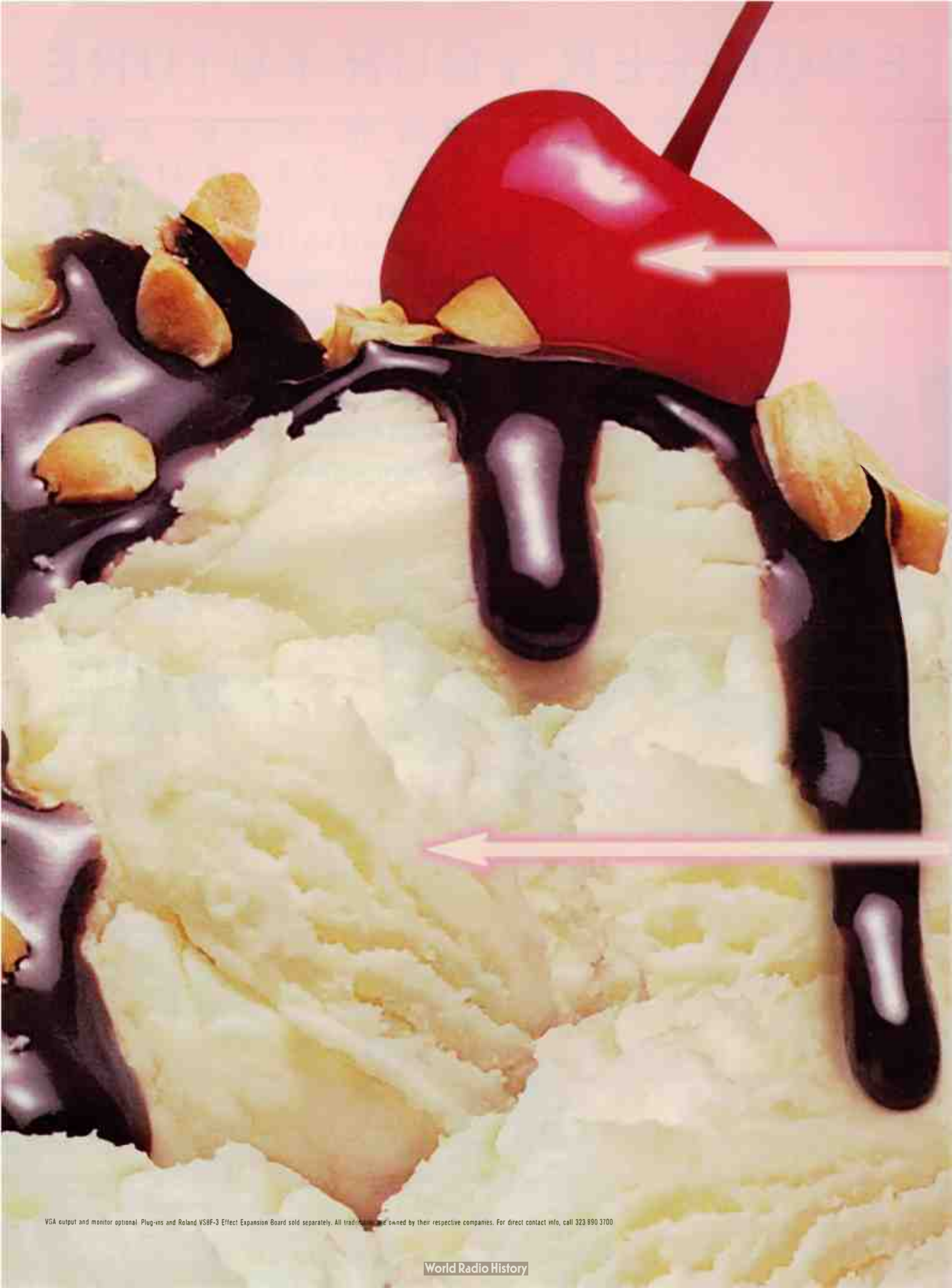

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ACOUSTICS

Create a Recording-Friendly Room

SPACE IS THE PLACE, BUT YOU HAVE TO DO IT RIGHT

By Ethan Winer

For many project studio owners, calling their small recording space "a live room" is a bit of a cruel joke. Few people are lucky enough to even *have* two rooms so they can record in one room while monitoring in the other. Big-ticket pro studios have very large recording spaces for several good reasons, but you can definitely improve whatever space you have to get the most out of it. This article explains the advantages of large rooms, then shows how to help make smaller rooms sound like larger spaces.

The main difficulty when recording in a small room is that the floor, ceiling, and walls are all close to both the performer and the mics. These nearby surfaces lead to two fundamental problems:

- Comb filtering creates a series of frequency response peaks and deep nulls, giving a hollow sound similar to a phaser or flanger effect
- The many short echoes created by these nearby reflective surfaces arrive too quickly to be perceived as echoes. Instead, they often make instruments or voices sound muddy and poorly defined.

COMB YOUR HEAR

Figure 1 shows what happens when you place a measuring microphone about 20" away from a sheet rock wall, then measure the resulting frequency response using ETF analysis software. This is hardly what anyone would call flat response — reflections from the nearby wall create a continuous series of peak and null frequencies at uniform intervals, and the frequencies are all related directly to the 20" distance. This skewed frequency response is called a comb filter because the graph looks like the teeth of a hair comb. Comb filtering can occur when a room boundary is near a microphone and also when it's near the performer.

Comb filtering (see sidebar) occurs near reflective boundaries because the reflections collide in the air with the original sound after a slight delay. The general term for this collision is *acoustic interference*, and it can be either constructive or destructive. At frequencies where the waves are more or less in phase, they combine to increase the level. At other frequencies that are out of phase by some amount, they will instead cancel. To get a deep null the two waves must be exactly 180 degrees out of phase and also very similar in level, or another combination of phase shift and volume that results in two waves being exactly equal but opposite.

SOLUTIONS

The comb filtering and short echo problems create the typical boxy sound that makes instruments and voices sound like they

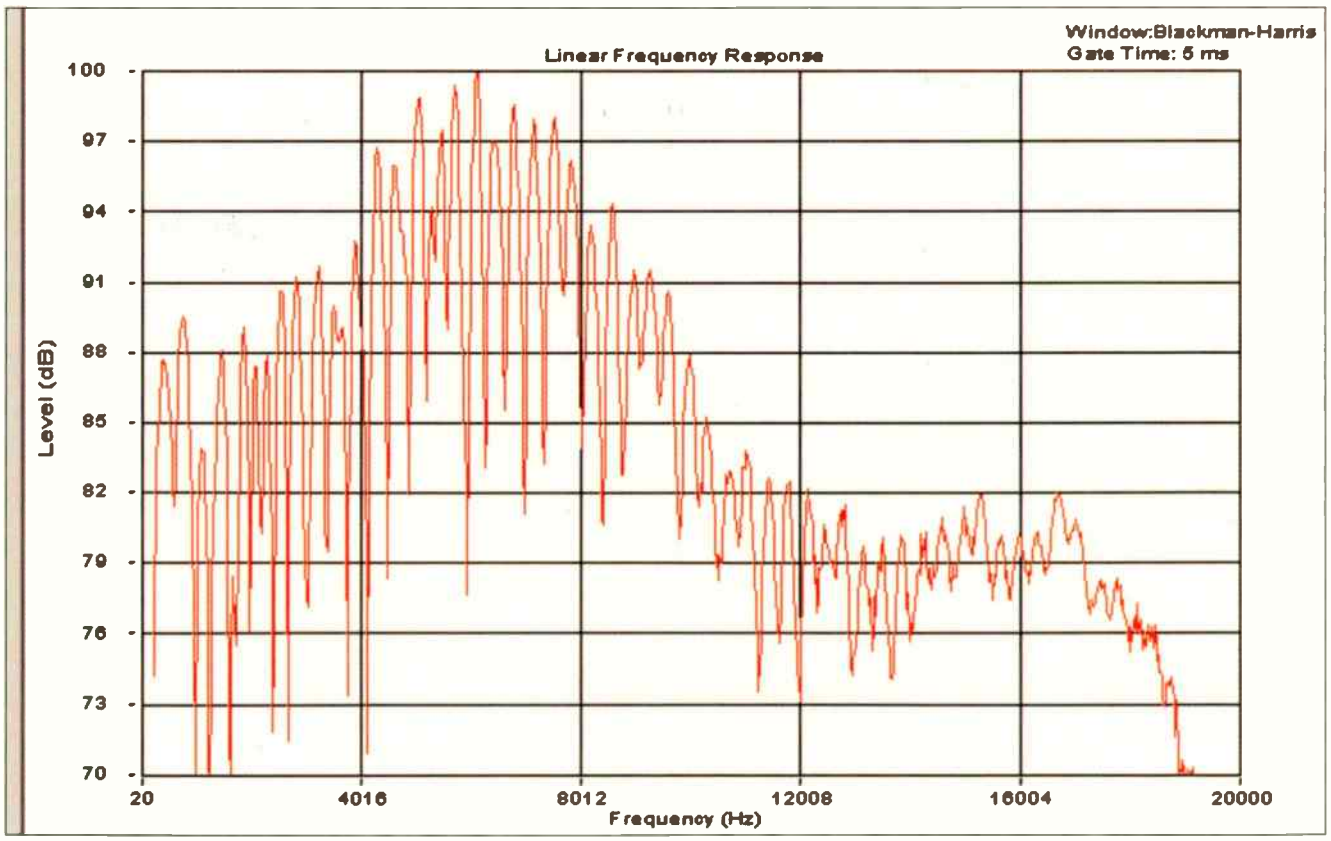

Fig. 1. This graph shows the frequency response measured with the microphone placement described in the text. The peak and dip frequencies are all related to the 20" distance from the sheet rock wall.

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About Comb Filtering

Flanger effect units use time delay to create the characteristic hollow sound caused by a series of peaks and nulls in the frequency response. The peaks and nulls occur when audio is passed through a delay line and then combined with the original signal. The delay time is usually modulated, causing frequencies to be swept up and down to add animation to, for example, an otherwise static-sounding rhythm guitar part.

For any given delay time, certain frequencies will be shifted exactly 180 degrees. When the original wave is positive, the delayed version is negative, and vice versa. Mixing the two together results in complete cancellation at that one frequency. Nearby frequencies that are shifted less, or more, than 180 degrees also cancel, but not as much.

Figure 2 shows a single frequency tone that has been delayed in time so its phase has shifted by 90 degrees, and again by a longer delay equal to 180 degrees. Combining the original tone with the version shifted by 180 degrees results in complete silence. Other frequencies present in the audio will not be cancelled unless they are related to the fundamental frequency. That is, a delay time that shifts 100Hz by 180 degrees will also shift 300Hz by one full cycle *plus* 180 degrees. The result is a series of deep nulls at 100Hz, 300Hz, 500Hz, and so forth. This is what creates the hollow swooshy sound associated with phaser effect units.

This same hollow sound occurs acoustically in the air when reflections off a wall arrive delayed at your ears or a mic. Figure 3 shows that for any frequency where the distance between a listener (or mic) and a reflective wall is equal to 1/4-wavelength, a null occurs. Understand that a 1/4-wavelength distance means the *total round trip* is 1/2-wavelength, so the reflection arrives after 180 degrees of phase shift, not 90 degrees. Nulls also occur at related higher frequencies where the distance is equal to 3/4- and 5/4-wavelength, and so forth. This is why the response has a series of nulls instead of only one. Comb filtering also occurs at lower frequencies when the distances are larger, causing peaks and nulls there too.

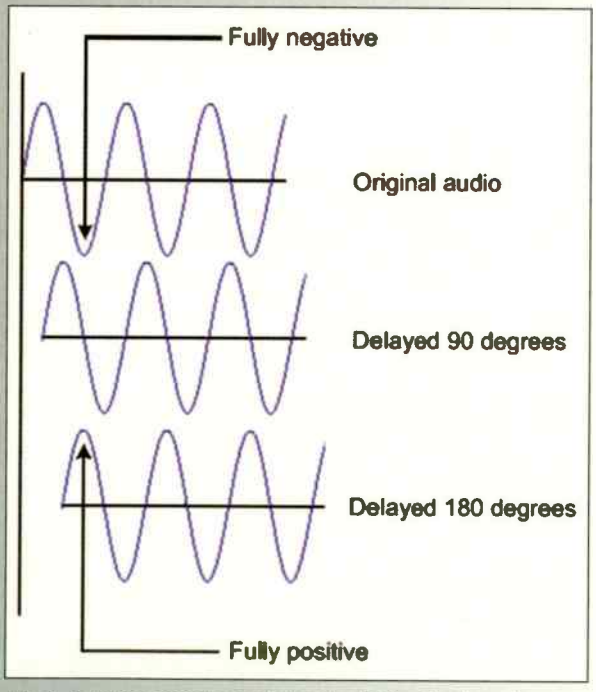

Fig. 2. Delaying audio is equivalent to shifting its phase by some amount at certain frequencies. When the delay equals 180° of phase shift at a given frequency, combining the original and shifted versions creates a null at that frequency and all related frequencies.

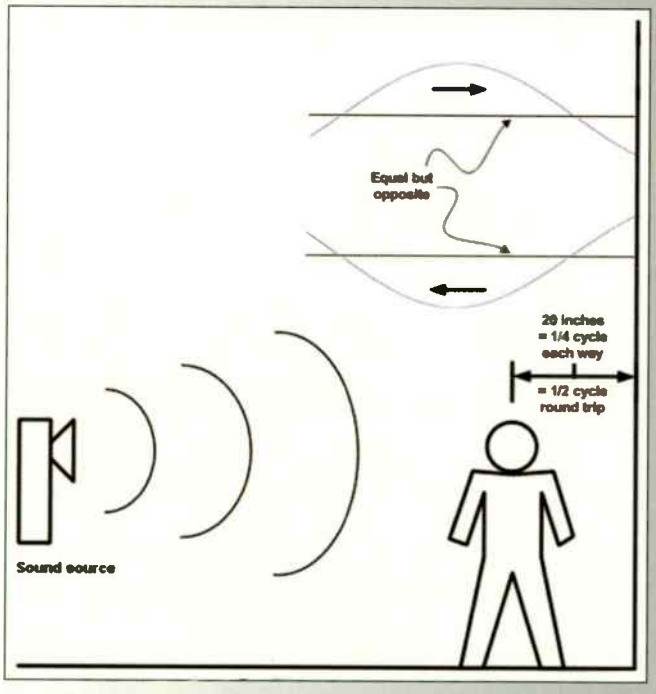

Fig. 3. Delay-induced phase shift occurs at predictable distances from every room boundary. When the distance between a listener or microphone and the boundary equals 1/4-wavelength, the total round trip is 1/2-wavelength, resulting in a deep notch at that frequency.

were recorded in a small room. Minimizing these problems involves adding an appropriate amount of absorption, and optionally diffusion, on the walls and ceiling. The most common type of absorption is a panel 1"–4" thick made of foam or rigid fiberglass covered with fabric. The reflections we've discussed cause problems mainly at mid and high frequencies, so even fairly thin absorbing panels can reduce the reflections enough to avoid a boxy sound.

In most cases, cover only part of the walls with absorbent panels, rather than covering one or more entire walls. This spreads the absorption around the room more uniformly, yet still provides sufficient coverage to avoid the damaging reflections. If a room is so tiny that even a small amount of its "room sound" is detrimental, you'll have to cover nearly every surface and add any desired ambience electronically during mixdown. Otherwise, I prefer to see absorption applied in stripes or a checkerboard pattern, for a total coverage of about 30–40 percent.

One exception is when you need to create a more dead-sounding area to

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record vocals or narration. In that case, place absorbing panels that cover both walls completely in one corner, extending about three or four feet in each direction. Put the mic in the corner facing out toward the room, and have the performer face into the corner.

Larger rooms often benefit from diffusion as well as absorption. Unlike absorption that removes reflections and makes the room less live sounding, diffusion retains the pleasing aspects of an ambient space while avoiding the problematic direct reflections. Instead of reflecting the waves back toward the source, diffusors scatter various frequencies in different directions. However, some diffusors work better than others, and some "diffusor" products are really just deflectors. For example, an angled wall or a large curved surface does not scatter waves at angles based on their frequency — it just redirects all frequencies at the same fixed angle. Also, some diffusor designs are effective over a fairly limited range of frequencies.

HARD FLOORS RULE

Live rooms in a pro recording studio typically have a hardwood or linoleum floor. Likewise, every stage in every auditorium in the world has a reflective floor, because a reflective floor offers a *desirable* ambience that can enhance a recording, making it sound more present and lifelike. When designing my own home studio, I chose a hardwood floor specifically because I often record orchestral and other acoustic instruments. Even though a reflective floor is nearby, it's not as detrimental as when many such surfaces are nearby. Avoiding all other nearby reflections lets you place mics farther from the source without the sound becoming distant and hollow. One reason a hard floor with an absorbent ceiling is better than the other way around is that you can use thicker material on a ceiling than on a floor, which absorbs to lower frequencies. ➤

An angled wall or a large curved surface does not scatter waves at angles based on their frequency — it just redirects all frequencies at the same fixed angle.

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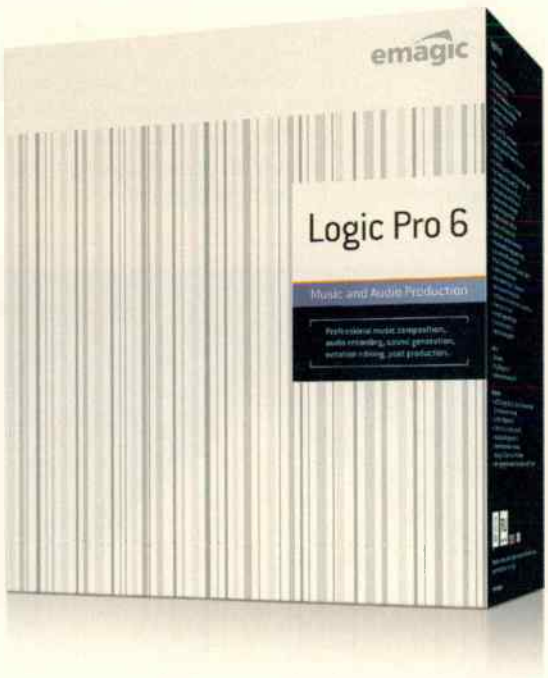

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Close-miking acoustic instruments, as opposed to a guitar amp, can be a problem because acoustic instruments radiate different frequencies in different directions. This is especially true for stringed instruments such as violins, cellos, and acoustic guitars; but clarinets, saxophones, and other woodwinds are directional too, with various notes coming from different places on the instrument. Therefore, no single close-miked position will give a uniform, balanced sound. You need to pull the mic back a few feet to capture an acoustic instrument's entire range in the proper balance.

To complement a reflective floor, most or all of the ceiling should be absorbent. This avoids flutter echoes that otherwise occur between two parallel reflective surfaces; more importantly, an absorbent ceiling is equivalent acoustically to an infinitely high ceiling, where sound that travels up is never reflected back. A very high or very absorbent ceiling is especially important when using overhead mics. If you mike a drum set from above and the mikes are only 6" below a bare sheet rock ceiling, the nearby reflections will make the drums sound thin and hollow no matter how much EQ or compression you apply.

You need to pull the mic back a few feet to capture an acoustic instrument's entire range in the proper balance.

Finally, I believe that for studios with a limited amount of total space, one large room is a much better choice than two small rooms because it avoids the nearby walls. Yes, you'll need headphones when recording and overdubbing, and will need to defer all processing to mixdown. (Aside from effects integral to the instrument, such as playing with a wah pedal.) But the loss isn't that great. To really hear a miked drum set properly in another room requires serious isolation; otherwise, the low frequencies that inevitably leak through influence what you hear. As true isolation is both difficult and expensive to achieve, I feel it's not even worth attempting in most home-based studios. EQ

Ethan Winer eats, drinks, and sleeps acoustic treatment. He now heads up RealTraps in New Milford, CT — visit him at www.realtraps.com or on his forum at www.eqmag.com.

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The Art of Recording: CD Mastering in Your DAW

Master and assemble your tunes in a multitrack host

If you're about to produce a zillion CDs for a major label, then you want some serious mastering. But if you're putting together some tracks on a more casual basis — for example, to see how certain songs flow together, or to do a few CDs as "market research" — you don't want to hire a pro mastering engineer for something with a limited shelf life. Still, you probably want the result to sound better than just raw mixes.

by Craig Anderton

Currently, most mastering is done with two-track digital audio editing programs. Many of them let you create a playlist of cuts, and burn a CD from that. Or, a program like Sony's CD Architect can assemble all your tunes, process them if needed, and burn a CD.

But you may already have most of the tools you need in your multitrack DAW. And interestingly, it can do some tricks conventional digital audio editors can't.

DAW ASSEMBLY

If your songs are already mastered, or at least "close enough for rock and roll," there are a variety of programs that will let you put them in order and burn a CD. But you may want more control, like being able to vary the levels of different songs, add some EQ, or apply multiband compression to the entire mix.

Open your host, then bring each song into its own track, and place it as desired on the time line (Figure 1). Or, place them end-to-end in a single track if the songs don't need individual processing. In either case, crossfades are easy: Just fade in one song while the other fades out if they're on separate tracks. If they're on the same track, use the DAW's automatic crossfade function and overlap the two files.

If you've imported raw mixes, process each file if needed via its track's EQ, dynamics, or other plug-ins. The track fader can adjust song levels for consistency. If you *really* want to get fancy, add track automation to bring effects in and out, or dedicate a separate track to transitions or sound effects when doing a dance mix. You're essentially treating this as a sort of "meta-mix" where instead of mixing individual tracks to create a two-track file, you're mixing two-track files to create a final album.

Next, render (bounce) the entire collection to hard disk as one long file. It won't have track markers, CD-Text, or other niceties. But you'll have one long file you can bring into a CD burning program and end up with a CD you can listen to in the car, on your portable player, or whatever. Or, bring the file into a program that can insert track markers, burn from there, and you'll be able to zoom forward and backward between songs.

Another option is to send the output to a stand-alone CD, MiniDisc, or DAT recorder. You may be able to add index markers while you're doing this.

ADDING MASTER EFFECTS

In some cases you'll want to add effects to the entire collection of tunes, like a little compression, or EQ if all your cuts are "tonally challenged" in the same way.

When you create a non-surround multitrack project, eventually all the tracks are going to dump into a master stereo output bus. As with individual tracks, this will usually have provisions for adding effects. How this is handled depends on the program. For example, with Sonar, the busses have effects slots, just like tracks. Cubase SX 1.0 had a dedicated master

Fig. 1. Files have been dragged into a multitrack host for eventual rendering into a single file, then burned. Each mixer track has levels set individually to even out volume variations.

Fig. 2. A Cubase SX 2 output bus. This routing view shows that the uv22hr dithering algorithm is post-fader (the fader position in the signal chain is outlined in yellow for clarity), while the PSP MasterQ and Waves L1 are pre-fader.

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Fig. 3. From left to right, Sonar's Inspector, Track View, and Console faders all show the fader value (outlined in red for clarity) and the "margin," or highest level attained (outlined in yellow).

Fig. 4. In this example, Sonar's master bus feeds a hardware out, which returns back to track 20 (outlined in yellow) via a hardware input (outlined in red) where it is recorded prior to exporting.

bus, while SX 2.0's revamped bus structure is more like Sonar's. However, a Cubase bus includes six pre-fader and two post-fader effects, which allows adding the included Apogee dithering plug-in after the fader (Figure 2). This is important because the high-resolution fader, if placed after dithering, would expand the number of bits back up again.

Sonar has no bus post-fader effects slot, but it can truncate a file to 16 bits and add dithering when it renders a file to your hard drive (*Options > Audio > Advanced > Apply Dither*).

PROPER MASTER LEVEL SETTING

Most modern native multitrack hosts process individual channels with 32-bit floating point precision for maximum headroom. However, the master bus represents the sum of these channels (as well as any busses feeding into it), so overloading can occur. To avoid distortion in your final mastered mix, watch the output clipping indicators carefully. If they light, pull back the master level control.

Also, you'll often find a numeric readout that shows the instantaneous level as a "margin" — the difference, in decibels, between the highest level attained and the maximum available headroom (Figure 3). Positive differences indicate the level by which the signal exceeds the available headroom, while negative numbers (or, maybe numbers in a different color) show the value below the maximum headroom. The meters may also have the option to hold the highest value attained, thus alerting you if any signals exceeded the available headroom. This is helpful if you looked away while the peak occurred. There should also be an option to reset this reading, perhaps by clicking on it or the meter, or simply stopping then re-starting the transport.

Here's why a calibrated fader setting is useful: If the current fader setting is 0 and you send in a signal that reaches –2.0dB, then the margin indicator should also show –2.0dB. If the master fader setting is –1.5 and you feed in the same –2.0dB signal, then the margin indicator would show –3.5dB — the original margin, less the amount of attenuation provided by the master fader.

You want to set the master fader for the highest level short of distortion; I recommend –0.1dB below maximum (*i.e.*, with peaks, the margin indicator shows no more than –0.1). This is important because if a tune has peaks that hit 0 for more than a few milliseconds, it may be rejected by a CD pressing plant on the assumption that those peaks represent distortion.

To set the optimum level, reset the margin then play the collection of songs through from start to finish. When it's over, check the margin indicator and note the reading. Let's say it's –2.3. As you want the margin to read –0.1, that means the overall level needs to be raised by +2.2dB.

Now note the fader reading. We'll assume it shows 1.2. We want to add another 2.2dB of level, so if we set the fader reading to 3.4 (1.2 + 2.2), then the next time the song plays from start to finish, the margin should indicate –0.1dB.

INTEGRATING OUTBOARD MASTERING PROCESSORS

Let's close with a cool trick. Using a DAW for assembly makes it easy to take advantage of outboard mastering tools, both analog and digital (even in a world of great plug-ins, I still like my Dolby 740 Spectral Enhancer and various tube devices). These are difficult to use with a digital audio editor, but it's easy with a multitrack host.

Basically, you send the final mix bus out to a hardware output, which feeds your outboard gear. Then, take the output of the chain of outboard gear, and route it back via a hardware inputs to a stereo track in your host (Figure 4).

For example, suppose you've brought nine files into the host for assembly, with the first song on track one, the second on track two, and so on. Record-enable track 10, and record into it while you play back the other tracks through the outboard processors. This is a realtime process: An album project that's 60 minutes long when assembled will produce a 60-minute file in track 10.

Once you've done that, you will usually have two options. Mute the first nine tracks and render the project to disk (which will of course contain only the audio from track 10), or export track 10 as a file — consult your host documentation for details.

And you thought DAWs were just for multitrack recording . . . next issue, we'll find out how to turn any DAW into a washing machine/dryer combination.

Just kidding! EQ

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by Mitch Gallagher

Electro-Harmonix NY-2A

Heat up your tracks with eight glowing tubes

Type: Dual-channel optical tube compressor
Price: $2,995
Contact: Electro-Harmonix, www.ehx.com

Channels: 2
Connections: XLR in and out per channel
Controls: Pre-gain, Compress, Post-gain, Light Source, Bypass, Squash, Attack, Link, gain reduction/output, meter calibrate, power
Bandwidth: Flat to >20kHz; 15Hz–40kHz (–2.6dB)
Signal To Noise: >65dB
Attack time: 10, 30, 50, 100 milliseconds
Maximum gain: 53dB
Maximum gain reduction: 45dB
Weight: 25.7 pounds

Holy heatwave, turn on the air conditioner! There's no question the Electro-Harmonix NY-2A is loaded with tubes — it pumps out the BTUs like nothing I've had in my studio in a *long* time. But does it live up to Electro-Harmonix' claim that it's the best compressor ever made?

The NY-2A looks simple — and it *is* simple — to operate. There are no threshold, ratio, attack, or release controls. The amount of compression is set using the Pre-gain and Compress knobs; the Post-gain knob provides make-up level control. There's one area that's slightly more complex: The NY-2A is an optical compressor, and Electro-Harmonix has provided three different light sources for the opto-coupler. Each light source has a different sound. According to Electro-Harmonix, the NY-2A is the only compressor on the market that offers this capability. The light sources include an incandescent lamp, an LED, and an electro-luminescent lamp.

The incandescent lamp has the slowest attack time, and adds a bit of brightness to the output. When you're using the incandescent lamp, the Attack switch allows you to slow the attack even further. With Attack engaged, the NY-2A is set for its slowest attack time of 100 milliseconds.

The LED light source has a flat frequency response, and the fastest response — around 10 milliseconds.

The electro-luminescent lamp compresses high frequencies a bit more than low; this results in a slight bass boost. When you're using the electro-luminescent source, the Squash switch compresses the top end even more.

The NY-2A has a fixed-gain tube output stage. According to Electro-Harmonix, the components have been optimized for the lowest noise level and maximum linearity without use of negative feedback. The output level is adjusted using the Post-gain control. The gain stage is independent from the opto-coupler level attenuator, and has enough headroom to remain clean unless overdriven on purpose.

One caveat regarding that output stage: The NY-2A uses Lundahl transformers, which are set up for 600-ohm load impedance — fine with most "pro" gear. However, some "semi-pro" gear doesn't provide the correct load. If the NY-2A output doesn't see 600-ohm

THE ELECTRO-HARMONIX NY-2A USES A TUBE-BASED OPTICAL DESIGN FOR COMPRESSION. THE UNIT IS SIMPLE TO USE: PLUG IT IN, HOOK IT UP, AND DIAL UP THE PRE-GAIN AND COMPRESS KNOBS TO ADD GAIN REDUCTION. THE POST-GAIN CONTROL ADDS MAKE-UP GAIN.

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impedance, you may run into problems such as distortion and other anomalies, as well as popping when switching in and out of bypass. If your gear doesn't provide a compatible load, the manual suggests using good quality 600-ohm line-matching transformers such as those from PSC, Shure, and Neutrik.

It would be nice if the NY-2A had some kind of input level indicator; even a simple overload LED would be helpful. But there are two meters per channel on the NY-2A. The first is a large backlit VU-style meter, which can be switched to display either gain reduction or output level. There's a front-panel trim control for zeroing the gain reduction metering. The second meter on each channel is a very cool "Magic Eye" tube. The tube glows green with a 3-D effect to show output level. While you can't gauge exact levels using the "Eyes," they do respond quickly and give you a good idea of relative levels. Did I mention that it looks really cool?

Physically, the NY-2A is a big, beefy chunk of hardware. You'll want a stout, deep rack to hold it. You'll also need to leave empty rack spaces around it. I wasn't kidding when I said it got *hot* — almost too hot to touch. While the heat doesn't harm the NY-2A, it may screw up other gear that ventures too close.

THE SOUND

If you're expecting the NY-2A to produce the corpulent dark tonality some associate with tube audio gear, you're going to be disappointed. This is an audiophile-style tube box, meaning that the sound is clean. This doesn't mean that it's sterile sounding. Set up for no compression — just running signal through it without gain reduction — the NY-2A is transparent and open on the top, with natural sounding transients, and no out-of-focus fuzziness. The low end is tight and controlled. The box features true hardwire bypass, meaning that when you hit the bypass switch, the signal is routed past all components without going through any of them, and sent directly to the output.

Set correctly, the NY-2A is very impressive. It's smooth and natural sounding. However, if you're used to tweaking knob-laden compressors, its simplicity could be construed as a bit of a weakness. You're given five different attack settings, none of which is extremely fast. And changing the attack time entails changing the opto-coupler light source. So if you want a slow attack, for example, you have to use the incandescent lamp, which results in increased brightness and added presence in the output signal. In other words, changing the attack time changes the tonality of the compression.

With no ratio control, you have to carefully balance the input level setting (Pre-gain) with the Compress control to achieve the gain reduction you need. Still, with care, you can dial in the amount of compression you want. ➤

THE NY-2A HAS THREE DIFFERENT TYPES OF OPTO-COUPLER LIGHT SOURCES BUILT IN. EACH HAS UNIQUE COMPRESSION CHARACTERISTICS, MAKING THE UNIT MUCH MORE VERSATILE THAN YOU'D EXPECT AT FIRST GLANCE.

Bi-Filter

The NY-2A isn't the only higher-end processing product Electro-Harmonix has added to its line-up. Also new is the Bi-Filter ($990), a dual analog filter with extensive hands-on and voltage-control possibilities. Don't be confused by that "dual" label, though. Bi-Filter has two filters, but it's a single-channel box — both filters process the same input signal (although each can have its own output if you want). Bi-Filter offers more capability than you'd expect. There's a bypassable effects send and return, two control-voltage outs carrying envelope signals, and control-voltage input for each filter. In addition to outputs for Filter 1 and Filter 2, there's a Main out that carries a mix of the input signal and the two filter outputs. Connections are via unbalanced 1/4" jacks, which can accept instrument or –10 input, and can output enough level to feed pro gear.

As mentioned, control voltage can drive the filter, or you can use the input signal's envelope or an LFO with square or triangle/saw waveforms. Either filter can be lowpass, bandpass, or highpass, and Q (resonance) is adjustable. You can invert either filter for phase shifter effects. The filters can run in series (one after the other) or in parallel (side-by-side).

So what does it do? Bi-Filter provides everything from straight-ahead "wa" and "ow" effects to swirling burbling rhythmic textures to sweeping phase shifting. Having the ability to run the filters in series or parallel gives you a lot of flexibility. I used the filters with fixed frequencies for tonal shredding and for creating "telephone" tonality, for synth processing — it works great for beefing up software synths — and on guitars, vocals, strings, and drums. In every case, the Bi-Filter delivered full, rich tones. If you're looking for a filter processor, the Electro-Harmonix Bi-Filter has the flexibility and power to take your tracks to analog heaven. Very cool. —*MG*

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Electro-Harmonix NY-2A

To be fair, adding ratio, release, and attack controls wouldn't have worked on the NY-2A. Having three opto-couplers would have required either complex switching circuitry or dedicated knobs for each opto-coupler; probably cost-prohibitive, but even more important, it would have added too much complexity for the user.

If it sounds like I'm painting a dismal picture, I'm not. I'm very impressed with the NY-2A — you just have to understand it in order to get the most out of it. Once you do understand how to set it up, you'll find it quite powerful. It's a balancing act — Pre-gain versus Compress versus light source/attack time/tonality.

I loved using the electro-luminescent light source on electric guitar, bass, and kick drum. This setting beefs up the output without making it sound EQ'd. Likewise, the incandescent lamp really made sounds pop, particularly those with attack transients such as steel-string acoustic guitar and snare drum. For general-purpose clean level control, the LED light source was hard to

Shine A Little Light On Me

The NY-2A is an "optical compressor." This means that instead of using a VGA — Variable Gain Amplifier — to automatically turn the signal level up and down, it uses a passive device called an "opto-coupler" to achieve level control.

An opto-coupler has two components: a photocell and a light source. As the signal level increases, the light source puts out more light; the photocell reacts to this light increase by causing the signal level to be reduced. The result is compression, with the overall average signal level being kept constant . . . or at least nearer to constant.

According to Electro-Harmonix, there are several drawbacks to VGA compressor designs: The noise level can vary depending on what the VGA is doing. Short transients aren't handled the same way as long transients. And VGA designs often don't compress high and low frequencies equally. Basically, Electro-Harmonix feels that VGA designs don't maintain uniform tonality as compression is increased.

Because optical designs are passive — sort of like a volume knob controlled by light — they don't suffer from these problems. A fixed-gain amp, for example, is used for make-up gain in the NY-2A, which helps keep the noise level constant.

Each compressor has its own "sound," and the final arbiter should be your ears — whether a compressor has a VGA or optical design is only one factor that affects the sound. So before you proclaim universally that an optical compressor is more "transparent," remember that even the audiophile NY-2A has five distinct "sounds," some of which are quite colored.

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Electro-Harmonix NY-2A

IT DOESN'T GET MUCH SIMPLER THAN THIS: XLR INPUTS AND OUTPUTS FOR EACH CHANNEL. THERE'S ALSO A 20DB PAD SWITCH FOR EACH INPUT CHANNEL AND A GROUND LIFT.

beat. It's transparent and uncolored, and for a reasonable amount of gain reduction (five or so dB), it worked perfectly.

On full mixes, I tended to use the LED light source for transparent level smoothing, or the incandescent lamp if the mix needed a bit of extra presence and top.

In most cases, I was happiest with the NY-2A when I wasn't using it for heavy compression — in general I preferred it for 10dB or less gain reduction. Above that, the inability to tweak all the compression parameters made the compression audible in many cases.

THE VERDICT

The NY-2A is a unique compressor. It offers stellar tube performance with flexible tonality and simplicity of operation. The few negatives — no tweaky control, loads of heat production — are outweighed by the audiophile sound quality, smooth compression, and low noise operation. The more I used the NY-2A, the more I came to appreciate its simplicity and varied tonalities.

Once I understood it, I found the NY-2A worked well in almost every situation: on individual tracks and on full mixes. I preferred it with light gain reduction, but it can provide heavy squash if that's what you want.

The NY-2A doesn't come cheap, but it's a one-of-a-kind compressor, meaning that if you want these sounds then this is the only way to get them. It does exactly what it is supposed to do, and it does it well. That says it all. EQ

Strengths:

- Variety of tonalities
- Smooth compression
- True hardwire bypass
- Easy to operate
- Clean, audiophile sound
- Cool metering

Limitations:

- Simple controls may feel limiting to some users
- Eight tubes make this a heat machine!

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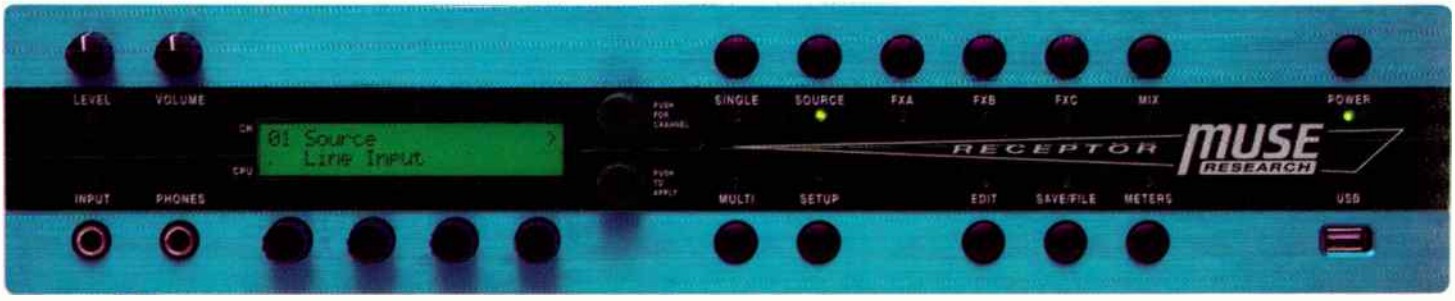

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Alesis ProLinear DSP Studio Monitors

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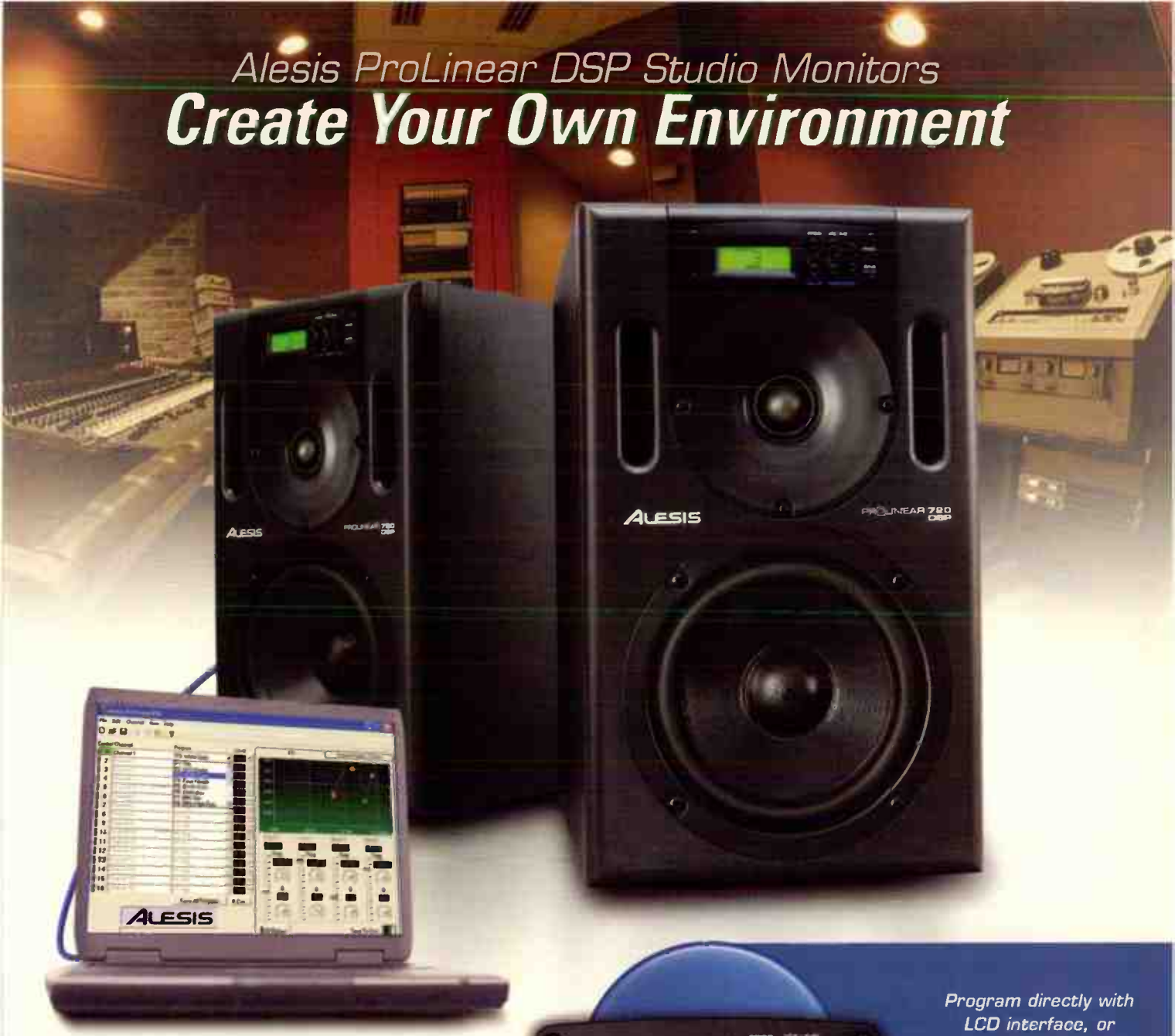

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- Up to 16 discreet channels of control—perfect for surround
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- Eight editable user presets

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With GarageBand, Apple has managed to pack a surprising amount of music-making power into an unassuming app that costs far less than the competition.

Apple GarageBand

The ultimate music scratchpad

by John Krogh

Type: Multitrack audio/MIDI recorder with built-in software instruments
Price: $49 (bundled with iLife; free with new Macs)
Contact: Apple, www.apple.com

Platform: Mac OS X (10.2.6 or later)
Minimum system requirements: G4/5, 256MB of RAM, 4.3GB free HD space for instruments and loop library; optional: audio and MIDI interface, MIDI controller
Plug-in compatibility: AU
Audio driver compatibility: CoreAudio
Max. number of audio/software instrument tracks: CPU dependent

I love adapting consumer-type gear for studio use. I'm not talking about being cheap when it comes to critical applications. But if I can get a cool or unusual sound from a "Radio Shack special," or make my life easier through the use of some computer accessory that can be found at any Comp USA, I like it. So when Apple sent me a copy of GarageBand, I had ideas of taking a toy audio workstation and abusing it for my own purposes. Turns out GarageBand is not a toy. Okay, sure — GB isn't loaded with all the "pro" *accoutrements* we've come to count on from a DAW, but would you expect it to for less than 50 bucks? As one of five "pro-sumer" apps in Apple's iLife bundle, GarageBand is on par (pricewise) with shareware programs. Feature-wise it's a different story.

Apple has a giant on their hands, and the millions of users who purchase iLife probably don't even know it. Savvy musicians, however, will recognize GarageBand for what it is: the ultimate musical scratch pad and practice partner. Though no press release will cop to it, GB is built on the technology in Logic Audio. The modeling instruments, the effects, the sampler. It's all sitting behind GB's simple interface. When you go to lay down a MIDI Hammond track, for example, you're playing the same sound engine from Emagic's EVB3 tonewheel modeling organ. When mixing down a song, the master channel is employing the same processing smarts of Logic's Multipressor.

GB isn't about the last stage of production or finalizing a mix, though. It's about getting a song off the ground. More than just an updated "four-track" concept, it has just enough of everything to put an idea across, without overloading you

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with options that could ruin momentum. That's its charm.

OVERVIEW

GarageBand is a combination multitrack recorder and a well-stocked software instrument. The number of "real" and software instrument tracks is CPU dependent, which is interesting, when you consider that other lite versions of programs typically have a limit to the number of recorded tracks.

When GB is first launched, a dialog prompts you to name the song, and set the key, time signature, and tempo. Once this is done, you're presented with the main Timeline work area, which is a familiar take on conventional DAWs: track names along the left-hand side, recorded track data to the right, and transport controls along the bottom.

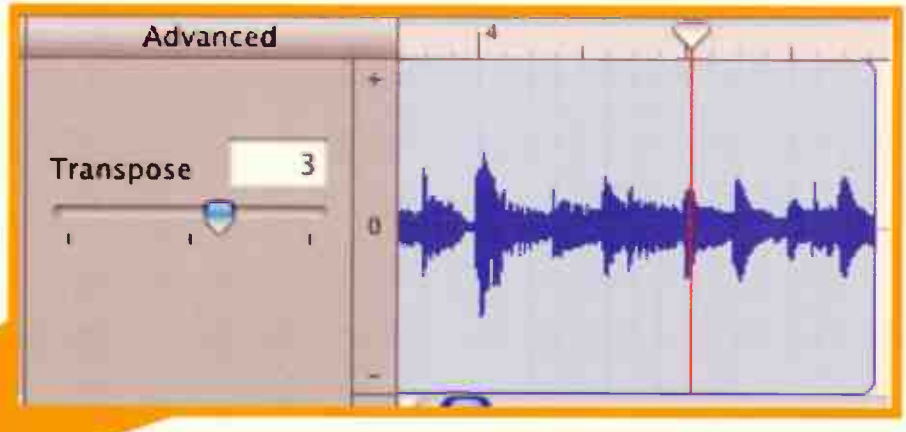
MIDI I/O assignment is handled automatically, which was a bit of a head-scratcher for me. At first, I searched for a place to specify my MIDI interface. However, GB had already detected an interface. All I had to do was play my controller. I didn't have to worry about channel assignment, either. Whatever track is selected in the main window is what will be triggered from incoming MIDI data.

Track-related settings such as audio input assignment, soft synth selection, and effects are made from the floating Track Info window (see Figure 1). When a track is selected, its attributes are displayed, and you can change them on the fly. I was shocked to see how quickly I could switch instruments and add effects. It was much faster than any pro DAW I've worked with, where I'd normally be forced

Soundtrack vs. GarageBand

These two programs rely on the same time-stretching and loop engines. Soundtrack costs about 150 bucks more and is targeted at music-for-picture types. Here's a quick look at how the two stack up:

Loops	ST comes with over 4,000 loops; GB has a little over 1,000
Effects	both support AU plug-ins, and include a number of effects ported over from Logic; ST supports plug-in automation
Software instruments	GB only
MIDI sync	ST only
QuickTime movie support	ST only
QuickTime export	ST only
Ability to create Apple Loops	ST only
Audio resolution	ST: up to 24-bit/96kHz; GB: 16-bit/44.1kHz



AUDIO LOOPS CAN BE SLICED INTO SMALLER SECTIONS AND TRANSPOSED TO CREATE NEW MELODIES. HERE, I'VE RE-PITCHED AN ACOUSTIC GUITAR RIFF TO FIT THE KEY OF MY SONG.

IN SEARCH OF THE RIGHT LOOP? LET GARAGEBAND'S LOOP BROWSER HELP.

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GarageBand

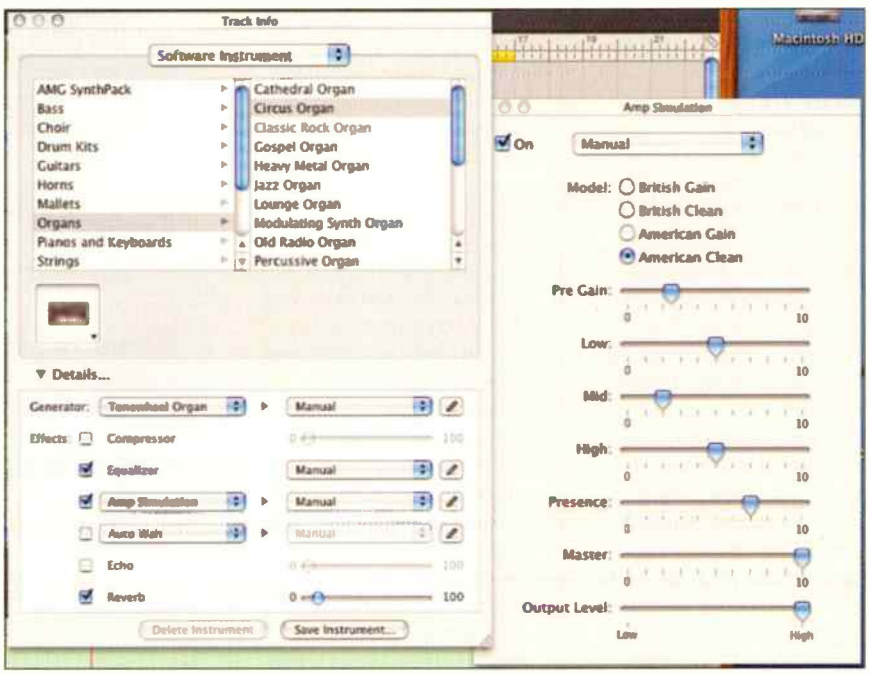

FIG. 1. GARAGEBAND TRACKS CAN BE "REAL" (AUDIO) OR ASSIGNED TO A SOFTWARE INSTRUMENT. BOTH TYPES CAN HAVE UP TO SEVEN INSERT EFFECTS. I'VE APPLIED EQ, AMP SIMULATION, AND A BIT OF REVERB TO THE ORGAN (SHOWN). I'VE ALSO OPENED THE AMP SIMULATOR PARAMETER WINDOW BY CLICKING ON THE PENCIL ICON.

to insert effects one at a time. Here it's a simple matter of turning the effect on or off and choosing an instrument from a list. Nice.

You won't find lots of effects paramoters, or the ability to apply them pre or post fader. Heck, there isn't even a mixer. It really isn't missed. Volume envelopes (*i.e.*, "rubber-band-style" automation) are used to adjust levels over time, and tracks can be panned. If you feel the need to get tweakier, you're probably missing the point of this program.

WORKING WITH LOOPS

Apple has its own loop format called Apple Loops, which is essentially an enhanced AIF format with key and tempo information embedded into the file. Compatible hosts use this data to automatically time stretch and transpose loops to match the current song settings. It's not unlike Sony Acid or Ableton Live.

Over 1,000 royalty-free Apple loops are included to help you build an arrangement. A variety of styles and instruments are covered, and the quality is generally quite good. As you can imagine, weeding through that many loops to find what you're looking for could be a huge time sink. Fortunately, it's possible to perform sophisticated searches based on several criteria such as key, instrument, style, scale, and so on. In most cases, I had good luck finding what I was looking for within one or two searches.

Loops can be audio or MIDI, but they're treated the same from the Loop Browser. If you click on a MIDI loop, it plays back as it was originally intended, complete with soft synth and effects settings. If you drag this to the Timeline, a new MIDI track is created — instrument and effects settings are made automatically. By itself, this is a cool feature. It gets better: If a MIDI loop is dragged onto an audio track, the loop is automatically rendered as an audio file.

Unfortunately, GB works only with Apple Loops — you can't load your own samples, unless you record them in as audio. Thankfully, GB users can download the free Loop Utility, which is used to tag audio clips with Apple Loop data. This makes it possible to add loops in other formats to GB's library after they've been converted. The utility can be downloaded at http://developer.apple.com. ➤

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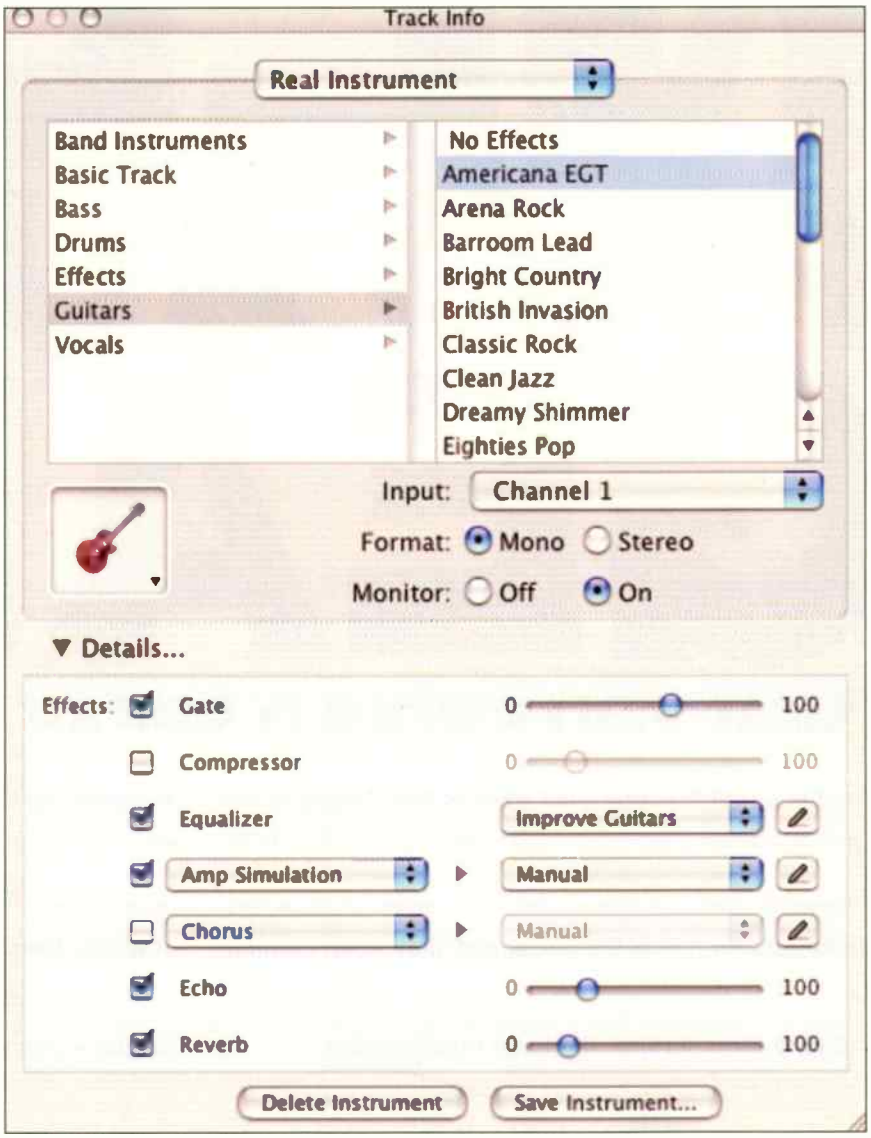
GarageBand



LIVE INPUT SIGNALS CAN BE MONITOREO THROUGH EFFECTS. IN THIS CASE, I'VE SELECTEO AN AMERICAN ROCK GUITAR PRESET, WHICH WILL BE APPLIEO TO THE SIGNAL ON INPUT CHANNEL 1.

IN USE

My musical personality is split. Part of me spends a lot of time in the studio working on tracks for TV commercials and industrial videos. I'm used to working with tight deadlines, dealing with clients, rewrites, and all the other responsibilities this kind of gig entails. It requires a lot of juggling, technically and logistically. Another part of me is devoted to being a better musician — play-along records, technique books, and other practico aids litter my home studio.

GarageBand proved to be effective in both worlds.

When I wanted to try an idea for a spot, I performed a quick search for some drums. I was going for a roots/Americana vibe at around 90 bpm. Within minutes, I had an acoustic guitar riff, acoustic drum groove, and shaker happening that I could tell was working. I patched in my Strat knock-off and dialed in a tone with the built-in amp simulator. A few takes later my song was taking shape. I was able to put together a

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Radial J48 Active DI - suggested list $199 US
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Radial X-Amp Re-Amplifier - suggested list $199 US
Ever wish you could go back and change the sound of a pre-recorded guitar track? Now you can with X-Amp. When tracking, record a spare dry track and play it back through the X-amp after the guitarist has gone home. Two outputs lets you drive amps and pedals to create thick new textures. X-plosive.

Radial JPC Stereo DI - suggested list $199 US
Designed specifically for PC sound cards, DVD players and all those cool consumer devices that cause nothing but havoc, the JPC is 100% transformer isolated to eliminate nasty ground loops and equipped with a 48V active drive circuit for long cables. Easy to use. Great sounding. Indispensable.

Radial JDV Super DI - suggested list $449 US
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GarageBand

sketch in loss than half the time it would have taken me in my pro DAW. A big part of my success came from being able to quickly find loops and have them match my song's key and tempo.

Feeling pleased with my track, I decided it was time to shed. Again, I pulled a few loops together, added a MIDI bass part, then sat down to play. I lost track of time as I jammed on one of the electric pianos.

Then annoyance set in. It dawned on me that this cheap little app was more fluid and had better looping tools than my beloved Logic, which at version 6.3 doesn't even have an amp simulator! I

Apple has a giant on their hands, and the millions of users who purchase iLife probably don't even know it.

felt cheated. To make myself feel better, I started taking stock of all the things GarageBand doesn't have. Here's a list of highlights:

■ Track export. Individual tracks can't be easily exported for use in your favorite DAW. As a workaround, you have to solo a track, then render the entire song as an iTunes file. From there it's a matter of finding the track on your hard drive and importing into whatever program you choose.

■ CPU management. Songs can quickly become CPU intensive — it's way too easy to start piling on effects and virtual instrument tracks without realizing how much you're asking of the computer. Sadly, GB doesn't really let you relieve any of the strain. Sample buffer settings can't be adjusted manually, and tracks can't be "frozen" to reduce the load.

■ MIDI editing. You can choose to fix the timing according to preset straight and swing percentages, or not. You can't,

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GarageBand

however, create a groove quantization template from an audio or MIDI clip. Admittedly, this isn't a huge deal breaker. And fortunately, velocity, sustain, modulation, and pitchbend can all be edited, which should be enough for most casual users.

■ Loop recording. Only with soft synths, not with audio tracks. This is a serious omission for a program built around looping as a way of making music.

CONCLUSIONS

With GarageBand, Apple has taken the process of music making in the digital age and made it accessible to millions. In my book, this is wonderful. Will it compete with "real" audio programs in your studio? Nope. However, in the hands of a musician, GB isn't the music-by-numbers app it's made out to be. This is seriously powerful software. The instant gratification factor is off the scale, but to dismiss it as some toy you'd get bored with in five minutes would be a mistake.

I was blown away by how much I could get done with such a seemingly simple program. Obviously, there's room for improvement. Track freezing and audio export are two important items on my wish list. Even without these features, GarageBand has a lot going for it. And Apple seems to be taking it seriously — as we went to press we learned the latest update to GB supports ReWire, so any app that can host ReWire clients can work with GB in a tight, integrated way. This is huge!

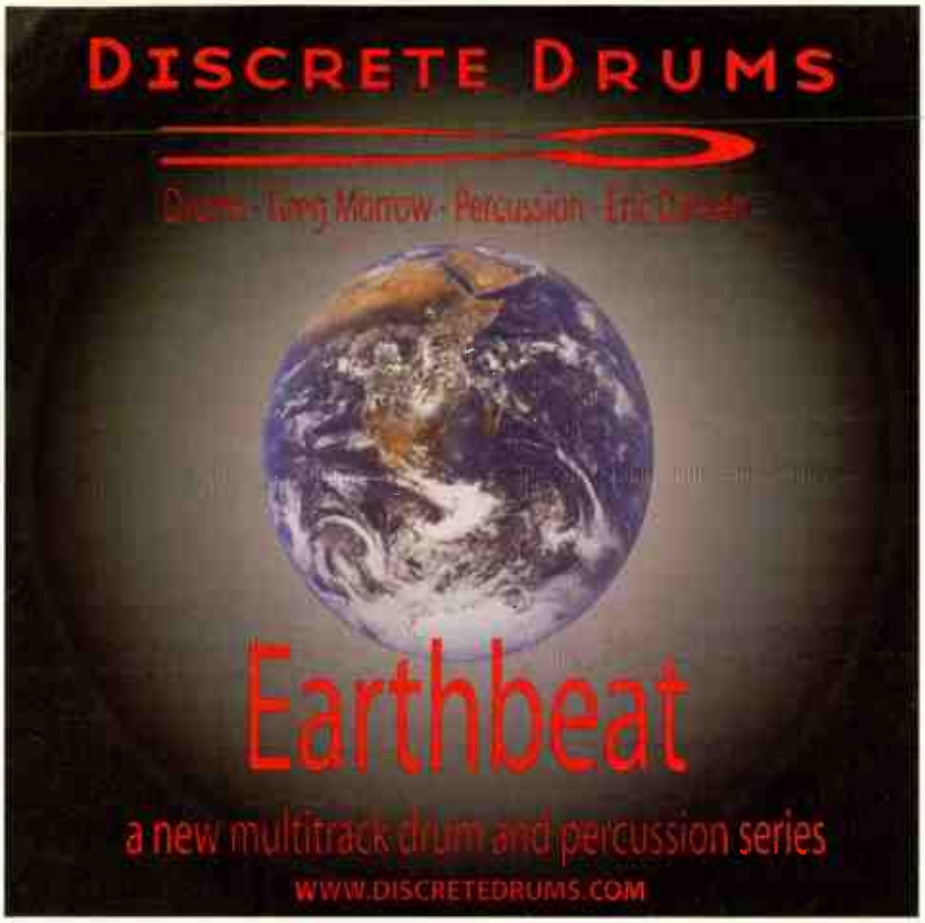
Once you get past the "cute" persona, the light will go on. If you're a Mac user who does anything related to songwriting or recording, you'd be foolish not to have GarageBand sitting on your hard drive. EQ

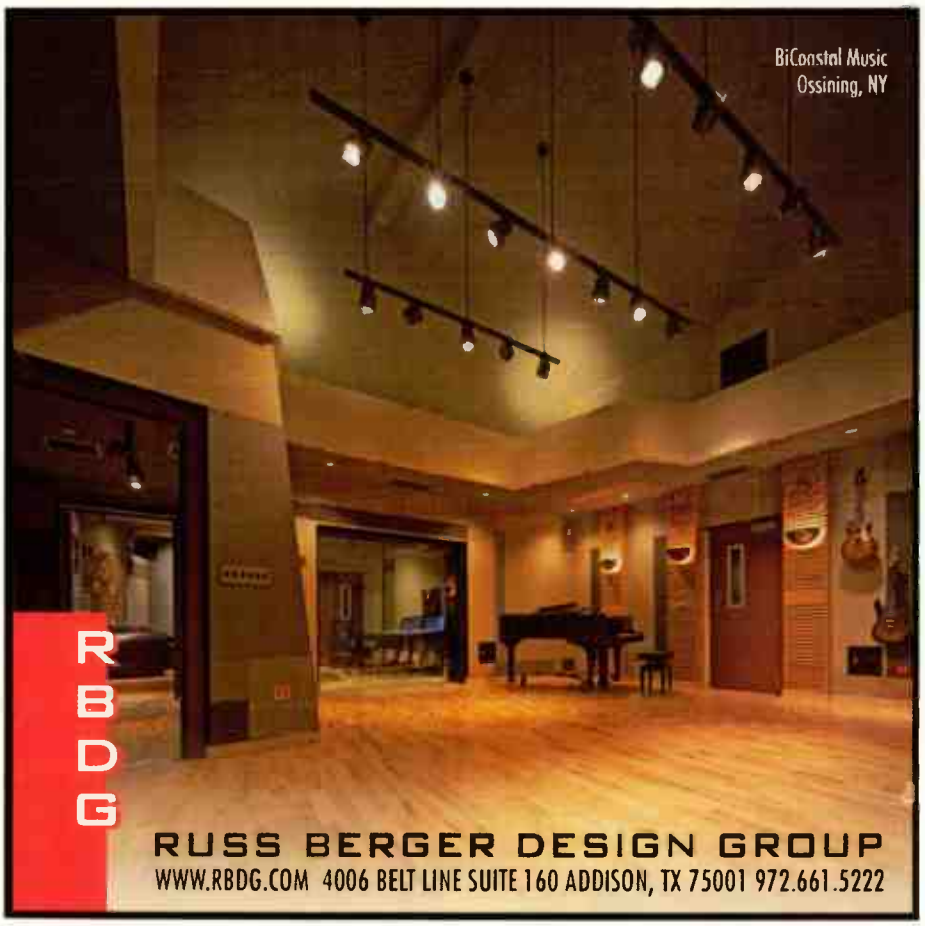
Strengths:

- Excellent time-stretching and looping capabilities
- Quality virtual instruments and effects
- Wide range of loop material
- Future version of Logic will support GarageBand session import
- Integrated loop browser
- Remarkable bang for the buck

Limitations:

- Can't freeze tracks to conserve CPU resources
- Individual tracks can't be easily exported
- Only supports Apple Loops





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Microtech Gefell M 300

Small-diaphragm condenser microphone

by Mitch Gallagher

Type: Condenser microphone
Price: $850 each
Contact: Microtech Gefell, www.microtechgefell.de, www.gefell-mics.com

Polar pattern: Cardioid
Type: Pressure gradient
Frequency range: 40Hz – 18kHz
Sensitivity: 12mV/Pa @ 1kHz
Signal To Noise: 78dB A-weighted
Maximum SPL: 147dB @ < 0.5% THD
Dynamic range: 131dB

The Microtech Gefell M 300 microphone brings together the company's two orientations: super-accurate test and measurement microphones and musical sounding recording mics. The M 300 is a small-diaphragm design, with a 21-mm diaphragm mounted in a ceramic capsule housing. This capsule is designed to be extremely stable, resistant to change resulting from temperature rising or falling.

THE CAPSULE IN THE M 300 IS CERAMIC, PROVIDING MAXIMUM STABILITY AND RESISTANCE TO EXPANSION AND CONTRACTION DUE TO TEMPERATURE CHANGES. THE MYLAR DIAPHRAGM IS PLATED WITH EVAPORATED 24-KARAT GOLD.

THE MICROTECH GEFELL M 300 IS HANDCRAFTED, AND IS A SMALL-DIAPHRAGM DESIGN FEATURING TECHNOLOGY WITH ITS ROOTS IN THE COMPANY'S TEST AND MEASUREMENT MICROPHONES – BUT THE RESULT IS A VERY MUSICAL TRANSDUCER.

The M 300 is a cardioid-only mic that requires 48-volt phantom power. The mic can handle an amazing 147dB of sound pressure level — that should cover most sources you'll put it in front of.

The M 300 is available individually, or as a matched pair. Microtech Gefell's stereo matching bears some mention; the microphones are first tested in an anechoic chamber with a suspended floor. The mics are robot-positioned for on-axis and 180-degree off-axis bandwidth and linearity testing. Temperature and barometric pressure are taken into account to closely designate pairs of mics into frequency, amplitude, and phase-matched sets. The mics then must pass aural auditioning in a dedicated listening room. Each mic comes with a copy of its unique frequency response chart.

I received a matched pair of M 300 mics for review. The two mics come packaged in a nice wooden case, which also holds the nylon-isolated mic clips and a stereo mounting bar.

IN USE

I put the M 300 to work on a variety of sources. Sonically, its response mimics what you see on the frequency response chart. Ears confirm there's a smooth rise in the upper-mids and high frequencies, and a roll-off in the low end. The high-frequency rise helps add a nice sense of openness and detail to the top end of the mic's sound. The low-end roll-off tightens up the bottom, although if you're looking for serious bottom end, this may not be the mic you want.

I found the M 300 to be exceptional on acoustic guitars,

THE M 300 STEREO MIC SET INCLUDES TWO MATCHED M 300 MICROPHONES, TWO HEAVY-DUTY NYLON-ISOLATED MIC CLIPS, AND A COMBINATION X-Y AND ORTF STEREO BAR ALL PACKAGED IN A FOAM-LINED WOODEN BOX.

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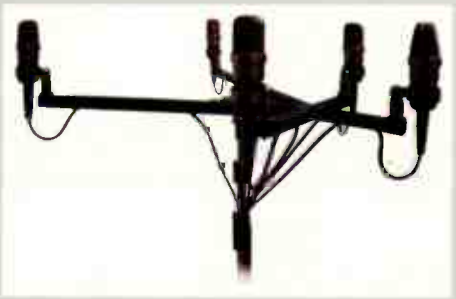
Microtech Gefell M 300

INA 5

IF one mic is good, five mics must be better, right? Not always, but that's definitely the case when you're talking about surround recording. The Microtech Gefell INA 5 "Spider" is a 5-microphone array utilizing a specially designed mounting bracket. The standard system is a complete package featuring five frequency- and phase-matched M 930 large-diaphragm cardioid microphones, five shockmounts, and the Spider bracket. As an option, five M 940 hypercardioid condenser mics can be substituted for the M 930 mics.



The Spider bracket is made of lightweight aluminum, and meets the ITU-775 specification for placement of front center, left, and right, and rear left and right microphones. The bracket can be mounted on a regular mic stand or suspended from a large boom stand.

For more on the M 930 large-diaphragm condenser mics, check out my review in the June 2003 issue. These are natural sounding microphones, with full, smooth response, good presence, and great dynamics. The M 930 doesn't offer hyped high end or boomy proximity effect, but it does provide detailed, open, "real" sound — which makes it perfect for this application.

Setting up the INA 5 is easy; screw the shockmounts onto the bracket, and slip the mics into the mounts. The mounts can turn to any angle, and you can slide them along the length of the bracket's aluminum arms to vary distances. There's a near infinite number of variations of mic orientation and distance that you could try. For simplicity's sake, I used the mics all the way out on the bracket. I experimented with turning the mics to different angles. For example, I first set the mics so that the each faced out in the direction of the "spoke" it was mounted on — this gives a 360-degree result. I also tried turning the front left and right mics so that they were 45 degrees toward the front and completely facing the front. I preferred each mic facing out, on-axis with its bracket arm.

I used the INA 5 system for more intimate recordings, capturing solo classical guitar and fingerpicked steel-string guitars in my studio. I placed the bracket on a standard mic stand, at about waist height, toward the center of the room, about six feet in front of the instrument. A number of things immediately became apparent:

1. It's a good thing that the M 930 has extremely low self-noise (7dB) as a lot of gain is required to get decent level in this situation. Which also means:

2. You need five channels of very clean preamping with lots of gain.

3. You need a very quiet room. With this much gain, any noise will be easily picked up. My control room and recording space are both in one room — no separation. My computer, which is fairly quiet, and positioned so as not to be a problem in most tracking situations, sounded like a vacuum cleaner.

4. The acoustics of the room are paramount. Two of the mics face away from the source; two others are at 90 degrees from the source. These four mics primarily pick up sound reflected off walls and other surfaces. My room is well treated acoustically for mixing, and has a nice sound for mono and stereo tracking. As a surround tracking space it tumed out to be less than ideal.

But even given item 4 above, I was amazed at the results I got from this set-up. The recordings were spacious and open, and amazingly real. For mixdown, I started with the five mics hard-panned to the five speakers. While this worked well, I had better results when I increased divergence (spread the mics out across adjacent speakers), brought the front-center mic toward the middle of the surround field, and increased its spread to feed all five speakers. I also reduced the level of the rear speakers, and dropped the front left/right levels a bit.

The result? I've never made better recordings, especially of the classical guitar. As my wife said upon hearing the recordings, "It sounds like you're sitting right in front of me playing." High praise, indeed! Perhaps most amazing, when combining all five tracks to stereo, there was no audible phase cancellation.

This isn't the rig to use for track-by-track construction of a surround production. But for capturing performances in surround — whether solo instruments or groups — the INA 5 system absolutely rocks! You'll never want to be limited to stereo again. INA 5: $6,750 with five M 930 mics. —*MG*

both steel- and nylon-string. The top end is gloriously real sounding, while the midrange has plenty of punch and presence. For regular tunings, the bottom end sits perfectly in balance. However, when I experimented with lowered tunings on the steel-string, the detuned low notes on the *E*-string began to drop off in level.

I also found the M 300 to work well on mandolin; there was plenty of attack and nice body tone. The high-end rise doesn't add harshness, rather it adds clarity and focus to the sound, especially on handheld percussion such as finger cymbal and triangle. With its punchy tone and high level handling ability, I wouldn't hesitate to use it on snare drum or toms; the M 300's top-end rise should also bring out the shimmer and room when using it for drum overhead.

I liked the M 300 on guitar amps where bottom end thump wasn't an issue — chicken-picking, twangy Teles, chimey, ringing clean tones, and crunchy rhythms all worked well with this mic. However for capturing heavier chunky

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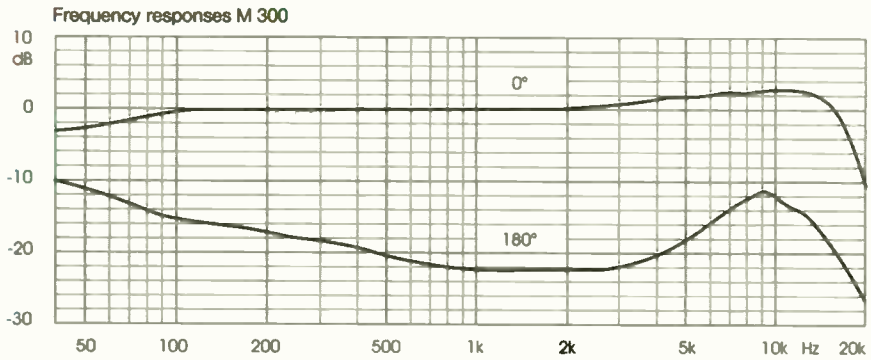
Microtech Gefell M 300



THE MANUFACTURER'S FREQUENCY RESPONSE CHART SHOWS THE M 300 HAS A FLAT MIDRANGE WITH A SMOOTH ROLL-OFF BELOW 100HZ AND A GENTLE 3DB RISE BETWEEN 2KHZ AND 10KHZ.

tones, the low end wasn't quite there, although there was plenty of sweet midrange and articulate highs for recording leads.

I moved next to using the M 300 for stereo miking of acoustic guitars. The stereo mic bar makes it easy to set up ORTF, X-Y, or other stereo setups, and I also used the two mics for spaced pair recording. With their close matching, the M 300 pair images very well, whatever angle or spacing you use.

Noise was never an issue — even with quiet sources — and the M 300 is fairly resistant to stand-borne thumps. Off-axis noise rejection is good.

THE WRAP-UP

The Microtech Gefell M 300 offers detailed, open sound quality, good presence, flat, punchy mids, and tight, controlled lows. There's not a ton of heavy bass response, but that helps the microphone articulate instruments such as acoustic guitar, mandolin, and the like extremely well. It can handle just about any sound pressure level you'll encounter, yet its self-noise is low. All in all, an excellent, versatile addition to any studio's mic locker. EQ

Strengths:

- Nice upper-mid and high-frequency lift
- Good dynamics
- Great presence
- Low self-noise
- Compact size allows for easy placement

Limitations:

- Low-end roll-off may limit use on bass-heavy sources

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GIGASTUDIO3.0

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World Radio History

Celemony Melodyne 2.1

This unique program now plays well with others

by Craig Anderton

Type: Time/pitch manipulation and recording software
Price: $789
Contact: Celemony, www.celemony.com

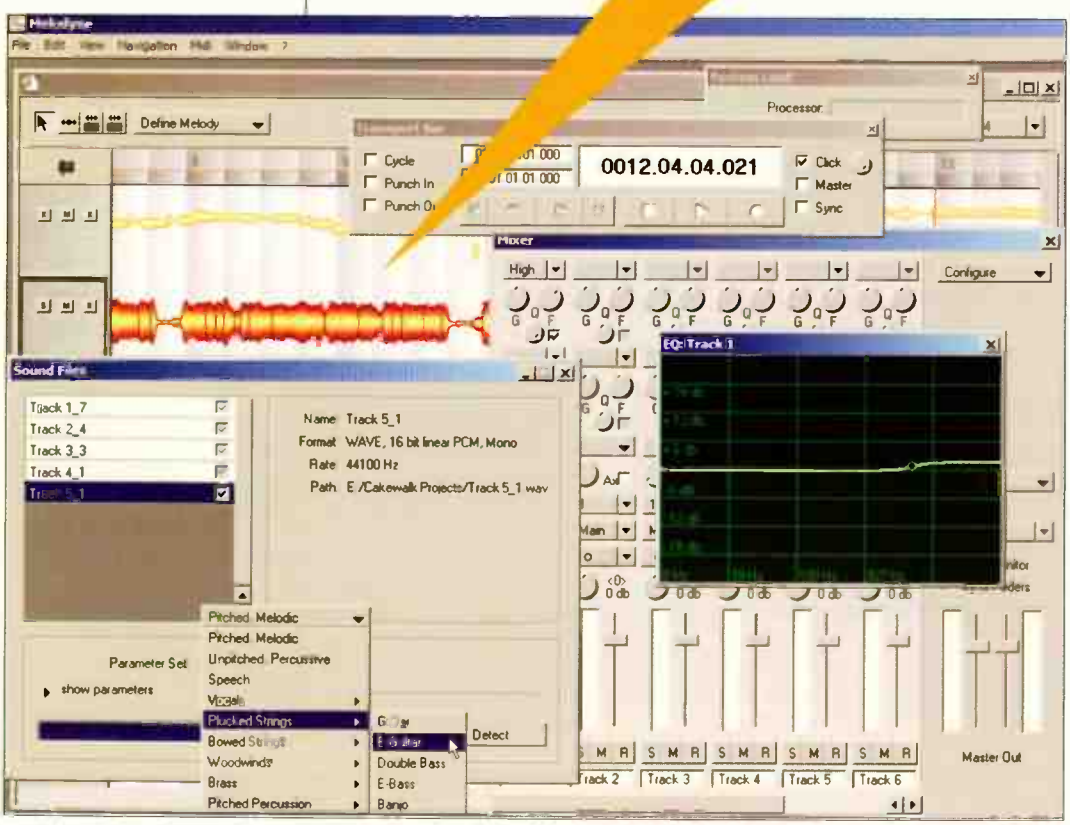
Platform: Mac OS 9/X, Windows SE/ME/2000/XP
Minimum system requirements: 256MB RAM, PowerMac, Pentium II 400 MHz
Copy protection: Serial number on installation, license key from site
Version reviewed: 2.1
Internal resolution: 32-bit floating point
Supported sample rates: Up to 192kHz
Compatible with: VST, AU, RTAS, DirectX, ReWire, SoundManager, CoreAudio, DirectIO (Mac only), and ASIO2
Supported audio formats: WAV, AIFF, SD2, SND
Synchronization: SMPTE or MIDI clock

This cross-platform, signal-bending software has a simple goal: Take audio files (voice, brass, bass, percussion, etc.), separate them into pitch and time components, and provide the tools to manipulate either component with the same kind of flexibility as MIDI data. In other words, despite working with digital audio, you manipulate notes — not waveforms.

When Melodyne 1.0 was introduced, it was a standalone application that didn't integrate well with other programs (strike 1), was Mac-only at a time when I was using mostly Windows (strike 2), and expensive (strike 3). So while I admired the technology, I filed it mentally under "cool technology, I'm sure other people will put it to good use."

But v2.1 changes all that. It now works with host programs via either MelodyneBridge (which makes the program appear like a plug-in), or ReWire (as a client or host), and processes stereo files — the original was mono only.

So I'm sitting here tweaking a vocal — creating a harmony based on the original vocal that works perfectly *and* has a different formant, so it sounds like I hired someone else to do the job. Oh yes, and I fixed a bad note while I was at it, and changed the timing a little bit. So did three strikes turn



AFTER DETECTING THE MELODY, DIGITAL AUDIO IS MAGICALLY TRANSFORMED INTO PIANO ROLL-TYPE DATA. HERE, NOTES ARE BEING QUANTIZED TO A SCALE, AND SHIFTED TO CREATE A HARMONY. ALSO NOTE THE SQUIGGLY LINES, WHICH INDICATE VIBRATO. THIS CAN BE EXAGGERATED OR EVEN ELIMINATED.

MELODYNE IS IN STAND-ALONE MODE, AND HAS JUST RECORDED SOME GUITAR SOLOS. THE ONE IN THE SECOND TRACK IS HAVING ITS PITCH DETECTED SO IT CAN BE MANIPULATED. NOTE THE SIMPLE MIXER IN THE BACKGROUND, AND THE EQ GRAPH OVERLAID ON TOP OF IT. THE TRANSPORT ALSO ALLOWS FOR PUNCH-IN, PUNCH-OUT, AND PRIMITIVE CYCLE RECORDING.

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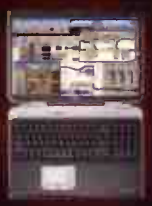

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Celemony Melodyne 2.1

into a home run? Absolutely, although it takes a little effort to get there.

MELODYNE BASICS

Melodyne is a standalone application into which you can import or record files in WAV, AIFF, SND, or SDII (Mac only) formats. It doesn't like polyphonic files; even reverb can screw things up. But it will handle complex monophonic sounds (*e.g.*, sax), not just harmonically simple ones like voice.

Once the file is in a track, Melodyne analyzes it, parses it into individually editable elements, and opens an editor window. Here you can alter timing (stretch or shorten notes, change start or end times, and even change a note's attack to be more staccato or legato), amplitude, formant, pitch (including constraint to scales), and split notes into smaller sections. For example, you might want to stretch just the *end* of a note, not the entire note, so you can preserve an unaltered attack and stretch only the part that sustains. This can happen even if you stretch an entire phrase — Melodyne knows what to stretch and what to leave alone. Or maybe you want to stretch out the attack while leaving the rest of the note unaltered; you can do that too. Yes, you really can work with this level of detail.

Although Celemony's documentation mentions that the detection process isn't perfect and may need manual tweaking, in practice it usually hit the nail on the head. (Note that while the Melodyne process doesn't work with polyphonic sound sources, you can still record them and mix them.)

The interface looks like a familiar piano roll editor, but transitions and vibrato are superimposed as lines. This is important, as you can also adjust the rate of change as one note's formant, amplitude, pitch, etc. changes into the next note's characteristics.

This is heady stuff, and while you can get useful results without too much hassle, learning the program's nuances takes some time. There's nothing like this, so you need to learn some new concepts.

Cre8 or Melodyne?

Celemony's Cre8 ($449) offers the same editing options and sound quality as Melodyne, but offers resolution up to 24 bits (rather than 32), sample rates up to 48kHz instead of 192kHz, only eight tracks for simultaneous editing (unlike Studio Edition's "as many tracks as your computer can handle"), and no DirectIO or RTAS. For the average project studio, Cre8 is sufficient unless you work with high sample rates and/or need lots of tracks.

Just Because We Can . . .

The more I worked with Melodyne, the more I was impressed by what it could do. Seeing digital audio represented as *musical events*, not waveforms, is a mind-bender. When you start editing, you're even more amazed.

But like any powerful processor, use it appropriately. At first, it was a temptation to manipulate everything just because I could; Melodyne is an outstanding fix-it tool, and also excels at special effects. After a while, though, it became clear that overdubbing a sung harmony line sounds more "human" than copying an existing vocal and constraining it to a scale. Use Melodyne for what it does best, but avoid the temptation to use it as a substitute for bad technique.

MELODYNE WORKS AS A "PSEUDO PLUG-IN" WITH HOST PROGRAMS THROUGH MELODYNEBRIDGE, WHICH TRANSFERS TRACKS INTO MELODYNE. THESE CAN BE EDITED AND PLAYED BACK IN CONJUNCTION WITH THE HOST.

A BETTER BRIDGE

MelodyneBridge allows smooth integration with a multitrack host. It's effective, but getting everything up and running is a bit convoluted. For example, suppose you want to process a vocal track in Sonar (see left). First you insert MelodyneBridge (you'll find it under DXi instruments) in a track's FX field, then open the Melodyne application, which runs concurrently with the host. Tell it you want it to go through the MelodyneBridge (as opposed to ReWire or standalone mode), and when the app appears, create a New document (which you should save for the next time you call up the project).

Meanwhile, on the MelodyneBridge, check the track(s) you want to record into Melodyne. MelodyneBridge's tracks correspond to the host tracks, so (for example) host track 1 records into Melodyne track 1.

Next, you play back the host with Melodyne bridge in Record mode, and the material gets transferred in real time into the selected Melodyne track(s).

From here on in, the procedure is like using Melodyne in standalone mode —click on the track, tell the program to detect the melody, and choose some options to help the program along (*e.g.*, specify whether the sound is pitched or unpitched, the range of vocals, if an instrument is guitar, bass, cello, etc.).

While it may sound like using MelodyneBridge is awkward, once you

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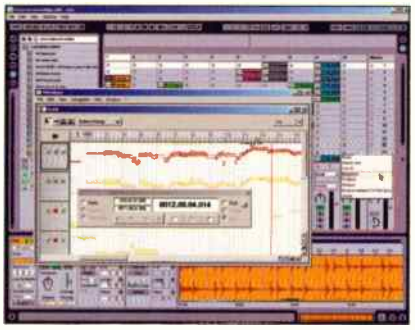
World Radio History

get used to it, the flow makes sense. However, at first I experienced some fairly spectacular crashes. A useful FAQ on the website indicated that how you set the Melodyne Preferences is a make-or-break proposition — apparently it's essential to have a bigger buffer size in Melodyne than in the host. Once I did that, all was well. Read the manual, even if it means going online to find it.

REWIRE, ANYONE?

MelodyneBridge isn't the only way to use Melodyne with other programs, as it can also serve as a ReWire client or host (however, ReWire doesn't work under Mac OS 9, only X). When rewired, its ability to record tracks is particularly useful. For example, if Melodyne and Reason are rewired together, you can record vocals in Melodyne that run in parallel with Reason, but also do all the cool Melodyne editing tricks.



WHEN USED WITH A REWIRE HOST, MELODYNE CAN "PIPE IN" AUDIO TO THE HOST'S MIXER. IT ALSO WORKS AS A REWIRE CLIENT.

EDITING

Editing seems complex at first, because there are separate tools and sub-tools for editing amplitude, formant, pitch, and duration. But this is necessary because each process is quite different and has its own characteristics, such as creating "handles" on events for pitch transposition. You can grab these handles to edit the way pitch changes from one event to another, as well as increase or flatten vibrato. Even with significant transpositions and other edits, sound quality remains excellent.

Even better, you can play a part in real time and tweak it — this isn't an offline process. And of course, when importing audio into Melodyne, if the tempo or pitch of the file doesn't quite match, no problem . . . just fix it. ➤

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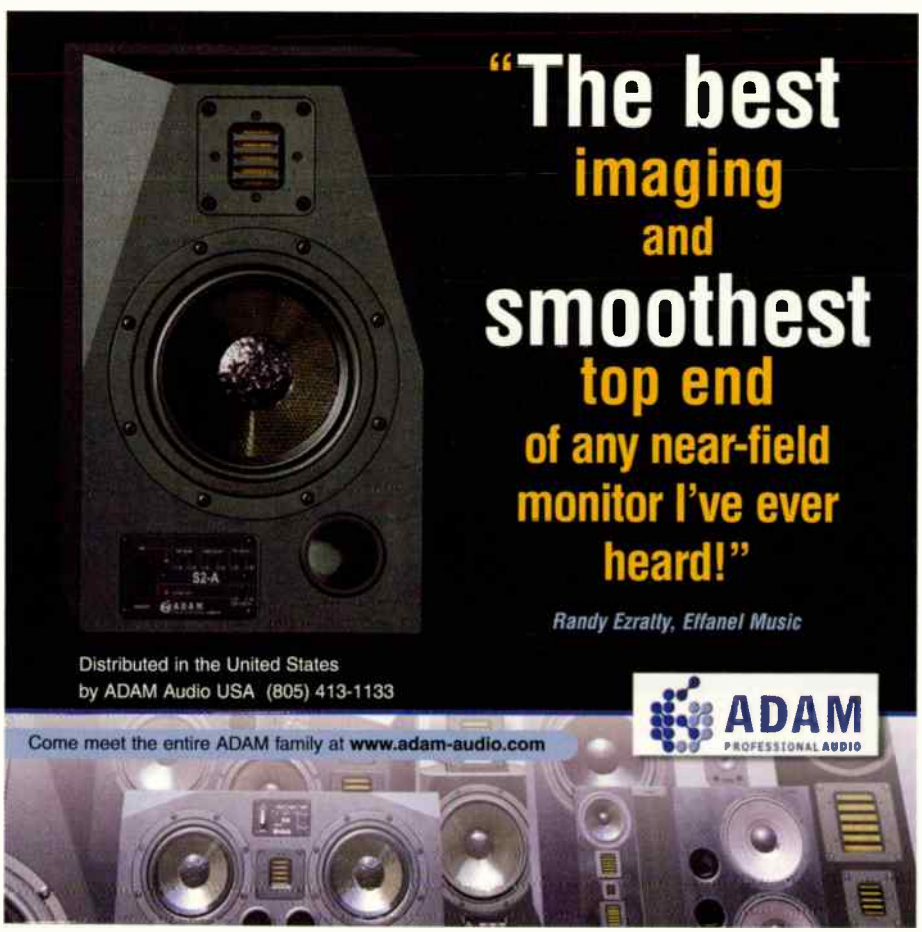

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Celemony Melodyne 2.1

MIDI

Control freaks can use MIDI to automate most Melodyne parameters. But a more interesting feature is that once you've detected audio, you can export it as MIDI data including pitch, dynamics, phrasing, etc. You may need to touch things up a bit, but if you ever wanted to "sing" a synth part, Melodyne lets you do it.

MIXING IT UP

Melodyne includes a mixer with equalization (there's a somewhat useful response graph — I wish it was a log instead of linear scale, though), aux sends and returns, effects inserts, and can even host VST and AU plug-ins. It's useful mostly in standalone mode, as when its outputs go into a host mixer, you might as well use that.

MELODYNE'S MIXER IS EXPANDABLE: ADD EQ STAGES (HIGH/LOW SHELF OR PARAMETRIC) AND AUX SENDS, WHICH CAN GO THROUGH YOUR VST PLUG-INS OF CHOICE.

PICKY, PICKY

Melodyne wasn't exactly ultra-robust; it crashed several times when I didn't play by the rules. In one instance, when it tried to register some plug-ins it didn't like, it crashed and after doing that, also insisted that I re-enter the serial number and license key. If you learn how the program works, Melodyne will cooperate. But save often, because if you do something "illegal" it could be reboot time.

PRETTY DARN COOL

Celemony is fond of running a Peter Gabriel quote in their advertising: "Melodyne allows me to do things I'd always dreamed of." Well, I gotta say Mr. Gabriel has some pretty interesting dreams. In some ways I'm kicking myself for not discovering Melodyne earlier, but then again, it's only with recent versions that the program has blossomed from a brilliant, but quirky, program into something more universally applicable.

This program must have taken a huge amount of effort, and is specialized enough that it probably won't sell a gazillion copies to help amortize that effort — hence the price. But it has an extremely high genius factor, and once you wrap your head around some of the operational oddities, you're home free with a tool that both fixes problems *and* unleashes your creativity. If, like me, this program has flown under your personal radar, give it a try. It's amazing. EQ

> Once you wrap your head around (it), you're home free with a tool that both fixes problems and unleashes your creativity.

Strengths:

- Excellent sound quality
- Innovative, useful concept
- Works well with host programs thanks to ReWire support and MelodyneBridge
- Supports high-res audio and multiple formats
- Operates as standalone recording device
- Cross-platform

Limitations:

- MelodyneBridge is functional, but awkward
- Somewhat convoluted operation
- Relatively expensive
- Crash-prone when pushed

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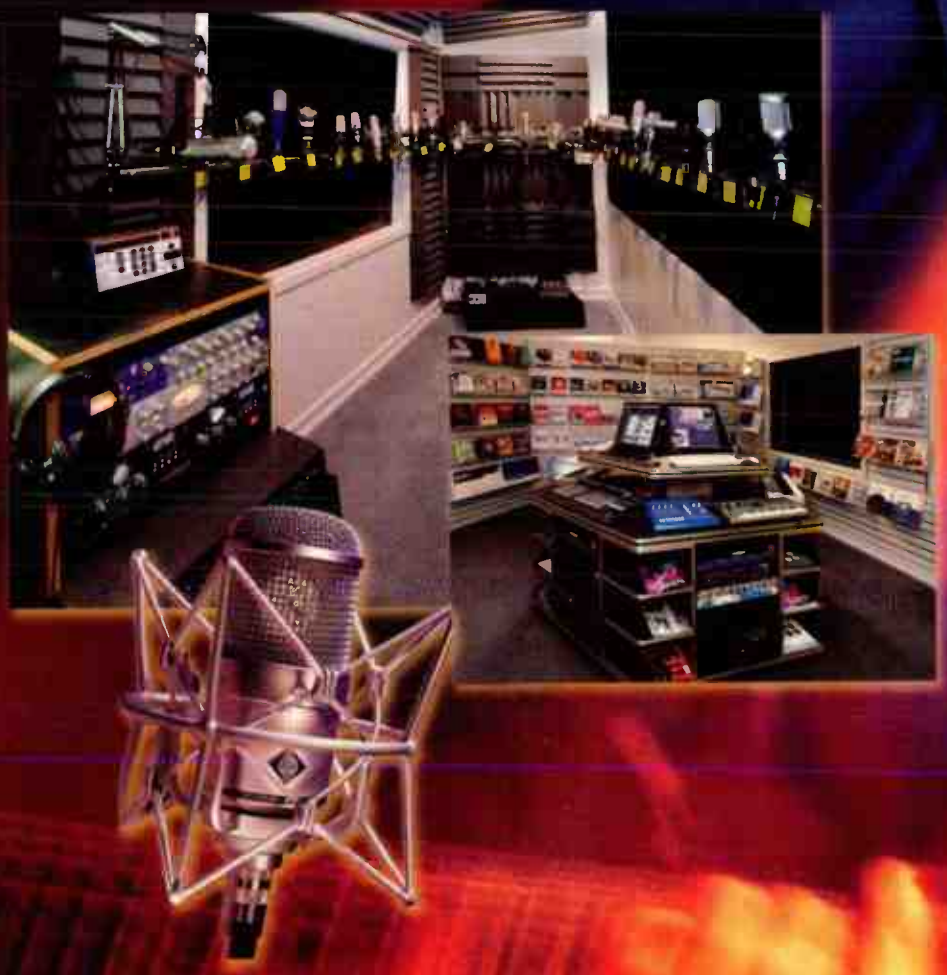

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M-Audio FireWire Audiophile

Audio + MIDI interface

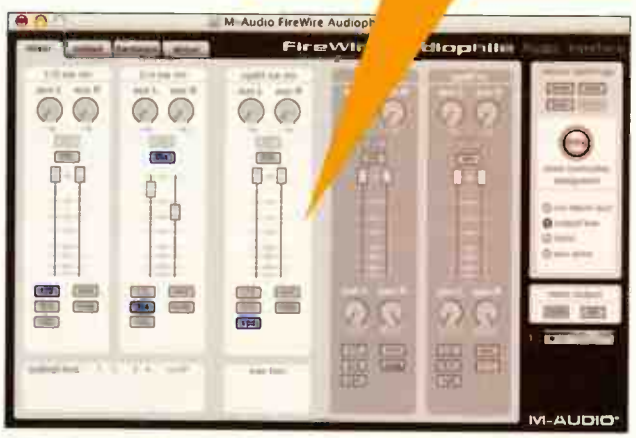
by John Krogh

Type: FireWire audio and MIDI interface
Price: $349.99
Contact: M-Audio, www.m-audio.com

Audio driver compatibility: ASIO2, CoreAudio, WDM, GSIF
Audio I/O: 2 analog inputs, 4 analog outputs (all RCA), 1/4" stereo headphone out; S/PDIF input and output
MIDI: 1-in/1-out

With the Audiophile audio/MIDI interface, the folks at M-Audio thought of everything — almost. Two FireWire cables are included (one with a 4-pin connector on one end for PCs that have a smaller FireWire port), an AC power adapter (the Audiophile can run bus-powered, but an adapter is provided for those computers that don't support bus-powered devices), and CD-ROM installers for "lite" versions of Ableton Live and Propellerhead Reason.

TWO SEPARATE STEREO SOURCES CAN BE MONITORED FROM THE HEADPHONE OUT VIA THE A/B MONITOR BUTTON ON THE AUDIOPHILE'S FRONT PANEL. HERE I'VE SET OUTPUTS 1/2 TO THE "A" MONITOR BUS, AND OUTPUTS 3/4 TO THE "B" BUS.



ROUTING ASSIGNMENTS OF LIVE INPUT AND HOST OUTPUT SIGNALS CAN BE SET FROM THE INCLUDED SOFTWARE MIXER/CONTROL PANEL.

Unfortunately, there wasn't a user manual with the unit I received. Fortunately I was able to download the manual from M-Audio's website. Good thing, too, because there's some clever functionality in this box that I might have missed if I hadn't read the docs.

One of the coolest aspects is a virtual mixer/control panel where you can control output routing and levels from host programs to the Audiophile's physical outs, as well as set monitor levels of live input signals. This kind of control isn't anything new, but what's special about Audiophile's mixer is that it supports ASIO direct monitoring. With direct monitoring, an input signal is patched directly to the Audiophile's output instead of passing through a host's virtual mixer. The result is zero-latency monitoring. The downside is that it's not possible to process incoming audio through your host's plug-ins, which would allow you to add reverb while tracking vocals, for example. To address this, the Audiophile has two virtual aux sends. A live input can be directly monitored, but also routed to the virtual aux channels, which can feed an external effects processor and be monitored along with the dry signal. You could monitor a singer without latency, and add reverb for tracking. Aux sends can also be used to set up a separate headphone mix — handy for small live gigs. What's more, the headphone jack can be switched between two sources — a must-have feature for DJ gigs where you'd want to cue up the next track in your set.

Installing and setting up the Audiophile took only minutes, and within no time I was playing Reason synths from a MIDI controller. I then synced the Audiophile to an external clock via S/PDIF — everything worked without fail. As I was setting up a headphone mix, I was surprised to learn that when left and right mixer channel levels are set separately, they'll maintain their relative balance when linked. Impressive for a box in this price range.

The only problem I had was with audible RF and internal computer noise when the Audiophile was connected to a PC laptop. I've always had problems with unbalanced audio interfaces and PCs, so I wasn't surprised — just a little disappointed that there weren't balanced audio jacks, which would have eliminated the noise. Fortunately, I didn't have this problem with my Titanium G4.

While the audio/MIDI interface world is crowded with competitors, M-Audio's FireWire Audiophile separates itself from the pack. For less than you'd expect to pay for a decent soft synth, this 1/2-rack interface combines an impressive amount of signal routing flexibility with a fun-yet-highly-functional set of software production tools. Add to this a respectable list of supported drivers (GSIF, ASIO2, WDM, CoreAudio) and you have a winner. If you're looking for a portable audio+MIDI solution, the Audiophile is hard to beat. EQ

Strengths:

- Flexible interfacing
- Cool bundled software
- Can be powered via FireWire or the included AC adapter
- Software mixer/monitor control

Limitations:

- Unbalanced analog audio connectors

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Limitations:
- Best for distorted sounds

My studio is one room — no separate tracking space. It's a room over the garage with no soundproofing (although it's well treated acoustically). So electric guitars can sometimes be a problem. I try to track at moderate levels and socially acceptable times; I've also grown fond of several amp simulators.

But there's nothing quite like a tube amp set to face-melting volume.

A number of companies have offered isolated/soundproof cabinets to address this problem. I've never been thrilled with them. Now JLH Products has taken a stab at creating the ultimate guitar isolation box. AxeTrak is small (11x10.5x13.25"), carpet-covered, and light (16 lbs.), with a handle on top.

AxeTrak is simple: 1/4" speaker in, mic-level XLR out, level LED, fuse. A "Deep Port" on the side opens to increase bass response. The unit contains a custom speaker rated to 120 watts RMS.

I used AxeTrak with my hot-rodded Marshall JCM 800 and Mesa/Boogie Mk IIb. You're instructed to turn up your amp until the level LED glows brightly. Drive it too hard, and you'll pop the fuse — I managed to do so quite quickly. Fortunately, a spare is included.

I plugged in, began listening . . . and I think my jaw may have hit the floor. This thing sounds *great*. I was amazed at the thick, punchy, crunchy tone coming from AxeTrak. It's designed for distorted rhythm and lead tones, but I found it capable of decent clean and semi-clean sounds as well. The overall tone is similar to a miked-up 4x12 cabinet. Opening the Deep Plug adds low-end thump to the sound. With the Plug open, isolation isn't as good, but AxeTrak is still very quiet.

AxeTrak provides a great solution to almost any electric guitar situation — in the studio, on stage, for rehearsal, and for late-night practicing. Crunchy, heavy, smooth, raw, AxeTrak can provide it, while staying whisper quiet in the room. I'm completely impressed. AxeTrak *rocks*. EQ

Peavey Kosmos Pro

by Craig Anderton

Price: $669.99
Contact: Peavey, www.peavey.com

Strengths:
- Unique effect works exceptionally well
- More sonic control options than the original Kosmos
- S/PDIF and balanced analog I/O
- Useful mastering tool

Limitations:
- Can't operate on both 117V and 230V
- 48kHz max for digital I/O (no 96kHz)

What do Led Zeppelin's "How the West Was Won," "Hulk, The Video Game," and Dream Theater's "Six Degrees of Inner Turbulence" have in common? Kosmos bass enhancement, which adds low-end power *without* EQ or compression. The secret: It tracks a narrow range of prominent bass frequencies, and synthesizes subharmonic content one octave lower.

Compared to the original Kosmos, there's a new look to the 1U device that owes more to a sleek Emagic soft synth than the typical no-nonsense Peavey style. Kosmos Pro retains a flexible, balanced analog input structure, but adds an output control and S/PDIF I/O.

Bass-enhancing controls remain mostly the same (subharmonic level, "Thud" EQ that adds definition to the subharmonics, Shift switch to compensate for driving bigger or smaller speakers, and a switch to send the enhanced lows only to the mono subwoofer out). However, a Deep switch can now reduce some of the highs added by the Thud control, and the new Dynamics control is outstanding — it changes the bass envelope for a "looser" or "tighter" sound.

For high frequency processing, the Xpanse control (boosts the upper-midrange/treble and expands the stereo image) has been joined by a Barometrics control that determines whether the Xpanse's treble boosting or phase manipulation predominates. A final control, Stratos, boosts highs above the Xpanse range — basically, a highly effective "air" control.

Although designed for stage/studio use, Kosmos is also a great mastering tool, particularly for adding a "you are there" vibe to live recordings. The effect needn't hit you over the head; it's possible to get subtle high- and low-end improvements. But of course, if you kick up the throttle, the bass can shake the walls while the highs sizzle like July in Houston.

If you're familiar with Kosmos, you already know this is one of those rare boxes that does *more* than expected, whether applied to individual tracks or program material. And the Pro version? Well, it's even better. EQ

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8th Annual

The John Lennon SONGWRITING CONTEST

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www.jlsc.com

Mail your entry to: **John Lennon Songwriting Contest**
620 Frelinghuysen Avenue Suite #131
Newark, NJ 07114

Each entry must consist of:

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

Entries must be postmarked no later than September 28, 2004.

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

1. Each song submitted must be contestant's original work. Songs may not exceed five (5) minutes in length. Songs may have multiple co-writers, but please designate one name only on the application. **Contestant may submit as many songs in as many categories as he/she wishes, but each entry requires a separate cassette, CD, or MP3 file, entry form, lyric sheet, and entrance fee. One check or money order for multiple entries/categories is permitted.** (Entrance fee is non-refundable. JLSC is not responsible for late, lost, damaged, misdirected, postage due, stolen, or misappropriated entries. The JLSC is not responsible for faulty file uploads accompanying online entries.)
2. Twelve (12) Grand Prize winning songs (words with music or instrumentals) will receive $5,000 in Yamaha project studio equipment, a $5,000 advance from EMI Music Publishing, and 1,000 CDs in full color, premium 4-panel Digipaks, worth $1,990 courtesy of Discmakers. One (1) Grand Prize winning song (words with music or instrumentals) will receive $20,000 for the "Song of the Year" courtesy of Maxell. Thirty-six (36) Finalists will receive $200 gift certificates from MusiciansFriend.com.
3. One (1) Grand Prize winner of the Lyrics category will have their words set to music and recorded on board the John Lennon Educational Tour Bus, and will receive 1,000 CDs of their winning song courtesy of Discmakers.
4. Contest is open to amateur and professional songwriters. Employees of JLSC, their families, subsidiaries, and affiliates are not eligible.
5. Winners will be chosen by a select panel of judges comprised of noted songwriters, producers, and music industry professionals. Songs will be judged based on melody, composition and lyrics (when applicable). **The quality of performance and production will not be considered.** Prizes will be awarded jointly to all authors of any song; division of prizes is responsibility of winners. Void where prohibited. All federal, state, and local laws and regulations apply.
6. One (1) winning songwriter's band will be selected by WARPED TOUR '05 organizers to tour and perform for one week on WARPED TOUR '05. Performance will be considered.
7. Winners will be notified by mail and must sign and return an affidavit of eligibility/recording rights/publicity release within 14 days of notification date. The affidavit will state that winner's song is original work and he/she holds all rights to song. Failure to sign and return such affidavit within 14 days or provision of false/inaccurate information therein will result in immediate disqualification and an alternate winner will be selected. Affidavits of winners under 18 years of age at time of award must be countersigned by parent or legal guardian. Affidavits subject to verification by JLSC and its agents. Entry constitutes permission to use winners names, likenesses, and voices for future advertising and publicity purposes without additional compensation.
8. CDs, cassettes, and lyrics will not be returned. Winners will be announced on January 18, 2005 on the contest's website www.jlsc.com.

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

SIGNATURE DATE

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Design: Baree Fehrenbach

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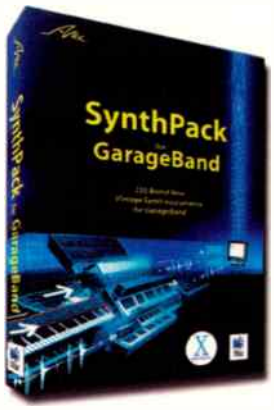
Sounds



AMG
SynthPack for GarageBand

Contact: AMG, www.samples4.com
Format: 1 CD-ROM
Price: £ 30 ($53 approx.)

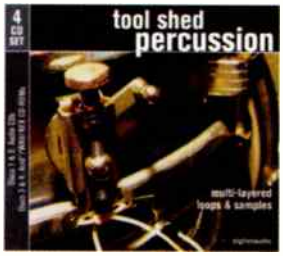
New Wave is alive and well for users of Apple's GarageBand (reviewed on page 58). It should come as no surprise, really, with VH1 running *I Love the '80s* every other hour, bands topping the charts with covers from the likes of Don Henley and Tears for Fears, and electro-clash becoming a fashionable alternative to mainstream pop. Yes, the decade of decadence is back. And it seems no one is immune, not even soundware developers. As evidence, AMG has released *SynthPack*, a collection of 150 multisampled vintage synths that recall all the greats from 20-plus years ago. Roland Juno-106, Oberhiem Matrix 12, Moog MemoryMoog, ARP 2600 — they're all here.

After running *SynthPack's* installer, an AMG instrument category appeared within GB's Track Info window. From there I was treated to all manner of retro sounds, most of which benefit from the added effects in GB's arsenal. These synths have character and a nostalgic quality that somehow gets lost in the crowd of today's analog soft synths.

There's a great selection of basses ranging from deep and muted to plucked and buzzy. Likewise, pads and sound effects are in abundance. The leads left me a little flat — they just didn't have the kind of animation I'd expect to hear from an old Minimoog or Prophet. But all in all, the flavor is there. Where appropriate, synth characteristics such as filter envelopes, attacks, etc. were sampled, which is a good thing. GB doesn't allow for very many tweakable parameters.

***Synthpack* is stocked with nostalgic synths of yesteryear. Shown here: AMG's nod to Berlin's "Take My Breath Away."**

I was disappointed the documentation didn't list which instruments were sampled, but I guess that casual users probably wouldn't know what an MKS70 is anyway. In any case, this didn't stop me from exploiting the synths for my own guilty pleasure. If you're just getting up and running with GarageBand, and you count Gary Numan as one of your musical idols, *SynthPack* is for you. —JOHN KROGH



BIG FISH AUDIO
Tool Shed Percussion

Contact: Big Fish Audio, www.bigfishaudio.com
Format: 2 audio CDs, 2 Acidized WAV/REX CD-ROMs
Price: $99.95

Whether you're composing a cue for the next *Survivor* reality series, underscoring an unnerving chase scene, or spicing up a ballad with some moody rhythm tracks, you'll want to keep a copy of *Tool Shed Percussion* close by. This collection of 49 rhythm beds is chock full of inspiring, expertly produced, and highly musical drum and percussion loops performed at a variety of tempos, time signatures, and feels. You'll find 6/8, 3/4, 4/4, swing, straight . . . it's all here, and it's all live. What's more, everything has been Acidized and REX'd for maximum flexibility.

TSP is tribal and organic sounding, thanks to the frequent appearance of traditional auxiliary percussion and use of odd and unusual "instruments," including tuned bamboo sticks, African clapstick, circular saw blades, trash can lids, Samsonite suitcases, crumpled potato chip bags, garden rakes, and much more. None of the loops are authentically Asian, Latin, or African, of course — just a hint of "ethnic" without coming off as the real thing, which makes it easier to mould the loops into whatever flavor you're going for.

Arrangment-wise, there's a basic formula: layered percussion on top of acoustic drum kits comprising vintage snares, kicks, and cymbals, which provide a darker, mellower tone than most modern kits. Kicks rumble, boom, and drone. Snares thwack like cardboard, while cymbals sizzle and steam.

Many of the kicks have obvious harmonic centers. Consequently, I found it necessary to re-pitch kick tracks separately to make them fit my needs. Fortunately, loops are presented as construction kits, so tweaking individual parts wasn't difficult. In fact, I have to commend the producers for doing an excellent job at isolating *all* of the elements. I've heard many construction kit libraries where only a few parts are broken out — not so with *TSP*.

Effects processing is kept to a minimum, but what's there is tasteful. Deep, rich reverb might only be used on one or two accent sounds, for example. It's enough to give a sense of air and ambience, but most of the material is dry enough to allow for further sweetening.

I can't heap enough praise on *Tool Shed Percussion*. Its documentation is informative and complete, the loops ooze with musicianship, and it's presented in several formats. This one's an undeniable winner.

—JOHN KROGH

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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

Digidesign ICON, Command|8, and Pro Tools v6.4

by Mitch Gallagher

What is it? ICON: Integrated console/hard disk recording solution. **Command|8:** USB-based hardware control surface for Pro Tools TDM and LE. **Pro Tools 6.4:** Latest version of Digidesign's professional DAW software.

Who needs it? ICON: Post-production houses, high-end music studios, high-end project studios. **Command|8:** Pro Tools and other DAW users looking for affordable but comprehensive hands on control. **Pro Tools 6.4:** All Pro Tools users!

Why is it a big deal? ICON: Integrates Pro Tools completely into the studio environment by providing a console-like control surface combined with hard disk recording, mic preamps, synchronization, MIDI interfacing, and more. **Command|8:** USB-based control surface that comprises MIDI I/O and analog monitor control. **Pro Tools 6.4:** New features include automatic delay compensation, Track Punch, hierarchical plug-in menu, and more.

Shipping: Now

Retail Price: ICON, prices vary with configuration, starting at $60,000. 16-channel Fader Module expander, $30,000. **Command|8**, $1,295. **Pro Tools 6.4**, TDM upgrade $150, free for registered owners of PT LE 6.x.

Contact: www.digidesign.com

Pro Tools has come a long way from its humble roots as a simple audio editor. The current incarnation of the DAW is in use everywhere from home studios to the most elaborate top-end post- and music-production studios. At the mid-April NAB tradeshow in Las Vegas, the company was showing the latest in their expanding line of products: ICON, Command|8, and Pro Tools version 6.4.

ICON

Digidesign's ICON (Integrated CONsole) is much more than just a high-end control surface — although a control surface is certainly part of the package. The integrated environment brings together the new D-Control worksurface, Pro Tools|HD Accel, the XMON monitor control system, Pre 8-channel preamps, and I/O options such as the 192 I/O, 192 Digital I/O, 96 I/O, 96i I/O, Sync I/O, and MIDI I/O.

D-Control is custom-configurable. The base unit offers a center section with dedicated controls for EQ and dynamics plug-ins as well as monitor and communications control. It includes 16 channel strips, each with a Penny and Giles fader, six touch-sensitive rotary controllers, and 29 illuminated pushbuttons. Each rotary controller has its own multi-color LCD display. Metering is via dual bargraph displays per channel strip, as well as eight output meters. The worksurface can be expanded with optional 16-channel Fader Modules. Communication with Pro Tools is via high-speed Ethernet connection. A mounting arm for a flat-panel display is included with the base unit. D-Control can be expanded to 80 channel strips.

Highlights of D-Control include dedicated EQ and dynamics panels in the base unit center section. The panels can address supported plug-ins with dedicated knobs, displays, and pushbuttons. These panels, combined with a "Focus Channel" feature, allow you to make adjustments to any channel

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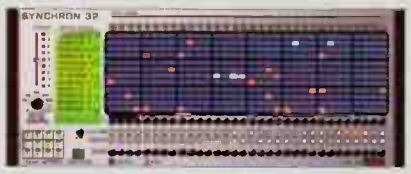
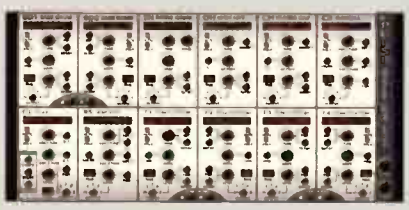
project5

SOFT SYNTH WORKSTATION





"Highly Addictive" – EQ, June 2003

Project5 Soft Synth Workstation is the cutting edge tool for the next generation of music production. Project5's dynamic interface combines the best of pattern-based and live-input sequencing, with powerful looping tools– making your compositions come to life faster than ever. Project5 comes loaded with inspiring synths and samplers, creative effects, and professional sample content. Combined with its support for industry-standard effects, synths, and samples* you can take your sound beyond the rack.

"Project5 is meant for those trying to create the in-sounds of now where the groove is king"
– DJ Times, November 2003

"Its instruments and effects are phenomenal"
– Computer Music, May 2003

"There's something about Project5 that just makes music happen"
– Sound on Sound, June 2003

"There's no need to wait any longer, Project5 has arrived"
– Keyboard, June 2003

Experience the addictive qualities of Project5: available at music retailers world wide. Visit **www.project5.com** for more information and to download the demo.

* Supports ReWire™; ACID™-format loops; DirectX & VST™ Effects; DXi & VSTi™ soft synths; and AIF, Akai™, Kurzweil™, LM4™, SF2™, WAV samples

cakewalk

ASIO DXi Re Wire

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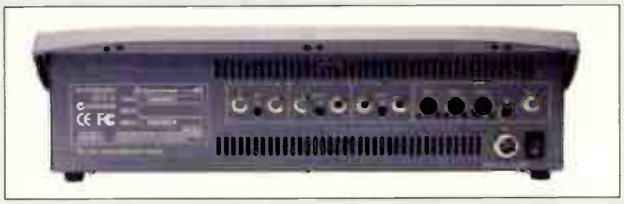

in a session without leaving the monitoring sweet spot.

D-Control includes complete control over Pro Tools software. Dedicated sections of the base unit provide access to windows management and file functions, while soft keys control edit, track, MIDI, and other functions. A QWERTY keyboard and trackball are built into the unit.

The XMON monitor system is a rackmount unit that connects to D-Control using a 15-pin cable. XMON can accept two multi-channel sources (up to 7.1 surround each) as well as four stereo sources. These inputs can be routed to main, nearfield, or mini monitor outputs. Also included are three separate stereo cue outputs, studio monitor outs, a dedicated engineer's headphone out, and internal or external talkback mic. D-Control provides remote control over all XMON switching and level functions. D-Control can also remote-control the parameters of Digidesign's Pre 8-channel microphone preamp.

While a full review has yet to be done, I did have an advance opportunity to spend an afternoon with ICON. The unit looks great, seems well thought-out, and has the feel of a high-end console. Little touches abound, such as the dish-shaped surrounds around the knobs, which allow you to easily see settings, even from the opposite end of an expanded console. I was impressed with the comprehensiveness of the controls — once you've learned the console, the computer display will likely become of secondary importance, used only for reference when editing and setting up a session. While a final verdict will have to wait for a full *EQ* review, ICON appears to be the hands-on studio system that high-end DAW users have been waiting for.

COMMAND|8

Don't have $60,000+ set aside in your studio budget this year? For those looking for a slightly more affordable *entré* to hardware control, Digidesign offers the Command|8, the company's most affordable control surface yet. The Command|8 is designed to provide a depth of control not found in generic controllers, through direct synergy with Pro Tools TDM and LE. Command|8 features eight bank-switchable touch-sensitive faders. Each channel strip also includes a rotary encoder with an LED ring and a channel meter, along with solo and mute controls. A 110-character backlit LCD displays full track, plug-in, and parameter names and information.

Focusrite designed the onboard analog monitor section, which features two selectable stereo inputs and stereo monitor outputs. Analog connections are separately switchable between –10 and +4 operation. In addition, there's a built-in headphone amp.

Command|8 has one MIDI input and two MIDI outputs. It can function as your system's MIDI interface, or can be used as a stand-alone MIDI controller, sending continuous controller messages to any device that can accept them. Controls can be mapped to third-party MIDI applications and devices.

USB is used to interface Command|8 with a PC running Windows XP or a Mac running OS X. Although multiple Command|8s can't be used simultaneously, you can use one as an adjunct to a Digi 002, Control|24, or ProControl.

I was able to briefly get up-close and personal with a Command|8, and while it has similarities to a Digi 002 in appearance and control-surface capabilities, its huge LCD takes things to a higher level.

PRO TOOLS 6.4

The latest software release from Digidesign is version 6.4 for both TDM (HD) and LE systems. Version 6.4 provides support for ICON, Command|8, and AVoption|V10, as well as a number of powerful new features. Two of these features will immediately catch the eye of long-time users: Automatic Delay Compensation has been a long-requested feature. Pro Tools now automatically compensates for delays from plug-in latency and busing and routing within the Pro Tools mixer. Also new is the hierarchical plug-in menu, which automatically arranges plug-ins into subfolders based on their type. If you have many plug-ins installed on your system, you'll be happy to see this one, and the ease with which you can locate desired plug-ins.

TrackPunch (HD only) is designed mainly for film work. It enhances QuickPunch to allow users to independently punch tracks in and out of record using the track arm buttons. A new Track-Input (HD only) feature allows monitoring to be switched between input and playback on a per-track basis.

Pro Tools faders now provide 12dB of gain over 0dBfs, up from +6dB in earlier versions. Digidesign says the faders have a new taper, more closely resembling traditional "console" feel. Clip indication has been improved to more accurately show where in the signal path clipping is occurring (HD only); a big benefit for properly gain-staging signals.

With the new Track Position Numbers, each channel has an assigned fixed number, allowing for better organization and easier access to tracks via a control surface. Other enhancements include RecordLock (HD only) for dealing with discontiguous time code, support for 23.976 frames per second high-definition video (HD, LE with DV Toolkit), feet+frames display enhancement (HD, LE with DV Toolkit), and more.

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SOURCE CODE: EQDFGE

World Radio History

by Todd G. Tatnall

Troubleshooting in Mac OS X

Even the latest audio and MIDI workstations can develop problems from time to time. Inevitably, disaster strikes on the weekend or during a late night session. Tech support is closed, and the client is looking over your shoulder. Instead of pulling your hair out, try troubleshooting the problem yourself. We'll cover Macintosh OS X in this installment, and deal with other systems and specific programs in upcoming columns.

PREVENTIVE MEDICINE

Troubleshooting begins before the problem starts, by being prepared. Adhere to guidelines set by software and hardware developers including compatibility, system requirements, and settings. Tweaking OS X settings can help reduce problems, as well as stop problems when they occur:

■ The "Sleep" low-power state can interrupt audio and MIDI devices. Disable Sleep options and schedules in the Energy Saver panel. You may also want to disable Screen Effects.

■ Software Update allows your Mac to automatically check online for OS updates. This can cause conflicts with some DAW software. Disable this feature in the Software Update panel. Disable the similar setting in the Quicktime panel as well.

■ The Classic environment allows some Mac OS 9 applications to run within OS X. Make sure that "Start Classic when you log in" is turned off in the Classic panel and enable "Warn before starting Classic" to keep Classic from launching unexpectedly.

ERROR, ERROR, ERROR. . . .

When a problem arises in your DAW, it often generates an error message. Carefully document such messages. Be sure to check for error message solutions in manuals and online.

WEEKEND UPDATE

Be sure to check for software updates online. Developers are posting software updates at a faster pace than ever, so don't assume that your version is always the latest. Before you install new software, check online first for updates.

BAD MEMORIES

You may want to test for defective RAM modules. The most effective way to test RAM is to carefully remove one module (or a pair if necessary, as in G5s) at a time. Test the system without various modules in the system to determine whether the problem follows a particular module. Always handle RAM carefully!

DRIVEN

Make sure there's plenty of un-fragmented space on your audio drive. Even if you intend to make a short recording, many applications require large expanses of disk space to ensure proper recording. Disk utilities such as Norton Speed Disk from Symantec can help create as much contiguous free space as possible.

Formatting drives using "low level" or "zero all data" options is a great way to make sure a drive is in good shape. It's not a bad idea to back up and format your recording drive every few months. In most cases, you can use Apple's Disk Utility (included with OS X) to format drives. Look for the "Zero all data" option in the Erase section. This takes much longer, but scans and erases the entire drive instead of simply erasing the directory.

PERMISSION GRANTED

Because Mac OS X is based on UNIX, access privileges — permissions — are taken seriously. Every doc, app, and folder on your hard drive has permissions that state whether that file can be read, written to, and so on. Problems can occur if permissions for files or folders are incorrect. To make sure permission settings are correct, use the Disk Utility First Aid to verify then repair permissions. Some techs recommend repeating this process. It's also recommended to do this after updating software.

PREFERENTIAL TREATMENT

Applications, including DAWs, keep preference files that contain settings for the software. These files can occasionally contain incorrect or corrupt information. Deleting preference files by dragging them to the trash forces the application to automatically create a new preference file. Check manuals, online, or tech support for specifics on trashing prefs for your DAW.

CORRUPTION

In some cases, your DAW software can be corrupted. If other things don't help, try uninstalling and reinstalling the application. Most OS X applications include Uninstall options on their installation discs. Some applications may require that you use the OS X finder to search for key words such as the application or manufacturer name, and then drag the found items to the trash.

LAST RESORT

If, after all that, you can't solve the problem, contact tech support. You'll still know a lot more about your system and the nature of the problem, which will allow you to report the problem more clearly. As a result, tech support will be able to help you find a solution more efficiently, and you'll be back up and running soon. EQ

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

World Radio History

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by Lisa Roy

Vocals: Chris Robinson

"I think people will be surprised to know that we cut the record in a little over two weeks," muses Chris Robinson. After achieving multi-platinum success with the Black Crowes in the '90s, Robinson wowed us once again in 2002 with his first solo release. The follow up, *This Magnificent Distance*, is due to hit radio this month. True to his roots, Robinson delivers 13 tracks of mind-bending rock and pure psychedelic sonics. "The last record I made was in a little, dusty analog studio in Paris. I've learned a lot about what's going on in music in terms of how people are making records and what's important to them. When I was ready to do this record I definitely wanted to be in a bigger space with more air . . . I wanted a bigger band sound. The first one was more intimate, a Sunday morning kind of record. This one I wanted to be more dramatic and theatrical."

Dramatic, theatrical . . . this record is like a 7-layer burrito — it's got all the right ingredients! Robinson was kind enough to share his secret recipe for delicious rock vocals with *EQ*.

DATE: September and November 2003
STUDIO: Groove Masters and 4th Street Recording
LOCATION: Santa Monica, California
ARTIST: Chris Robinson & The New Earth Mud
PROJECT: Cutting vocals with Chris on *This Magnificent Distance*, Vector Recordings
PRODUCER/MIXER: Chris Robinson and Paul Stacey
ENGINEER: Paul Stacey (except for "Mother of Stone" and "Like A Tumbleweed In Eden," produced and mixed by Ethan Johns and Chris Robinson, engineered by Ethan Johns)
ASSISTANT ENGINEER: Bil Lane and Rich Tosi at Groove Masters; Neil Couser and Scott Wiley at 4th Street Recording

SIGNAL PATH

"We set up in a room in Jackson Browne's studio, Groove Masters, and cut everything to Emtec 900 tape on the Studer A800-Mk III," shares Robinson. "No one makes their records to tape anymore. It took a couple days to love the machines back into wanting to sound good. But once we got up and going it was great. I did some of my vocals there using the Beyer M160. The vintage tube mics don't sound good on my voice because I'm a loud singer. I need a mic that can handle that. Any old ribbon is going to sound better on my voice because I'm that type of physical singer. We ended up using a few different ribbon mics."

Chris Robinson tracks vocals for *This Magnificent Distance*.

MIC TECHNIQUE

When setting up for his vocals Robinson believes in the "less is more" theory. "At a certain point of a record I like to be in small spaces. At Groove Masters I did my vocals in their iso booth (12'x12'). At 4th Street Recording I set up in the main room (32'x14'). I don't see any reason to be in a gigantic room to do the overdubs. It's the inherent nature of the kind of music I'm interested in; it shouldn't be perfect. It should feel good, and being human we don't ever get perfect."

PROCESSING

"None at all was used . . . what's that for?" laughs Robinson. "You can hear technology making people sound good. Maybe the way we make records isn't as important as what is on the records and vice versa. The way we tour and the way we perform it's all part of what you're putting out there. I don't understand loving music so much if you have a computer do the work for you. And I'm not a 'Pro Tools is evil' guy. Pro Tools is an amazing tool. A hammer is a useful tool but you don't buy a bunch of hammers, throw them on the ground, and expect them to make a beautiful house. We try to make records as technically un-advanced as possible. It's about being in a kinetic creative space. We didn't have a lot of time to be in the studio on this record. The best way to work is to get in there and just let it go. So no processing was really used. A few times Paul [Stacey] would run my vocals through a Neve 1073 and an UREI 1176 but that's it."

TRACKING JOURNAL

Robinson's vocals on *This Magnificent Distance* have a certain physical immediacy that begs the production secret to his technique: "Not being precious with it and being in a natural place to deliver," confides Robinson. "Since I've become the primary songwriter, I find a different way to express myself. In my own little weird way the lyrics and the vocals on this record are probably my favorite that I've done as a whole." Robinson is quick to share the credit with his co-producers. "A few years ago, Paul and I first started working together at his studio in London and we got a good feeling of how it would be to work with each other. You have to be inspired by those moments and say 'we're speaking the same language and feel the same way about making records.' I had the exact same experience with Ethan [Johns], who co-produced two tracks on this record. They were both really easy to communicate with, real up front and honest about music and the different aesthetics we're trying to work into the records we're making. That's a great place of inspiration. This is truly about feeling validated by not just your talent but your creativity, imagination, and how in touch you are with different parts of how you feel. When we [the Black Crowes] were teenagers and selling millions of records every week — I started with the same ideas back then. A lot of things change in life; the one thing that doesn't change is that I love and respect the tradition I get to work in." EQ

Photo by Darren Ankennan

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CMP

World Radio History

by Paul de Benedictus

Spectrasonics Atmosphere

Patch Morphing

Objective: Morph between patch layers

Background: Atmosphere has two layers, each of which can have its own preset sound. Here's a way to morph between the layers to create interesting, constantly shifting sounds.

Step by Step: You're just steps away from morphing patches in Atmosphere.

1 First, choose the patches you want to morph between. Do this by selecting A and clicking underneath in the Layer Selection Name. Then click B and choose another patch. For this example I used "PPG Cascade Sync" for Layer A (in Big Swells: PPG Cascade Swell: PPG Cascade Sync) and "Sitarine" for Layer B (in Intricate Motion: Sitarine).

2 Next link Layers A and B for editing. Click the Link button between the Layer A and Layer B buttons; it will highlight. You are now editing parameters for both layer A and B at the same time.

3 Set the LFO depth and rate. In the LFOS section click 4 (it should highlight blue). Turn up the Depth knob until the Value Display readout shows +127. Set the Rate knob to 0.32Hz (again watch the Value Display readout). This sets the morph speed between the layers.

4 Now set the modulation destination for LFO 4. In the Modulation section, click the menu button above Amp, and in the pop-up menu choose LFO 4. Set the Amp knob to +127.

5 For the next step we want to edit Layer A only. Deselect the Link button so it's not highlighted. Click the Layer A button so it highlights. You are now editing parameters for only Layer A.

6 We need to invert the LFO depth for Layer A. Click the blue LED light below the Amp knob so it changes to yellow. The Value Display now shows –127. If you select Layer B, notice that the Amp LED is blue and the value is +127. LFO 4 is now controlling the amplitude of Layers A and B, but the sweep is inverted on A so as one layer turns up, the other turns down.

7 Play your keyboard. The patches will morph between one another.

tips

- If you change patches on either layer, you may need to go back and re-set up LFO 4.
- For faster change between layers, speed up LFO 4, for slower morphing, slow it down.
- If the base pitch of each patch is the same, try transposing Layer B up by 12 semitones.
- Try adding some pan action to create even more movement. You can either hard-pan the two layers left/right, or modulate panning.
- LFO 4 was used because it's free-running and doesn't restart the phase with each note-on message.

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World Radio History

by John Krogh

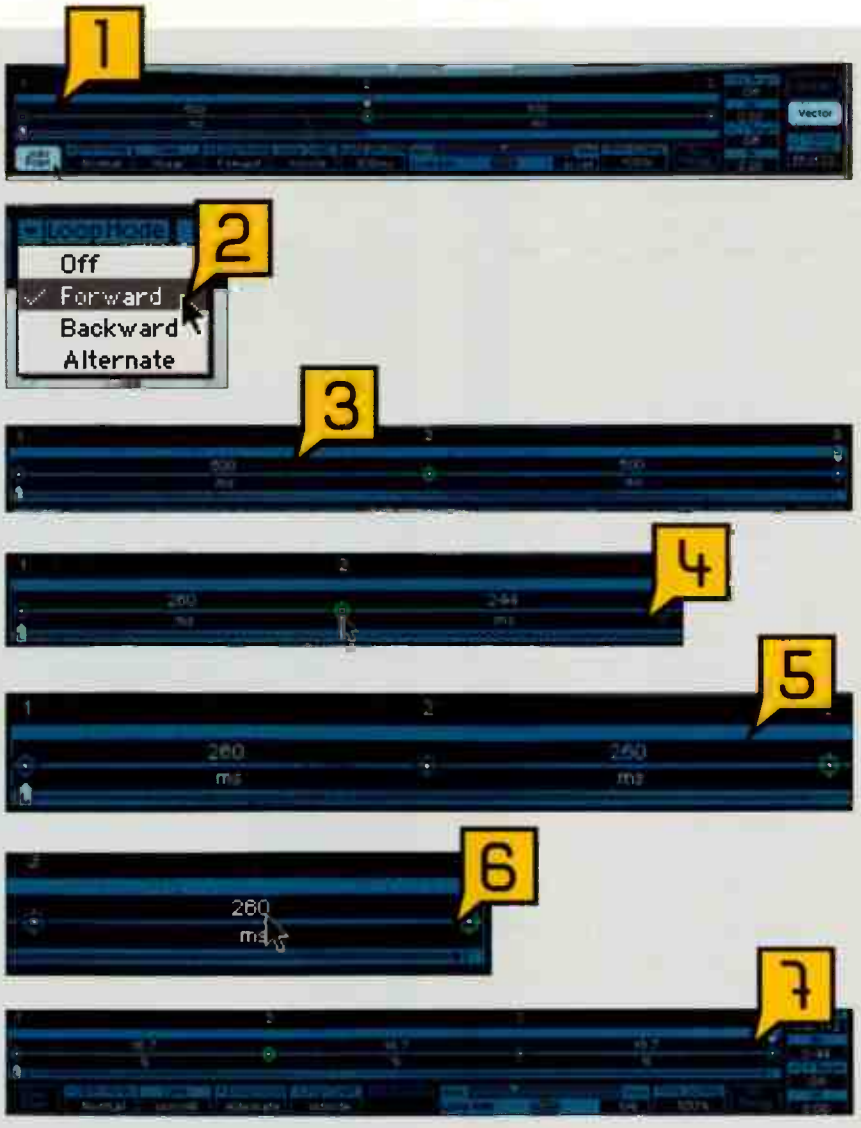
Emagic Logic ES2 vector+wavetable synth

Vector envelope programming 101

Objective: Learn how to use a vector envelope to create step-sequence sounds and effects.

Background: Last month we came to grips with the ES2's basic building blocks of sound generation. This month we'll see how the vector envelope can be used to produce rhythmic sounds and effects. The vector envelope doesn't look like a typical grid or step sequencer, which makes it a bit tricky to understand at first. But after working through these steps you'll be well on your way to crafting all sorts of percolating synth patches.

Step by Step: It takes less than 10 steps to turn a static pad or sustained lead into a bubbling rhythm generator.



1 **Start by initializing the ES2 by choosing Default from the patch menu. Then switch to the vector view by clicking on Vector. Click on Solo Point to turn it off (it should not be highlighted). With Solo Point turned on, we won't be able to hear the envelope loop.**

2 **Next, turn on Loop mode by choosing Forward.**

3 **Position the Sustain and Loop markers so the loop begins with the first point, and sustains at the last point (as shown in Step 3).**

4 **An envelope can have up to 15 control points; for demonstration purposes let's add one point for a total of four (three points are inserted by default). This will be the basis of a 16th-note rhythm. To add a point, Shift-click between the first two points.**

5 **There's no "snap-to" feature for inserting points. Instead, you must first insert the point(s), and then click Fix Timing to position the points evenly.**

6 **To correct the last portion of the loop, drag the timing value to match the timing of the other segments. Now you're ready to assign parameter values to each point.**

7 **Set the X Target, Loop Rate, Loop Mode, and Curve values to those shown in Step 7.**

8 **To assign a specific cutoff value to each envelope point, select the point you want to define, then move the cutoff value using the X/Y pad. When you're finished, the synth will be transformed into a rhythm machine.**

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World Radio History

by Craig Anderton

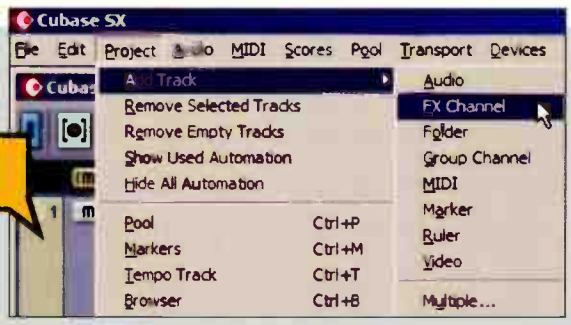
Steinberg Cubase SX

Liven up dull tracks with a dose of harmonics

Objective: Create more "air" and "brightness" without traditional EQ

Background: Some sounds (particularly electronic ones) tend to sound dull compared to other instruments. "Exciter"-type processors are the usual answer, but you can use Cubase SX's existing processors to create a similar effect. If you put the processors in an FX Channel, you can edit the amount of the effect for individual tracks by using their Send controls.

Step by Step: Any tweaking will likely be done by going back and forth between steps 5 and 6.



1. **Create an FX Channel by going *Project* > *Add Track* > *FX Channel*.**
2. **Name the FX Channel, then click on the FX Channel's "e" icon (Edit Channel Settings).**
3. **Click on the 7th or 8th insert slot (so that the effect is post-EQ — very important!) and go *Distortion* > *DaTube*.**
4. **Set all the DaTube parameters values to maximum (100% Drive, 100% Balance, 0.000 Output).**
5. **Adjust the FX Channel's EQ settings as shown to remove everything except the highs (see tips).**
6. **Turn up the FX Channel's fader (shown far left). For each track you want to enhance, assign one of its sends to the FX Channel. Then turn up the track's Send control (shown above the three right faders) to the FX Channel until you hear the desired amount of boost.**

tips

- This technique works with just about any host program that lets you put a distortion effect post-EQ. Send only highs to the distortion.
- For a more obvious effect, in step 5 change the third EQ stage's frequency from 350Hz to 100Hz. You'll likely need to bring down the FX Channel level to avoid excessive brightness.
- A little goes a long way! Your ears get acclimated to the brighter sound pretty quickly, so be careful not to make everything sizzle.
- To hear a comparison of a straight drum part and the same version processed with this technique (highly emphasized to make the difference easy to hear, even with an MP3), go to www.eqmag.com.

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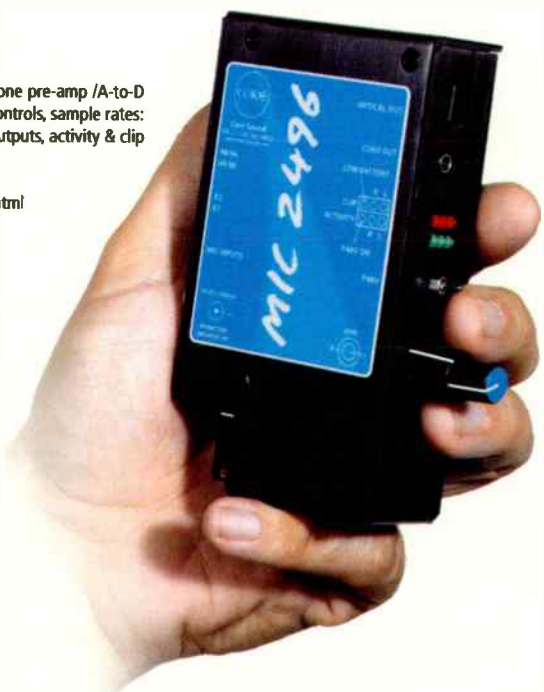

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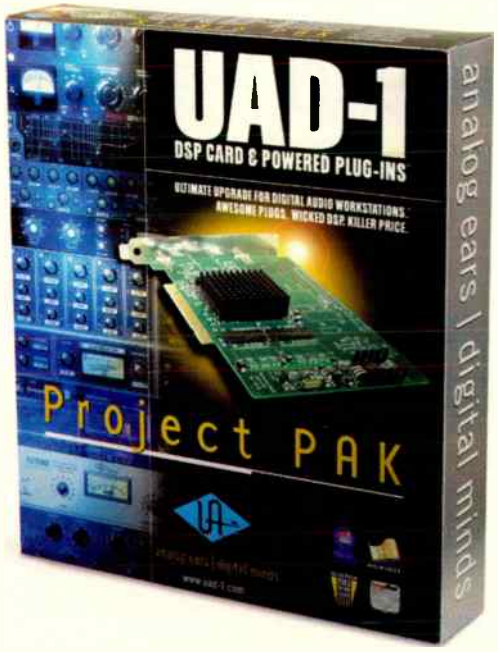

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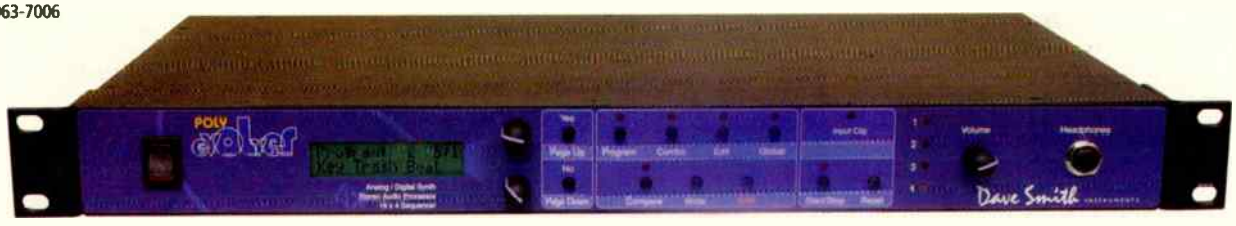

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World Radio History

by John Krogh

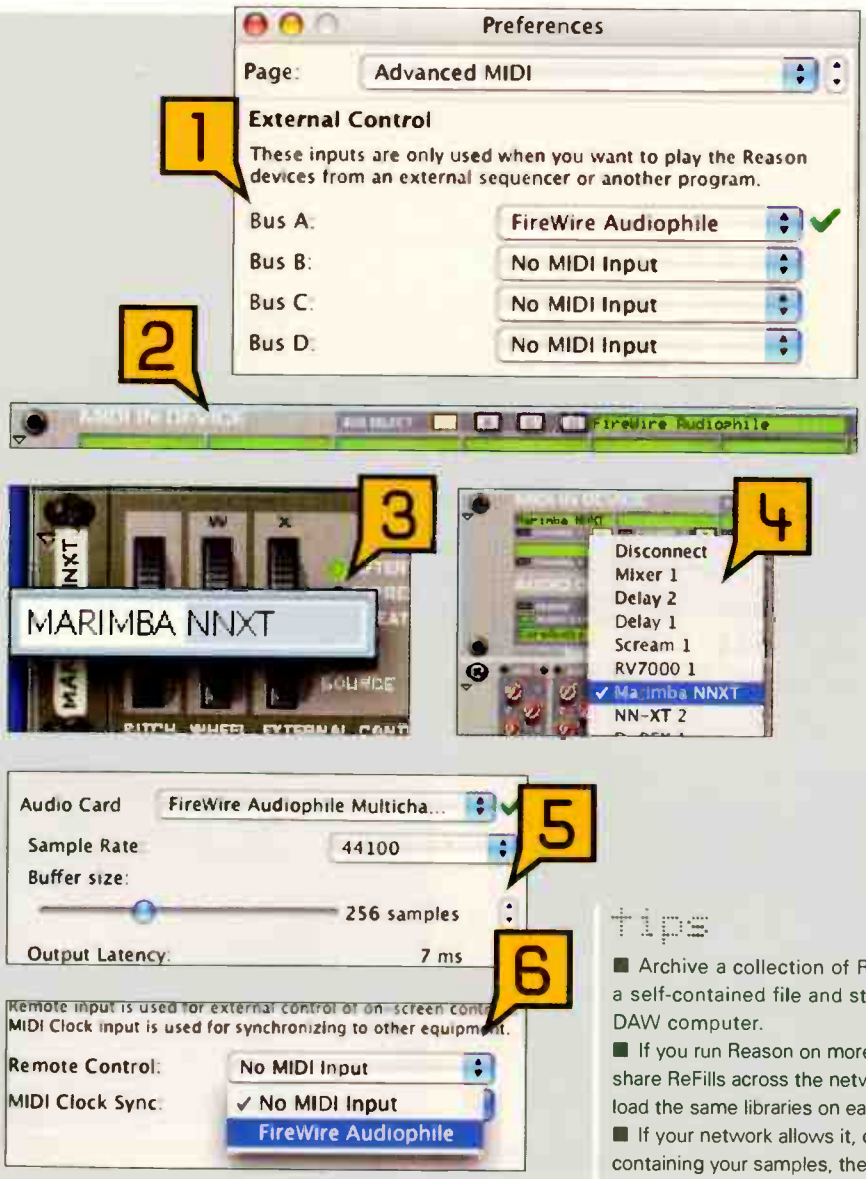
Propellerhead Reason

Using Reason as a stand-alone synth rack

Objective: Configure Reason as a stand-alone rack of virtual instruments.

Background: You may already know that Reason can run side by side with a host program on the same computer via ReWire, Propellerhead's multichannel audio and MIDI patching protocol. But Reason can also be set up to run as a stand-alone rack with up to 64 MIDI inputs, allowing you to send MIDI data to a second computer running Reason just as you would with external synth modules. (Note: You'll need to physically patch MIDI inputs and audio outputs from the Reason computer to your host computer.)

Step by Step: A rack of Reason synths can be set up for external MIDI input in just six simple steps. Repeat steps 3 and 4 for each instrument in the rack.



1 **Assuming you've installed MIDI and audio hardware for your dedicated Reason computer, launch Reason and select Advanced MIDI from the Preferences. Each of the four MIDI busses (A–D) can have their own physical MIDI port assignment for up to 64 MIDI channels. Select the MIDI interface for Bus A, then close the Preferences window.**

2 **From the MIDI In Device (located at the top of Reason's rack), select Bus A.**

3 **Create an instrument such as ReDrum or Subtractor, then give it a descriptive name such as "Deep Bass" or "Disco Kit." Naming the instrument will make identifying it easier from the MIDI In Device.**

4 **Assign this instrument to MIDI channel 1 from the MIDI In Device. At this point, you should be able to play Reason's synth(s) from an external MIDI controller or a DAW on another computer.**

5 **Optional: If there's too much latency when triggering the synths, lower the sample buffer on Reason's audio interface.**

6 **To ensure BPM-synced delays and LFOs are in time with your host, adjust Reason's tempo to match your song. Alternatively, Reason can recognize MIDI clock messages.**

tips

- Archive a collection of Reason instruments by saving the rack/song as a self-contained file and storing it with the session files on your main DAW computer.
- If you run Reason on more than one machine, network the computers and share ReFills across the network. You'll save hard drive space by not having to load the same libraries on each Reason computer.
- If your network allows it, create an alias of the hard drive or folder containing your samples, then assign it to one of Reason's four sample location default folders.

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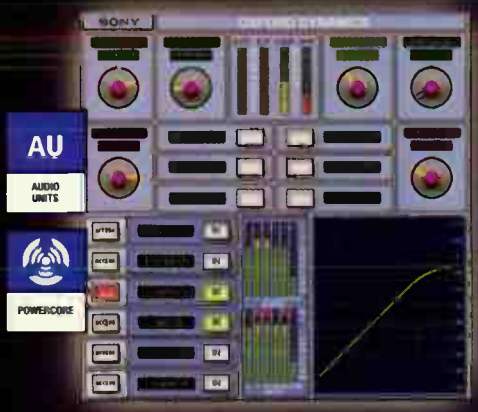

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Altiverb Version 4 has been heavily optimized for the G5 Power Mac. In a 48 kHz session on a single processor G5, you can instantiate 8 full stereo Altiverbs with 6-second reverb tails. Other convolution reverbs don't make it past two similar instances.

Altiverb is still the only true, 4-channel surround convolution reverb, and it offers the longest tails by far. For example, St. Ouen Cathedral in Rouen, France requires 15 seconds to die out, so Altiverb gives you all 15 authentic seconds, with no artificial truncation or scaling.

Additional advantages include: the lowest latency among convolution reverbs, parameter automation, snapshot automation, immediate audible feedback as you adjust parameters and easy instructions for making your own high quality Impulse Responses. Add it all up and the choice is easy: Altiverb.

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Room with a VU

by Mitch Gallagher

STUDIO NAME: Lattanzi Studio
LOCATION: Hollywood, CA
KEY CREW: Mike Lattanzi
CONSOLE: Early '70s API (40x36), DDA (56-inputs), '80s Soundworkshop (24 inputs), Emagic Logic Control [4], Roland M16E [2], Mackie CR1604
RECORDERS/PLAYERS: Numark CDN88, HHB CDR800, Denon DF600F, Panasonic SV3700, SV3800; TASCAM 122mkII
MONITORING: Yamaha NS-10m [3 pr], Miller & Kreisel subwoofer, Hafler Studio 8, Optimus nearfield [4 pr], RCA nearfield, Sony MDR7506 [4], AKG K240 [4], Simon Systems CB4 cue box [4], Crown power amps[6]
OUTBOARD: C-Grey stereo custom EQ [2], Alan Smart C2, Neve 1080 [2], Avalon VT-737sp, Inward Connection Vac Rac [3] loaded with mic preamps [4], compressors [4], EQs [2], and DIs [2]; UREI LA3A [2] Empirical Labs Distressor [2], Stay Level compressor (1957) [2], dbx 160 XT [16], 160x [4], 160a [4], FS900 rack with de-essers/EQs/compressors/gates; Drawmer DS201 [2], Summit Audio DCL200
EFFECTS: Lexicon 200, PCM60, PCM70, PCM42; Yamaha SPX90II, Alesis Quadraverb 2 [2], Ibanez DM2000, Effectron ADM100
MICROPHONES: Sony C800G, Neumann KM184 [2], AKG C414 EM, C414ULS-II, D112, C1000s; Shure SM57 [12], WH20; Sennheiser MD421 [2]
COMPUTERS: Apple Macintosh G4/867mHz with 1.5GB RAM, Apple Macintosh G4 laptop, Glyph Triprack [2], Atto Ultra-wide SCSI accelerator, assorted hot swap and FireWire drives and burners
DAW: Digidesign Pro Tools|Mix3, 888/24 [4], SMPTE Slavedriver, Emagic EMI 2|6,
SOFTWARE: Digidesign Pro Tools, Emagic Logic Platinum, plug-ins by Emagic, IK Multimedia, Spectrasonics, Waldorf, Lexicon, Focusrite, Bomb Factory, Line 6, TC Electronic, Waves, etc.
KEYBOARDS/MIDI: Schafer & Sons 6'7" grand piano, Yamaha Motif 8, TX802, TX81z [2]; Roland A-90, D-70, XV-5080, D-550, SPD-20; Akai S6000, S1000, MPC4000, MPC60 II; Korg TR rack, E-mu Planet Phatt, Orbit v2, Carnaval, Audity 2000, Proteus 2000, Mo' Phatt; Studio Electronics SE1, Emagic Unitor 8mkII, AMT8 [3]
GUITARS/BASSES/AMPS: guitars by Fender [6], National [2], Gibson [2], Paul Reed Smith, Gretsch [6], Rickenbacker, Hofner, Silvertone [7], Danelectro, Epiphone, Hamer, Deusenberg, Taylor, Godin [4], Ovation [2], Martin, Carvin, Sears; basses by Fender [2], Silvertone; amps by Fender [2], Marshall, Danelectro
FURNITURE: KK Audio
STUDIO NOTES: Producer/songwriter Mike Lattanzi has combined modern and vintage gear for the best of both worlds, starting with his '70s API console, wired by Scott Hasson of West Coast Studio Services and modified by Steve Firlotte of Inward Connections. Lattanzi comments, "One of the main reasons for investing in such a console was knowing I have Steve to modify and maintain it.

"My main gear is my API console, Inward Connection Vac Racs, and Emagic Logic Platinum. My new favorites include IK Multimedia Amplitube and SampleTank XL, Numark CDN-88 dual-CD player with multi-effects, and AKAI MPC 4000.

"The studio is in my Hollywood Hills home in Beachwood Canyon right under the Hollywood sign. The house has four levels, and the studio resides on the entire third floor of the home. The views are spectacular, covering both the L.A. city lights as well as the surrounding canyons."

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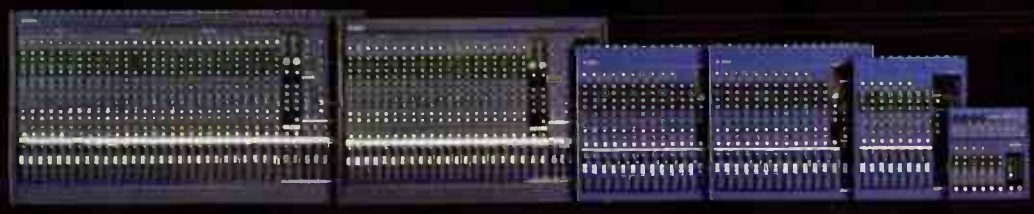

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