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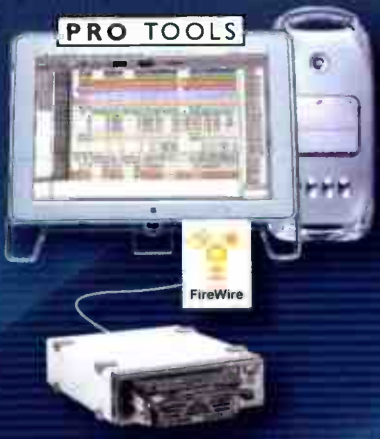

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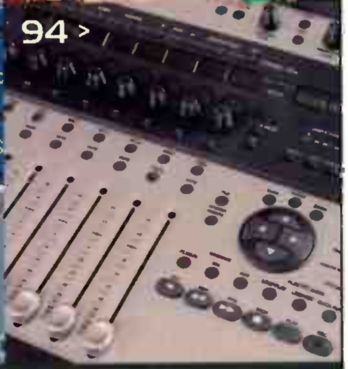
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EDITORIAL

Virtual Visions

It will come as no surprise to most (if not all) of you that it's all about computers these days. The latest area of advancement in the computer's seemingly inexorable move toward studio domination is synthesizers and samplers. There's been a groundswell of activity with virtual instruments for a while now, but the technology and computer power seem to have finally ramped up to where things are really taking off. Witness all the new action at this year's Winter NAMM show — you can find Craig Anderton's report on all that was new at the show on page 50. (By the way, special kudos to Craig for cranking out his report in record time so that it could be in this issue's special virtual instrument section. Look for our usual comprehensive report on all things NAMM in the next issue.)

Hardware, of course, is *far* from dead. New electronic instruments continue to be released and upgraded, and for many applications, they're still the way to go. Another interesting trend is the move toward open hardware platforms. Manifold Labs fired the first shot in this area with Plugzilla, a box dedicated to running VST soft synths and plug-ins. But now the idea is proliferating, with new products such as Roland's VariOS, a rack box that can morph itself into different synths by loading new operating systems, Creamware's Noah, which serves as a hardware host for virtual synths, and Open Labs' eKo, a keyboard-based instrument that runs VST plug-ins and instruments.

Up until now, much of developers' time has been spent creating virtual versions of various vintage synths — which is cool. While it would be great to own a mint-condition original MiniMoog, Prophet, or PPG Wave, the reality is that most of us can't (or wouldn't want to deal with it if we could). So it's great to have plug-ins that give you most of what the vintage boxes offered; they're cheaper, more convenient, and in many cases offer new features and capabilities.

But what I'm most excited for is to see what the brains behind the virtual instruments come up with when they turn their gray matter toward creating new instruments, new sounds, new virtual synth technologies. Keep cranking out those cool vintage repros (if anyone's listening, I'd like a Wavestation, a Matrix 6, and a CZ101, please) but feel free to blow my mind with something totally new.

—Mitch Gallagher
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By Steve La Cerra

Crane Song Ibis

Over the past few years, Crane Song Ltd. has introduced audio processing gear that definitely doesn't fit "in the box." For example their Flamingo mic preamp features unusual controls such as "Iron" in/out and a "Sound" switch, which alters the amplifier type. Their latest product, the Ibis EQ, continues that tradition. Ibis is a two-channel parametric equalizer featuring Class A, discrete circuitry, and Crane Song's proprietary "color" control. Each channel offers four EQ bands plus a low-cut filter and a "color" control (more on this shortly). Every band provides control over boost or cut (±12 dB), bandwidth (0.1 to 4 octaves), and frequency select. In addition, the low band may be switched to low-frequency shelf, and the high band may be switched to high-frequency shelf type EQ.

Implementation of frequency selection is where Ibis breaks the mold: Frequency is indicated predominantly by music note values. Frequency controls are centered on and cover musical-step intervals from "C" (32 Hz) to "F" (22,350 Hz). Since some note values are also indicated as frequencies, Ibis helps translate between the vocabulary of musicians and engineer tech-talk. Every band overlaps with its neighbor by approximately two octaves, allowing simultaneous boost and cut within the same frequency range. A switch for each band labeled "+1 Step" shifts ("transposes") the frequency control up a whole step, allowing a choice of 24 frequencies per band. This could be a very cool feature when trying to pinpoint EQ a particular note on, say, a bass track.

In addition to the four bands of EQ, each channel of the Ibis includes a low-cut filter with 11 steps from 20 to 150 Hz. An "out" position allows the filter to be bypassed, while a "steep" button changes filter slope from 12 to 24 dB per octave.

Unique to the Ibis is Crane Song's proprietary "color" generator, providing each channel with two controls that alter the second and third harmonic content of a sound. The color control operates in a manner similar to a compression side-chain, in that audio is unaffected except for the band you'd like to change. Output of the color generator is summed into the audio path along with the dry audio. Via the source control, the color generator can derive its signal from the entire audio program (full bandwidth) or from one of the four EQ bands; a bypass is also provided. The amount of color is determined by the color level control and the EQ band's boost/cut control. For example, if you're using the color generator on an EQ band set for a 100 Hz boost, then the color circuitry will generate additional harmonic content at 200 and 300 Hz. If you're cutting the same audio band, then the color generator would reduce the harmonic content at those frequencies — making the Ibis capable of fatting a sound, adding "air," or completely changing the tonal nature of the source. Intensity of the color is dictated by the color control pot, based on a scale of 0 through 10.

Crane Song's Ibis will be available in a standard version and a mastering version, the primary difference being that all controls on the mastering version are stepped (detented) for the precise repeatability required in mastering applications. On the standard version, only the frequency select is detented. Audio I/O for either version is via rear-panel XLR with a maximum operating level of +25 dBm. ■

CRANE SONG IBIS

WHAT IS IT? A two-channel, four-band, discrete Class A equalizer.

WHO NEEDS IT? Mastering studios, production studios.

WHY IS IT A BIG DEAL? Frequency control on the Ibis is indicated in musical note values; Crane Song's proprietary color generator allows creation of unique EQ effects.

SHIPPING: Mastering version, TBA. Standard version, TBA.

PRICE: Standard version Introductory price, TBA; Mastering version, TBA.

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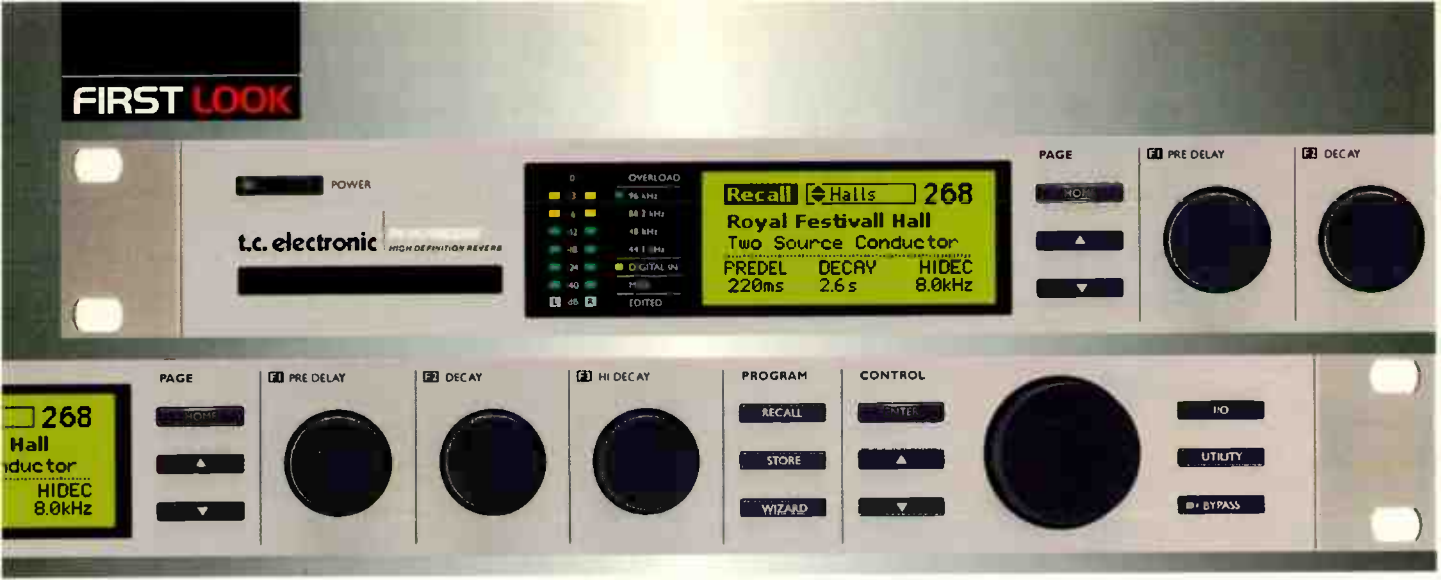

TC Electronic Reverb 4000

By Steve La Cerra

TC Electronic's M5000 and System 6000 have carved unique places in DSP history as two of the finest digital reverbs manufactured. Drawing on their experience in developing those products, TC Electronic has introduced the Reverb 4000, a single-engine, stereo version of the System 6000 reverb. In addition to containing all of the True Stereo reverbs from the System 6000, the Reverb 4000 includes popular presets and algorithms from the M5000. The Reverb 4000's DSP muscle is generated using a single effect engine with massive SRAM for realistic creation of acoustic environments.

Built into a single-space rack chassis, the Reverb 4000 employs a front-panel display and interface similar to those used in the M2000 and M3000 effect processors. Dedicated front-panel controls allow instant access to important operations such as preset location, reverb decay, predelay, and high-frequency decay. In addition to front-panel control, the Reverb 4000 may be connected directly to any USB-equipped computer and controlled via TC's Icon software editor (included). Icon runs on both Mac and PC platforms, providing easy access to effect parameters as well as a complete program overview for editing.

In addition to programs from the M5000 and System 6000, the Reverb 4000 also offers a newly created True Stereo Reverb algorithm, which, for the first time, makes it possible to truly process a composite stereo source, or to render realistic spaces onto two discrete sources. TC's engineers have also developed Reverb 4000 programs for realistic-sounding environments ranging from a closet to a canyon, as well as emulation of vintage reverb units such as the popular EMT 250.

TC's exclusive VSS-4 Two-Source reverb used in the Reverb 4000 generates rooms with character, while additional algorithms create Generic Reverbs providing Polished Sustain, Glossy, Classic, and even mono reverb programs. Beginning with their M3000, TC has continually refined VSS (Virtual Space Simulation) technology, producing benefits such as smooth reverb tails, accurate early reflections, pitch-correctness, and user-defined modulation. VSS-4 is the latest refinement of VSS, which keeps instruments and voices clearly defined regardless of how complex the input signal. VSS-4 also maintains correct pitch and lack of modulation in the reverb tail, yet allows modulation to be added by the user for enhancing the naturalness of the effect.

To interface easily with digital audio workstations or other digital gear, the Reverb 4000's rear panel includes the aforementioned USB port as well as XLR AES/EBU, RCA S/PDIF, and ADAT optical I/O jacks. A word clock input is provided, enabling the Reverb 4000 to achieve sample-accurate sync with external devices (sample rates from 44.1 to 96 kHz are supported). The digital outputs are always active, facilitating a wide variety of output routing options without worry of which input is being used. Analog output is also always active; 24-bit analog I/O is on balanced XLR jacks with 48 or 96 kHz sampling.

Additional features of the Reverb 4000 include an auto-sensing power supply that automatically detects and adjusts itself to any AC voltage supply, and full MIDI implementation (with rear-panel MIDI in, out, and thru jacks) for control over any parameter via sequencer or remote MIDI controller. ■

TC ELECTRONIC
REVERB 4000

WHAT IS IT? A dedicated stereo reverb with a broad range of reverb algorithms ranging from completely new programs to emulation of vintage reverb units.

WHO NEEDS IT? Recording, broadcast, and post studios, live sound engineers.

WHY IS IT A BIG DEAL? The Reverb 4000 features TC's VSS-4 technology, and shares algorithms with their highly regarded M5000 and System 6000 effect processors. The Reverb 4000 can be directly controlled via USB.

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PRICE: $2,999.

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Great Divide Studios

By Steve La Cerra

Across the Great Divide

STUDIO NAME: Great Divide Studios
LOCATION: Aspen, Colorado
KEY CREW: Jamie Rosenberg (owner, engineer, producer)
CREDITS: Pierre Bensusan, John Oates, Jimmy Ibbotson, Jonathan McEuen, Dan Sheridan, Robert Wagner, The Flying Dogs, The McCloskey Brother's Band, Russel Walden, Joe Brooks, Aspen Music Festival
CONSOLE: Digidesign Pro Control w/Fader Pack, Edit Pack
MONITORS: Genelec 1038, Adam S2A, AKG K270 headphones [5], Sony 7509 [2], 7506 headphones
AMPLIFIERS: Furman HA-6, HR-2 [5] (headphone system)
RECORDERS: Alesis ADAT XT20, TASCAM DA45HR DAT, 122Mk. III; HHB CDR800
OUTBOARD: Requisite Audio L2M MkII, Empirical Labs EL8 SX [2], Fatso Jr.; Waves L2, Little Labs IBP Analog Phase Adjustment Tool
EFFECTS: Lexicon 300, TC Electronic System 6000, Eventide Orville, Ensoniq DP-Pro, Scholtz R&D Stereo Echo [2], Stereo Chorus, Smart Gate; Line 6 Pod Pro, Bass Pod Pro, Distortion Modeler
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SAMPLERS/KEYBOARDS/MIDI: Roland XV-88, GR-33 guitar synth; Boss DR-770, Evolution MK-225C, MOTU MTVAV USB
COMPUTERS: Mac Dual G4/1 MHz with 1.5 GB RAM and 400+ GB of storage, G4 Powerbook 400 MHz with 384 MB RAM, DVD and CD burners; Apple 22-inch Cinema Display [2], Iso-Box for sound isolation
DAW: Digidesign Pro Tools HD3, 192 interface [2]
SOFTWARE: Pro Tools 5.3.1, Bitheadz Unity Session, Access Virus plug-in, Spectrasonics Stylus, Waves Platinum Bundle 3.6, Wave Mechanics Sound Blender, Sony Oxford EQ, Serato Pitch 'n Time, McDSP Filter Bank, Analog Channel; DUY Global Bundle, Antares Auto Tune, Metric Halo Spectra Foo, Channel Strip; Bombfactory Classic Compressors, Moogerfoogers, Sansamp, Tel-Ray, Fairchild; Digidesign plug-ins including Reverb One
POWER CONDITIONING/BACKUP: Custom balanced power system by EMF Electric
ACOUSTIC TREATMENT: Acoustic design by Richard Zwiebel, tuned by Bob Hodas.

STUDIO NOTES: "Great Divide Studios started in 1992 as a funky after-hours operation in Aspen's downtown music store, The Great Divide," says Jamie Rosenberg. "We had four ADATs and access to every guitar, amp, and miscellaneous piece of gear that was in the store. We also had a noisy pet store next door (whose crickets, screeching birds, and bubbling fish tanks drove me nuts) and a big window through which the outside world could heckle the talent. Needless to say, we made many great records there and became a viable business.

"One day I got a call from Faith Hill's people to book some vocal overdub sessions while she was performing in town. This was the height of cricket-breeding season and I honestly told them that she probably wouldn't be too comfortable in our studio with all of its anomalies! They took my advice and the gig never happened, but it did inspire me to move out into a new professionally designed studio.

"The new studio (opened in 2001) is a dream come true for me. It sounds great, has great instruments and gear, is incredibly beautiful and we've got something no one else quite has: location, location, location! We're about a mile from downtown Aspen and we have incredible views of four ski resorts. Our core business is local talent, but the bigger name and out-of-town business has been finding its way here as well. I still have the keys to the music store if we ever need something in the middle of the night. Now, if only Faith would call back!" ■

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Audio Paint

Sonic color on the upper-west side

By Steve La Cerra

STUDIO NAME: Audio Paint
LOCATION: New York City, NY
KEY CREW: Frank Piazza (owner/producer), Lance McVickar (chief engineer/producer)
CREDITS: Promos for Nick At Nite, HBO/Cinemax, Nickelodeon, and Disney; *Hit And Runway* (Lot 47 Films), *Trick* (Fineline Pictures), *Ash Wednesday* (to be released/Edward Burns), Children's Book Series: Mondo Books, *Brownstone* (Original Cast Records), *Cliff Hanger* (animated series), *Little Toot* (Strand Video)
CONSOLE: Peavey AMR Series 1600
MONITORS: Yamaha NS-10, Tannoy PBM6.5, Sony MDR7506 headphones
AMPLIFIERS: Hafler P4000
RECORDERS: Sony XE500, DTC790; TASCAM A500, 302, DA-30
OUTBOARD: dbx 160
MICROPHONES: Neumann U87, KM184 [2]; AKG C414 [2], C535, AKG D12, Sennheiser MD421 [2], Shure SM87 [2], Beta 87, Beta 4.0 [2]; Pacific Pro Audio PPA-LD1 [4]
MICROPHONE PREAMPS: Amek 9098 [2], Focusrite Red 6, Aphex Tubessence 107
SAMPLERS/KEYBOARDS/MIDI: Roland JV-1080, E-mu Vintage Keys, Korg 03RW, Kurzweil K2000, Ensoniq EPS, Alesis D4, Yamaha TX7
COMPUTERS: Mac G4/867 MHz with 512 MB RAM; Mac G3/500 MHz with 512 MB RAM [2], Seagate 30 GB and 20 GB ultra-wide SCSI drives, Maxtor 60 GB IDE drive [10], 60 GB Firewire drives [3], 17-, 19-, and 20-inch monitors; Mac Ibook/600 MHz with 512 MB RAM (for editing on the go) [2]
DAW: Digidesign Pro Tools HD, 192 I/O, Digi 001, Mbox
SOFTWARE: Digidesign Pro Tools 5.3, 5.1, Soft Samplecell; Native Instruments Absynth, MOTU Digital Performer, TC Electronic Spark, Steinberg Cubase, Propellerhead Reason
INSTRUMENT AMPLIFIERS: Fender Twin Reverb w/custom Aguilar overdrive mod, Musicman HD210, Mesa Boogie, Peavey Bandit, KB/A60

STUDIO NOTES: "Audio Paint is a basement studio in a pre-war, upper-west side building that was formally a horse stable," explains Frank Piazza. "The ceilings are curved and we exposed all of the piping and duct work. We even left the iron housings and chains leftover from the stables! The walls are exposed bedrock, cement, and standard studio wall construction. As result, the 22x21-foot live room is live and very loud. Of course this helps out when we're recording live drums — we can get some very meaty drum sounds. Sometimes we record vocals in the live room, which definitely makes for a bigger sound (as opposed to the vocal booth). If we want to tighten up the sound a bit we'll use gobos or maybe blankets to deaden some of the reflections.

"Although we don't have a window between the vocal/piano booth and the live room, we do have video cameras and monitors so that performers can see as well as hear each other. It really makes for better communication and interaction."

EQUIPMENT NOTES: "Our Peavey console is quite the workhorse. It's quiet for tracking, and we like the EQ as well. We recently purchased several PPA-LD1 microphones from Pacific Pro Audio, which we've found excellent for vocals, brass, and wind instruments.

"Our Yamaha C3 grand piano is wonderful — in fact people have come here to record with it because of its sound and feel. We mic it with a pair of Shure BG 4.0s through the Amek mic preamps. Somehow the combination rolls out weird frequencies and disturbing harmonics created in the piano booth.

"We are always searching for a great plug-in reverb that compares to a top-of-the-line hardware reverb and [AudioEase] Altiverb is very close. Lance has been creating his own rooms for Altiverb, providing us with a 'signature' sound for our final product. Every studio has access to the same gear, so it's hard to create a sound that is unique. Lance has worked on capturing halls and theaters for Altiverb, which gives us something sonically different from the norm." ■

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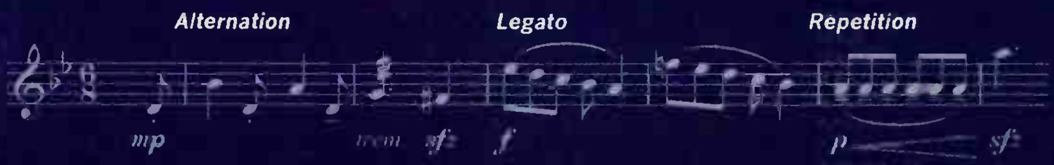

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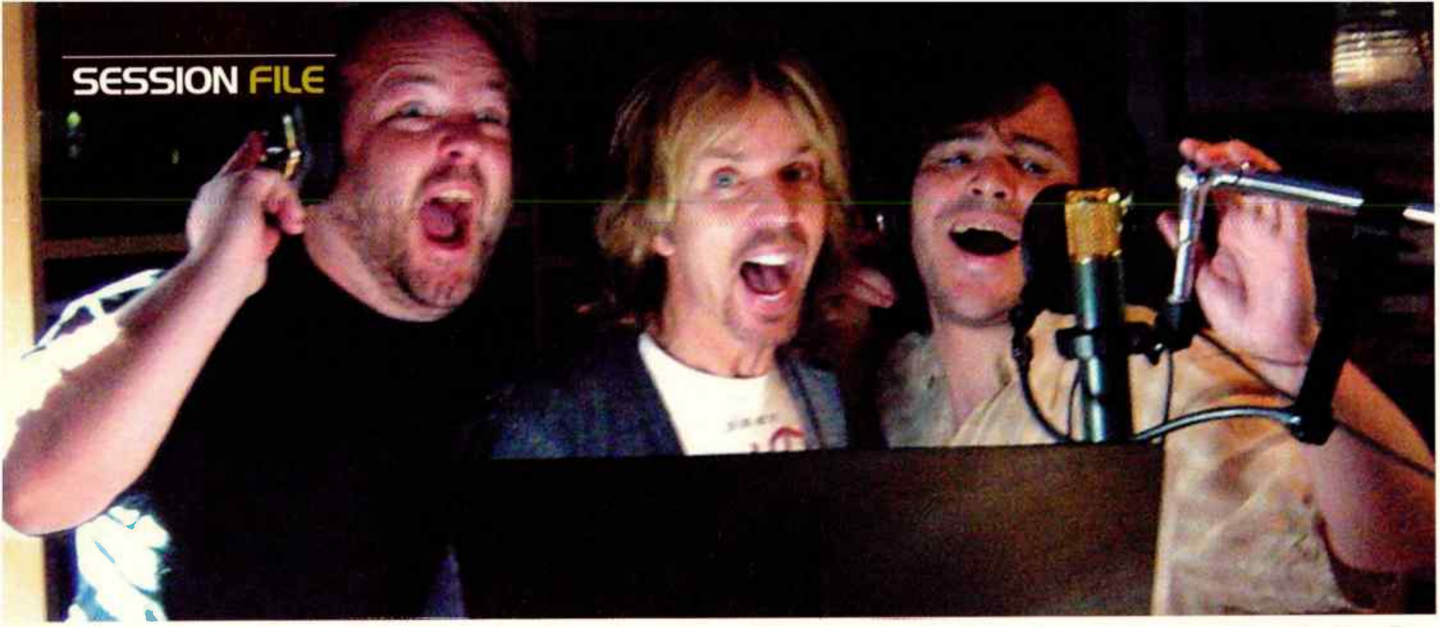

By Lisa Roy

Styx Vocals

"I first heard about recording vocals outside from Ron Nevison. He told me that Paul Rogers sang 'Bad Company' outside. And that line, 'And the cold wind blows,' he was adlibbing because it was cold out there. I always loved the way that song sounded and so we just tried it one day," says Tommy Shaw about recording lead vocals in his front yard on the latest Styx offering.

"It's so nice in California. I have the anti-studio. Instead of being closed in, we just have the doors open. If you were to isolate things on the record you could hear the frogs. On one of the tracks we just went ahead and put the frogs on it," confides Shaw about his unique way of making records.

Shaw is speaking of his home studio in Beachwood Canyon in the Hollywood Hills. It's there that 90% of *Cyclorama's* lead vocals were recorded in his front yard. With contributions from vocalists John Waite, Jude Cole, Billy Bob Thornton, Brian Wilson, and Tenacious D, one listen and you'll be setting up your microphone in your front yard, too. There goes the neighborhood!

DATE: 2002 ("We've been doing it off and on throughout the year because we did 90 shows during the recording of this album.")
STUDIO: The Shop
LOCATION: Hollywood Hills, CA
ARTIST: Styx
PROJECT: *Cyclorama*
TRACK: Tommy Shaw, James "JY" Young, Glen Burtnik, and Lawrence Gowan — lead vocals
PRODUCER: Tommy Shaw, James "JY" Young, and Gary Loizzo
ENGINEER: Gary Loizzo

SIGNAL PATH

"We used the new GML Producer Pak," explains co-producer/engineer Gary Loizzo. "That was the actual limiter, mic pre, and equalizer; everything is self-contained in one box. We used the AKG C-12 VR in cardioid pattern and that went straight to Pro Tools through an Apogee Rosetta [converter]. I [also] have Focusrite preamps and they feed a Neve 5355 limiter."

MIC POSITION

"Tommy's studio isn't attached to his home and he has a courtyard that lies between his home and the studio," describes Loizzo. "We ran a headphone box outside along with the C-12 VR microphone and put it between the house and the studio which gave about 10 feet of space all the way around with no reflection. Now we did have to stop occasionally if a helicopter or plane flew over. We had no problems with ground traffic — only things in the sky. I put a windscreen clip-on on the mic stand about two to three inches away from the microphone and then the vocalist would just stand next to that on the grass near a palm tree."

BEING OUTSIDE, THERE'S A NATURAL RESONANCE THAT HAPPENS THAT IS VERY NATURAL SOUNDING.

"When you record vocals in a booth there's a deadness to that, there's no sparkle to things. But being outside, there's a natural resonance

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Tommy Shaw coaches John Waite (back to camera) through his vocal performance.

that happens that is very natural sounding."

PROCESSING

"In most cases I take out 3,000 cycles. You've got to remember these guys sing high and they sing loud, so the 2,000 to 3,000 Hz frequency can be very annoying," Loizzo shares. "It helps it come out of the mix more but if you pull a little bit of that back, it makes it sound more up-front. You can make it louder without being harsh. I occasionally added one or two dB at about 10k (shelving) and I rolled off everything under about 100 cycles.

"I was using about 40 dB of gain on the preamp. The microphone was in the flat position and the preamp was set at 100-cycle roll-off. I took out about 3 dB at maybe 2.5k."

TRACK NOTES

"For the last song on the record, 'Genki Desu Ka,' we invited John Waite and Jude Cole over that night to sing," concludes Tommy Shaw. "It rained that night so we couldn't do their vocals outside like we normally would have, so we brought the mic back in the studio. The rain sounded so good we put a stereo mic just outside the door under the awning and we started the song with the sound of the rain...and the frogs. If it hadn't rained, it would've been a different track. Then at the end of that song, you hear the rain, the frogs, and the crickets, then you'll hear a little knock on the door and it's Tenacious D knocking on my door. They sang harmony on 'Kiss Your Ass Goodbye.' We try to utilize everything that's around us.

JUST BE YOURSELF AND RELAX . . . THE MORE RELAXED YOUR STUDIO IS, THE BETTER YOUR TRACKS ARE GOING TO BE.

"Jack [Black] and I are neighbors and they're [Tenacious D] big Styx fans. When they came in, it was just like watching one of their routines for a solid hour and a half, just one thing after another. They're great singers and great guitarists.

"The thing about recording outside, just watch out for things that make too much noise. But the thing about making records is that it doesn't have to be so formal. When you make a performance that you record, the more relaxed you are, the more relaxed your performance is going to be. Just be yourself and relax and when you're doing it in a casual environment like that, you tend to do things that you wouldn't if you've placed all this importance on 'it's got to be right on this take.' The more relaxed your studio is, the better your tracks are going to be." ■

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World Radio History

Setting up a budget studio around a DAW

By Tal Herzberg

Back in the pre-DAW days, setting up a professional grade recording studio was a huge task that involved many different technical considerations, power requirements, complicated wiring, large space, and some very expensive pieces of gear. Nowadays it's possible to set up a budget-conscious record-making studio in a much smaller space, with much less technical hassle, and for a fraction of the cost, based around a Digital Audio Workstation. Let's examine some of the key elements involved in setting up such facility, establishing a basic checklist.

TRACKING ROOM

The studio space doesn't have to be a large room to feel and sound good. A garage, guesthouse, or even office space can do the trick. My rule of thumb is: If you can't invest in professional acoustic treatment, make the room as dead sounding as possible, with no reflections (the reverb box and plug-ins will work extra hard in the mix!). Run a cable snake between the tracking and control rooms (if you have more than one room) so microphones, DI's, and headphones feeds can be easily connected.

CONTROL ROOM

Same concepts apply here as above: A control room doesn't have to be large to feel and sound good. The smaller it is, the easier it is to soundproof and acoustically control. Consider using bass traps (a sofa might do the job), and diffusers to improve the room's response. Also invest in a desk, a few racks, and some comfortable chairs (support your back!).

CONSOLE OR DAW CONTROLLER?

In order to efficiently interface with the DAW and any other piece of gear in the studio, I recommend using a tactile hands-on control surface that provides controls and signal routing of some of the main functions and routines we regularly perform. Those include channels functions (level, pan, mute, solo), monitoring functions (switching between sets of speakers, separate volume control for each set, mute and dim, surround monitoring, headphone distribution and talkback), and source switching and routing between the multitrack DAW and other record and playback devices (CD, DAT, video deck). These days we can choose between a traditional mixing console (analog or digital) or a dedicated DAW controller, or a combination of both. Either will most likely host the same monitoring and switching functions (depending on models, but even modestly priced products generally provide all that's needed), but will differ in the way we interface with the DAW tracks and the way we mix them down: Using a DAW controller we control the channels functions inside the DAW's internal software mixer, use plug-ins for signal processing, and sum it all "inside the box." Using an analog or digital hardware mixer we need to connect multiple outputs from the DAW into multiple inputs of the mixer, and control it all on the console, which requires more audio interfaces and wiring.

> A TRAINED SET OF EARS OPERATING A SIMPLE BUT EFFECTIVE SETUP LIKE THE ONE DESCRIBED ABOVE CAN DO A LOT OF "DAMAGE" WHILE KEEPING COSTS DOWN, AND WITHOUT COMPROMISING ON THE QUALITY.

Another aspect is automation: A DAW's mixer offers automation of almost every parameter, while most external mixers will have more limited automation functions (or none in the case of many analog mixers). Moving faders and rotary encoders are nice to have, and can be found on most DAW controllers and digital mixers.

Advantages of dedicated mixers include multiple preamps (to connect microphones or line level devices), and multitrack bussing (input routing to the DAW).

Finally, some users point at the difference between digital and analog summing, and may prefer the sound of one over the other. A great combination is achieved by using a DAW controller as a tactile surface, in conjunction with an analog rack mixer that's receiving individual DAW audio interface outputs, summing it all in the analog domain.

PATCH BAY

It can be very convenient to have all inputs and outputs of every device in the studio come up on a patch bay. Interfacing is a breeze if all are properly labeled. And unless something breaks, there's never a need to reach to the back of the racks. Choose between TT or 1/4-inch models and make sure you have enough patch cords available.

SPEAKERS

I recommend having two different sized sets of speakers to monitor through. The most convenient to use are self-powered speakers, which connect straight to the controller or mixer

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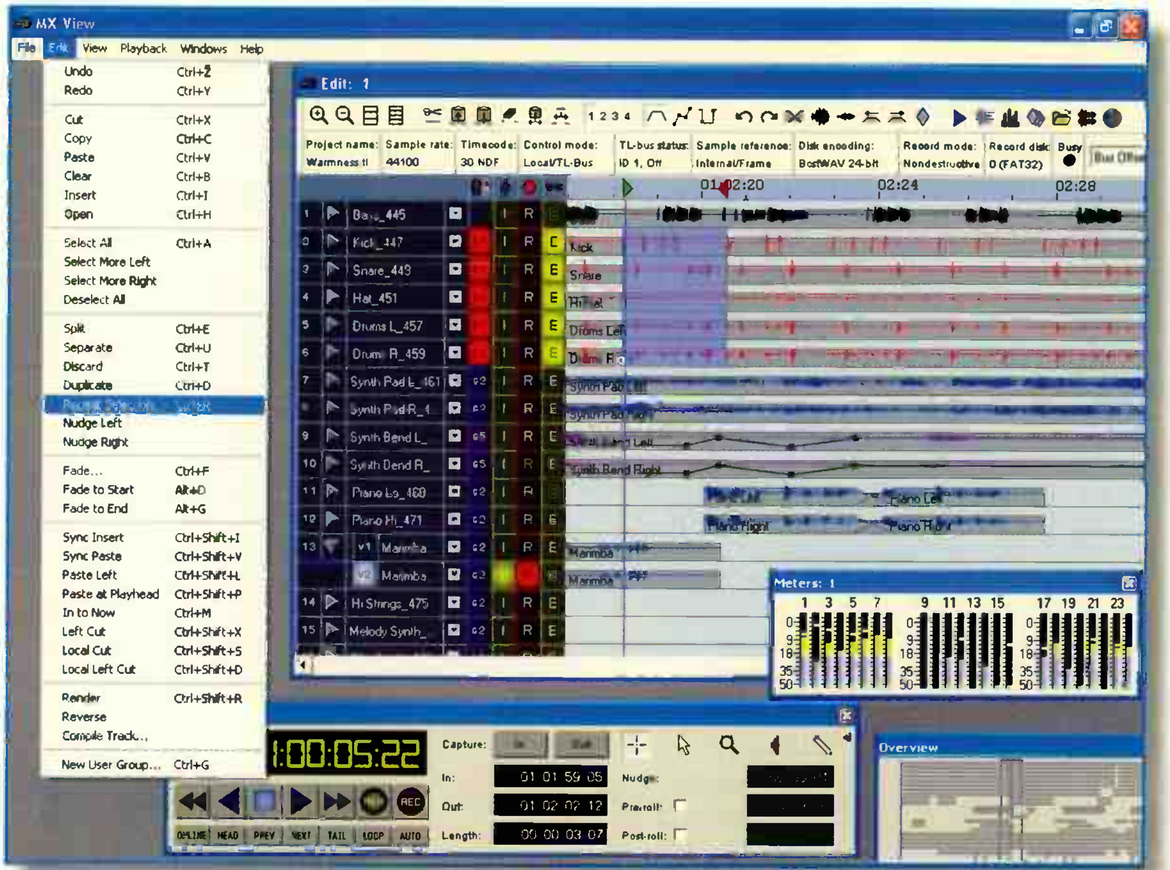
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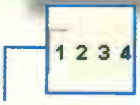
Local Left Cut Ctrl+Shift+D
Render Ctrl+Shift+R
Reverse
Compile Track...
New User Group... Ctrl+G
Edit: 1
1 2 3 4
Meters: 1
Overview
1:00:05:22
REC
HEAD
PREV
NEXT
TAIL
LOOP
AUTO
Capture:

Project name: Warmness II
Sample rate: 44100
Timecode: 30 NDF
Control mode: Local/TL-Bus
TL-bus status: ID 1, Off
Sample reference: Internal/Frame
Disk encoding: BcstWAV 24-bit
Record mode: Nondestructive
Record disk: 0 (FAT32)

In: 01 01 59 05
Out: 01 02 02 12
Length: 00 00 03 07
Nudge:
Pre-roll: ☐
Post-roll: ☐



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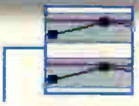


Breakpoint Volume Automation:

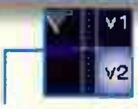
Adds automation of track levels without using a mixer.

Edit Groups:

Allows you to easily perform edits on groups of individual tracks (such as drums).

Pencil Tool:

Lets you "draw" clicks and pops out of your audio tracks.



Virtual Tracks:

For performing multiple takes on a single track.

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outputs, and don't require separate power amps. Establish the right polarity between the speakers and the source that feeds them, and always check for phase problems.

MICROPHONES

For most applications, you'll want at least one high-quality multi-pattern condenser microphone, and a few dynamic ones. If you're going to be working with drums, a dedicated bass drum mic is also good to have.

PREAMPS, COMPRESSORS AND EQS

Unless your DAW interface has preamps built in, invest in at least two high-quality preamps with phantom power and phase reverse. For certain things it's also nice to be able to process sounds before they reach the DAW, so you may want external EQs and compressors, but these aren't a must since we can usually use plug-ins instead.

For many applications, the most convenient solutions are all-in-one channel strips, which combine some combination of a preamp, compressor, and EQ in one chassis. Many models are available, from a variety of pro audio manufacturers.

POWER DISTRIBUTION AND CONDITIONING

Consider connecting all your gear to a central power distribution module instead of straight into the wall socket. Various models are available and offer features such as power conditioning, surge protection, emergency shut-off, battery power backup, improved grounding, etc. A good one can improve the signal-to-noise ratio of your setup, and protect it from unexpected AC power problems.

OTHER GADGETS

You'll want to have DI boxes available (for guitars and line sources); a MIDI interface to connect MIDI gear to the DAW; headphone junction boxes; a signal splitter often comes in handy, as well as assorted plugs, adapters, cables, and ground lifters.

SUPPLIES

Maintain a stash of blank CDs, DAT and backup tapes (if you still use them), fuses, writing pads, music notation paper, pencils, pens, markers, screwdrivers, flashlight and batteries, tax forms for sessions musicians, etc.

YOU CAN DO IT

Many chart-topping songs and albums in the past few years have been tracked and mixed on budget DAW-based setups. Aside from the convenience factor, there's often no longer an obvious advantage in going to an expensive large-format studio to work on a record. A trained set of ears operating a simple but effective setup like the one described above can do a lot of "damage" while keeping costs down, and without compromising on the quality.

Tal Herzberg is a Los Angeles-based programmer and engineer. His credits include the Counting Crows, Vanessa Carlton, Christina Aguilera, and the Grammy-awarded "Lady Marmalade" remake.

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-Leslie Ann Jones
Director of Music Recording and Scoring, Skywalker Sound

the model 201

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How to use a small mixer as the front end for your DAW

The Mixer/DAW Connection

By Ethan Winer

Many people have a small mixer and want to record basic tracks to their DAW, add overdubs, and simultaneously monitor the output of their DAW. Let's take a look at the best way to connect the various components through a small mixer for these purposes. I'll use the Mackie 1402 VLZ for these examples, but the concepts apply to any mixer that offers an insert point for each input channel.

INPUTS AND OUTPUTS

Most small mixers contain two independent sections: an input section and a mixer section. The input section contains the input connectors and the preamps, which raise the weak input signals to line level. The mixer section combines all of the preamplified inputs into one stereo signal that you can play through loudspeakers or headphones. You'll record each sound source through the preamps to a separate input of your DAW, but you also need to monitor all the channels mixed together to hear yourself as you play or sing, and to hear the tracks already recorded.

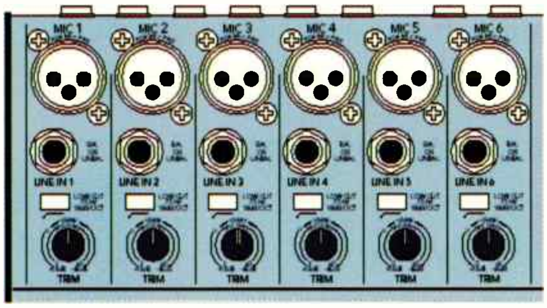
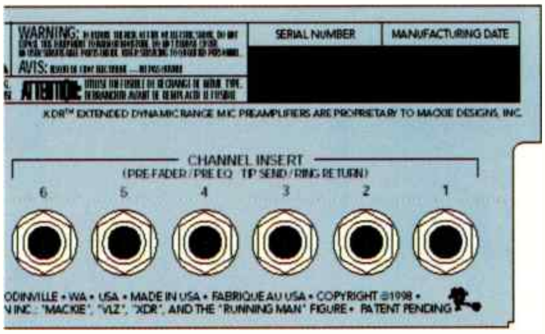


Fig. 1. The 1402's Front Panel Input Section

The first step is to route each microphone or instrument to a separate input on the sound card or DAW interface. If you have only one stereo interface, you can record only one stereo source or two mono sources at a time. (Of course, you can record any number of additional tracks later as overdubs.) If you have a multi-channel interface, you can record as many separate tracks as the sound card has inputs. However, you should play all tracks through one stereo output, even if your interface has several outputs. This way the mix is controlled entirely by the settings in your DAW program, independent of the knobs on the hardware mixer.


WARNING:
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CHANNEL INSERT
(PRE-FADER/PRE EQ TIP SEND/RING RETURN)
6
5
4
3
2
1

Fig. 2. The 1402's Back Panel Insert Points

Figure 1 shows the input section of a Mackie 1402 VLZ mixer. You can connect either XLR microphone or 1/4-inch instrument cables, which go through the 1402's preamps and then to the mixer section that combines the inputs. The channel insert portion of the 1402 back panel is shown in Figure 2, and this is where you'll connect each preamp output to an input of your sound card. The original purpose of an insert point was to insert a hardware effect box, such as a compressor, into the recording chain. But with a DAW, you can do that with plug-ins later. For our purposes, the insert point will serve as a splitter to send the preamplified input to the DAW interface while also sending it to the rest of the mixer for monitoring. When an output is taken from the insert point, it's called a *direct out* because the signal is taken directly from the output of the preamp, before passing through the mixer's volume and tone control circuits.

With nothing plugged into an insert jack, the output of the preamp goes through the channel volume, pan, and EQ controls on the front panel and is combined in the mixer section with the other preamp outputs. But when you insert a 1/4-inch plug only *partway* into the jack, the output of the preamp is sent to the inserted plug and *also* goes to the rest of the mixer. This is the key to recording each source to a separate track. Since the preamp output still goes to the mixer section, you can control how loudly you hear the source through your speakers with that channel's volume slider. And since each preamp output goes directly to the sound card, it's the only thing recorded on that track. If you were to record from the mixer's main output, the new recording would include all the tracks already recorded as well as inputs intended for other tracks.

Figure 3 shows how each channel's insert point output goes to one input of the sound card. The sound card's main stereo output then goes to one of the mixer's stereo inputs so you can hear your recording program's playback. This way you can control the volume you hear for each track being recorded with its input channel volume slider, and control the playback volume of tracks already recorded with

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World Radio History

the stereo channel's slider. In this example, mixer channels 1 through 6 control how loudly you hear each source being recorded, and stereo input pair 13-14 controls how loudly you hear the tracks already recorded.

SETTING RECORD LEVELS

Each of the six input channels has two level controls: the preamp gain knob (also called "trim") and the channel volume slider. Both affect the volume you hear through the loudspeakers, but only the preamp gain changes the recording level sent to your sound card. Therefore, when recording, you must first use the preamp gain control to set a suitable recording level, then adjust the channel slider for a comfortable volume through the loudspeakers or headphones. Since the channel volume slider and equalizer aren't in the path from preamp to sound card, you can freely change them without affecting the recording.

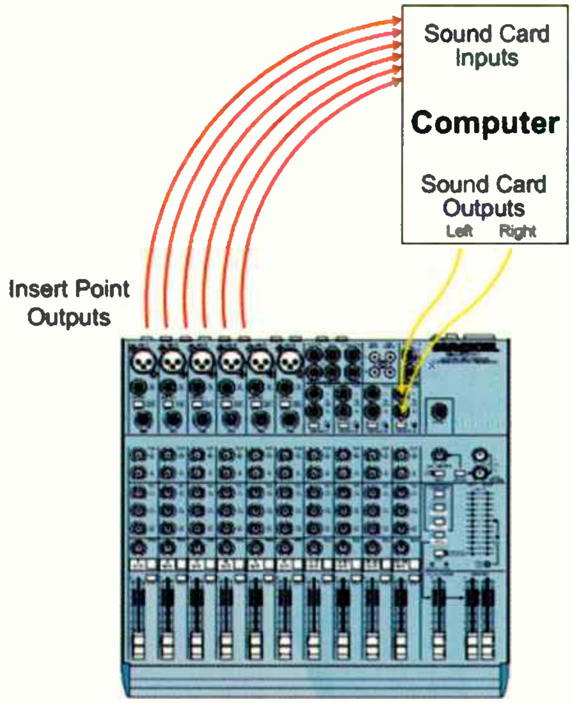


Fig. 3. Connecting it all together — be sure to push the plugs only partway into the insert point jacks.

MONITORING WITH EFFECTS

It's nice to hear a little reverb when recording yourself singing or playing. Many DAW programs let you monitor with reverb and other software effects while recording, but this can cause problems. One is the inherent delay through the program and plug-ins, especially with slower computers. Another problem is that the effects tax the computer more than recording alone. If your computer can just barely record eight tracks at once and you monitor with effects while recording, you may end up with gaps in the recorded audio or the program might stop suddenly. Fortunately, most small mixers, like the 1402, have aux busses where you can patch in a hardware reverb. Any reverb you apply on an aux buss affects only the monitoring path and isn't recorded. Therefore, you can hear yourself sing in a huge auditorium, and defer the amount of reverb until you make the final mix. Better, since reverb on an aux buss isn't recorded, an inexpensive unit is adequate.

Likewise, I recommend recording without EQ or compression. With analog tape, hiss was always a problem; in the old days it was common to add treble boost or compression while recording if you knew those would be needed later. But modern digital recording has a very low noise level so recording with processing isn't generally needed. More important, it's a lot easier to experiment or change your mind later if the tracks are recorded with no processing. To me, one of the greatest features of DAW recording is the ability to defer balance and tone decisions until mixdown. The only exception is when an effect is integral to the sound, such as a phaser or echo on an electric guitar.

OTHER DAW ISSUES AND ADVICE

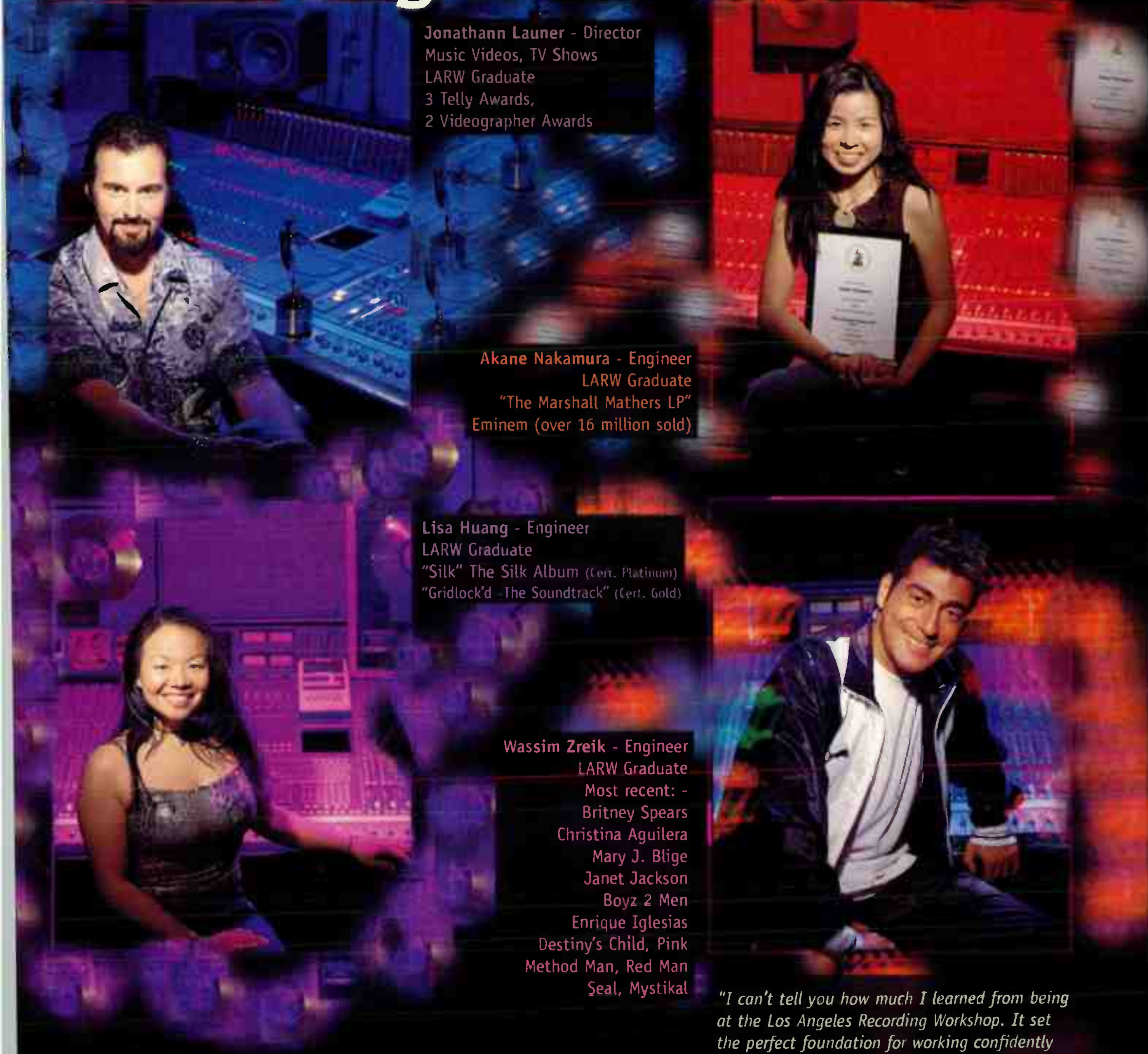
Earlier I stated that you should push the 1/4-inch plug only partway into the insert jack so the preamp's output will go to the sound card and also to the rest of the mixer. Unfortunately, these jacks are sometimes too loose to make a reliable connection when the plug isn't fully seated or they become worn. One solution is a Radio Shack's adapter, part number 274-1520. This inexpensive gadget can be inserted fully into the mixer's insert jack, yet it retains the connection needed from the preamp to the rest of the mixer. You aren't likely to find this adapter in a Radio Shack store, but you can order it at www.radioshack.com.

In Figure 3 the sound card's main stereo output comes into the mixer on stereo channel 13-14. This provides a separate volume control for the DAW's output, which can be adjusted independently from the volume of the inputs being recorded. But you may be using all of the mixer's stereo inputs for other sources such as a CD player, cassette deck, etc. Or maybe you have a smaller mixer that has fewer inputs. In that case you can connect the sound card's stereo output to the mixer's aux return, if available, or even to a tape input.

Often when you connect an audio device like a mixer to a computer using analog cables a ground loop is created which causes hum. Sometimes you can avoid this by plugging both the mixer and computer into the same AC power outlet or power strip. If that doesn't solve the problem, a good solution is to place audio isolation transformers in series with every connection between the two devices. High quality audio transformers can be expensive, but I've had good results with the Ebtech Hum Eliminator. This device is available in both two- and eight-channel versions, and at less than $30 per channel is reasonably priced.

Ethan Winer has, at various times, earned a living as a studio musician, computer programmer, audio engineer, composer/arranger, technical writer, and college instructor. He now heads up RealTraps, a manufacturer of bass traps and acoustic treatment.

Wishing You Success



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LL Cool J takes the stage for a tour and the AFC championship.

Hip-Hop Vocal Overload

By Herman Leijte and Steve Johnson

LL Cool J has been warming up for a tour this spring and summer in support of his new CD *10*. A recent highlight was his half-time appearance at the NFL's AFC Championship game at the Oakland Coliseum. Engineers Herman Leijte (front-of-house) and Steve Johnson (monitors) explain what's happening on stage, and give us a look at operations off-stage at the AFC game.

Herman Leijte at front-of-house.

Steve Johnson in monitor land.

GET COOL

LL uses a wireless mic, and wherever possible we spec an Audix OM5 capsule with a Sony wireless system. We like the OM5 because LL can cup the mic and it doesn't turn into "AT&T" — we don't have the typical problems with 1.6 kHz, 1.25 kHz, and 1 kHz when a singer cups the mic in their hands. Even when LL cups the OM5 it remains monitor-friendly. Plus it can handle high SPL's so it really works great for hip-hop. We usually have two backup wireless mics just in case.

In monitor-land Steve runs the output of the wireless receiver into an Avalon VT-737 preamp/compressor as LL's "channel." The output of the 737 is split to monitor and FOH consoles. Since the signal from the 737 is hot and LL is a very strong vocalist, he's quite capable of overloading an input at the house console, so we use some compression on the 737. Herman also inserts a compressor on LL's channel in the FOH desk just for safety.

Unlike most shows, Steve handles the majority of LL's vocal effects from the stage. Outputs from the effect units are connected to the monitor console (feeding LL's monitor mix) as well as a pair of channels at front-of-house. The effect faders at the house console are basically left open, and Steve uses aux sends on the monitor console to add reverb or delay when necessary. Reverb typically comes from a Yamaha SPX990 or SPX900, set to the factory "Crystal Reverb" setting. Delay times are usually in the area of 230 to 250 milliseconds with 14 to 15% feedback. If Steve has a stereo rig then he'll run [for example] 250 ms on the left and 255 ms on the right for a little extra size. The delay is often used to accent LL's crowd participation, and to make his voice sound really *big* when he asks for the audience to respond to his call. Out front Herman adds a bit of 'verb to LL's voice from a 990 or a Lexicon PCM unit.

INSTANT REPLAY

On stage, LL's DJ, Cut Creator, is his right-hand man. He spins, scratches, and also MC's with LL. Cut Creator uses a pair of Technics SP1200 tumtables with a DJ mixer, and sends a stereo output to a split for monitor and house. Cut Creator is also responsible for running the backing tracks via a 360 Systems Instant Replay. The Instant Replay was developed for radio, TV, and A/V applications and is a hard disk recorder capable of 24 *hours* of stereo 16-bit/44.1 kHz audio. Like the name says, Instant Replay lets you assign audio "cuts" to buttons on the front panel, and start playback of any cut just by hitting the button (there are 50 "hot" buttons). The entire show is loaded into the Instant Replay. Cut Creator went back through LL's ten albums and basically re-recorded the original tracks minus LL's vocal. We have the entire show as a cut on the Instant Replay (with song spacing worked out before hand), but Cut Creator also has access to individual songs. If LL wants to stop or start a cut, or call out a song different from the set, it's ready instantly.

Cut Creator also has two DAT machines running simultaneously for backup. If there's a glitch in the Instant Replay we mute those channels and unmute DAT #1. If DAT #1 goes down, we mute that and unmute DAT #2. The DAT machines are wild-sync'd so we're always close to where we are supposed to be in the show.

The songs span LL's career, so the tracks differ sonically from year to year, and there's no luxury of bringing up a particular instrument. As a result Herman tweaks EQ on the two Instant Replay channels for every song, bumping up various frequencies on-the-fly to emphasize handclaps, background vocals, or a snare drum to keep up with the low end. It may look restricting but it's a challenge and offers a new perspective on what can be accomplished using EQ. To ensure that the low end doesn't get out of control, 80 Hz down to 40 Hz has to be tweaked on the house graphic, depending on the room.

CONFERENCE CALL

One of the big challenges at the AFC Championship Game was that we were both mixing on the same console (just like the old days in the clubs). We had a Yamaha PM3000 under the bleachers at the end zone opposite the stage, with [prefader] auxes feeding monitors, and the main L/R bus feeding the Oakland Coliseum's installed Turbosound cabinets and the TV broadcast. Herman mixed on a pair of stereo wedges, and watched video from the camera crew to see what was happening on stage. Complicating matters was the fact that LL was joined by Amerie, who sang backing vocals on LL's single "Paradise" and remained on stage throughout LL's set.

BOUNCY, BOUNCYBONCY,

One of the big problems in such a large venue is sound bouncing off the opposite end of the venue and returning to the stage. It's a massive delay and can really disturb the performers. To compensate Steve had to make sure that the on-stage monitor level was hot enough to overcome the level of the delayed sound (which he did). Fortunately the performers stayed within the perimeter of the stage and weren't conscious of the delay. It's crazy but that's the acoustic environment and you can't do anything about it. What you can do is use the tools at hand and apply them to the job.

Herman Leijte may be reached online at Koalabum@earthlink.net. Steve Johnson may be reached at SteJohnS@aol.com.

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World Radio History

Studios of the Stars

by Lisa Roy

The Cave

Billy Bob Thornton's musical retreat

Engineer Jim Mitchell, Billy Bob Thornton and Styx' Tommy Shaw in The Cave.

Pulling up the gated driveway in the Beverly Hills hood dimly lit by blue lights, muted pulsating rock beats can be heard. The front door swings open and a guy with long dark hair and a gentle smile invites us into the sanctuary once owned by Guns n' Roses guitar slinger, Slash. We enter the living room. There sits the Werewolf of London himself, Warren Zevon who is taking a break from the sessions downstairs, munching on a burger and fries. He smiles hello and gets back to his fuel for the evening. In walks the master of the house, Billy Bob Thornton looking more like a member of Creed than an Oscar-winning director. "Come on downstairs to The Cave, I want to play you some music and

Photo by Ed Culver

world. I wrote nine songs in three days on my 1972 Gibson Dove and "The Edge of The World" was one of them. I called Johnny [Cash] one day and told him, "I just wrote nine songs in three days. I think it's going to be the best stuff on the record, too. I've just got this feeling." He said, "Oh you had a bad day, didn't you son?" In other words, it's like things are sh*t in your life, you know damn well you're going to get some good songs out of it.

How important is the gear to you?

Technically the thing that was real important to me was making sure the vocals were clear…so you can hear the story. We used mainly vintage equipment expect for the RADAR, which still gives me that analog sound. I'm a huge fan of vintage gear. I love the sound of the Neve 1073's and the dbx 160's, which we use on almost every bass track. Also I want the record to sound just like when Jim recorded it here. It's like the old hillbilly philosophy, like in bluegrass music, the guys will step back from the microphone until it's their turn to sing, and then they'll step up to it. If you're going to put something in there, we want to hear it. If there were a technical philosophy to what we do, I'd say that's it. Check out Joe Walsh's first solo record. If you want to hear how a record's supposed to sound, listen to that.

Patch panels located throughout The Cave allow a variety of signals — mic, line, instrument, video, and even speaker level — to be routed anywhere else.

Basically, I'd say the main thing is to not let technology get in the way — but to use technology to it's fullest for what it's good for, and mix it with the spirit. It's not just one thing. If records were just technical then you wouldn't even need the artist. You can go in and create them yourselves. You want to use the technology to reach the fullest potential of the particular artist you're working with. And Jim knows how to do that with me.

What do you think about the use of Pro Tools?

I would imagine that everybody in the world uses Pro Tools on records these days. In the studio we resort to Pro Tools mostly for moving things around, editing and stuff like that. What's scary about it is people are using it live now. I have to say when our band performs live, if we screw up on stage, the audience hears it. We go out there as naked as you can be — no Pro Tools.

You have been acknowledged as a director/actor, and you're also a composer/musician/producer, whether performing your own material or working with others. What do you consider yourself first and foremost?

When I was a teenager my band opened up for the Earl Scruggs Review at an outdoor festival in Arkansas. It was our

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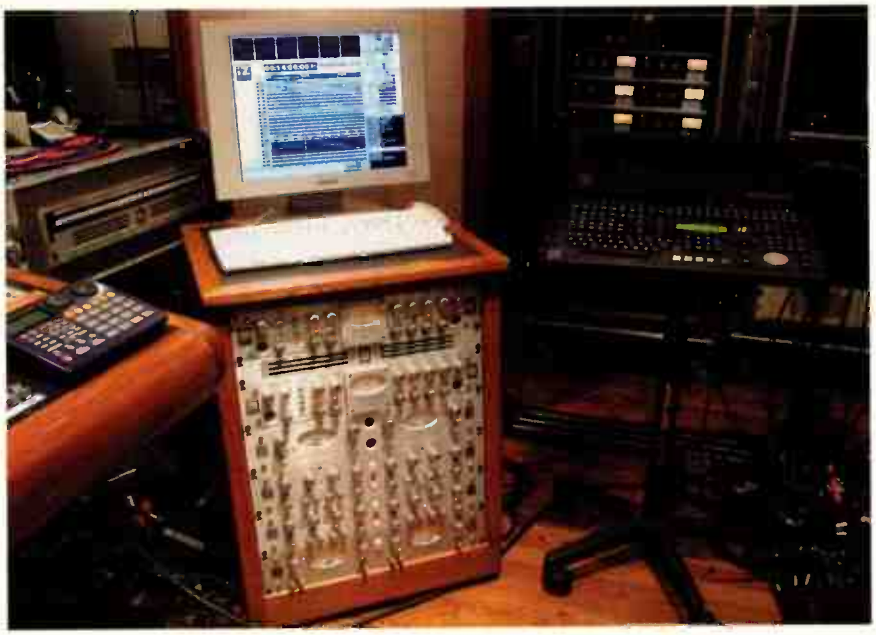

The Cave combines vintage gear such as a modified Trident console and Neve preamps with modern technology such as iZ Technology RADAR and Avalon preamps and processors.

band along with Earl Scruggs and Richie Havens, it was great. Then we did another festival with MC5 and Ted Nugent, I loved it. I've even been a roadie!

The thing is, it doesn't always work for actors who are just actors. There are some actors who are horrible and they don't pretend to be musicians. There are some musicians who aren't very good, or who have nothing to say. Frankly, I don't care if somebody can hold a high note for five minutes, if there's nothing behind it, I don't care about it. I don't think that your category dictates how good you are. It's like this person's an actor so he can't be a good musician. It has nothing to do with it. There are no lines. Levon Helms is a great actor. He also happens to be a great musician. I worked with Sean Combs on *Monster's Ball* and he did a great job. While shooting, he came to me and said, "I'm in your world now. Any advice you've got for me, tell me." I just said, "Look, when I go on tour, I may be calling you." He's an actor now, I don't call him a musician. The thing is actors and musicians are more in the mainstream, which may be why they're put under the microscope. If a painter decides to do sculptures nobody says anything. I just feel fortunate to even know those people and to be able to record and go out on tour while I'm busy on films.

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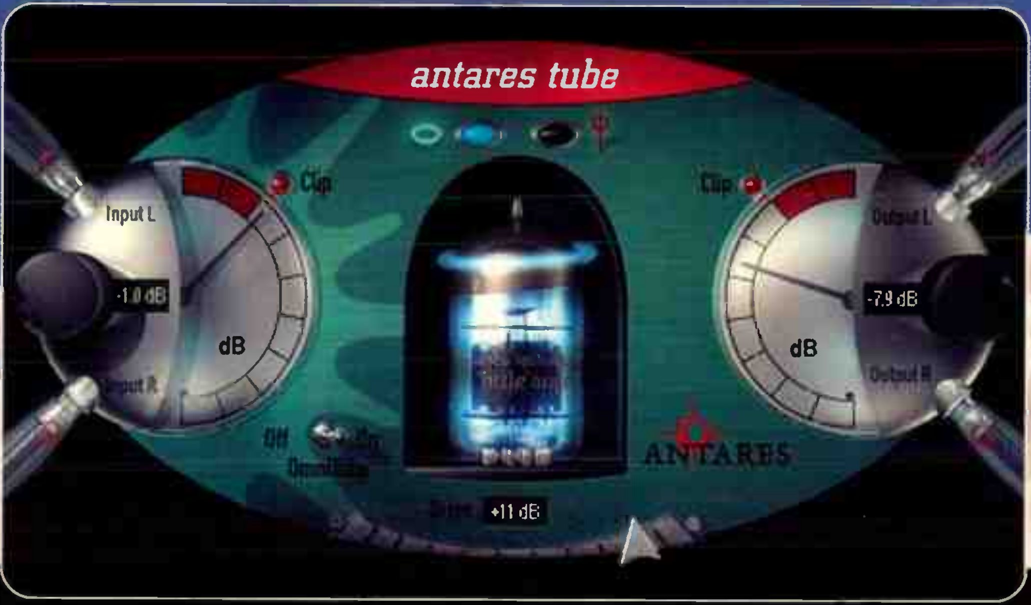

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Studios of the Stars

Ironworks Studios

Kiefer Sutherland and Jude Cole launch a major personal recording space

Kiefer Sutherland and Jude Cole at the SSL console.

One is a respected producer/songwriter/artist/manager…the other is an immensely sought after film and television actor. Together they form a powerhouse team. Jude Cole and Kiefer Sutherland have created impressive bodies of work separately; Cole's five solo hit albums, his recent production and writing of the duet single for Lindsay Pagano with Paul McCartney, and managing the multi-platinum act Lifehouse are but a few of his accomplishments. Sutherland's lengthy list of cinema credits as well as his current run-away hit drama *24* (for which he has just received a SAG Award nomination as Best Actor in a drama series) only tells part of his success story.

It is with Ironworks Studios that this duo added "studio owner" to their list of credits. "I think it probably started six years ago when we built a much smaller home studio for Jude and made a record titled *Falling Home*, a favorite of mine," remembers Sutherland on why they decided to build a full production facility. "Then we realized if we ultimately wanted to break bands the greatest way to do that would be to bypass a major label and make the record that we want and shop an entire product around. Ironworks is a place that we can do that in."

Upon entering the 15,000 square foot building, you sense that a lot of thought was put into not only the gear, but also the aesthetics, which were obviously designed for making records without clock watching. "This building was exactly what I had wanted on the inside. There was a lot of exposed brick and the wood trestle ceiling was something that was very hard to find in Los Angeles, so I fell in love with the building," admits Sutherland. "The studio part is 4,700 square feet and the back end of the building is more of a living area with a gym and kitchen. If the guys are working late they can just crash in the back area…you don't want to have to leave because if something's working you want to be able to stay as long as possible."

EQ: Acoustically and aesthetically this is a unique and attractive layout. Who designed the studio?

KIEFER SUTHERLAND: Jeff Cooper designed the studio and he did a fantastic job. Everyone that has recorded here so far has just been amazed with the variety of sounds. In the main studio that leads out into a corridor, there's a natural reverb that has countless variations depending on how you leave the door ajar. With a building this size that really is facilitating one studio, we've been able to take advantage and really have our inputs and outputs all through the entire building. So we have a lot of options.

Jude's been doing this for almost 20 years now. He was fantastic in the sense that every studio, I guess if you work in it long enough, you develop a complaint about it. So we were allowed to bypass a lot of problems just by virtue of his experience. Jeff Cooper did a beautiful design with regard to this studio.

In keeping with the history of the building (formerly an ironworks) I noticed a lot of ornate iron fittings, something that isn't the norm in most studios. How does that affect the acoustics in the tracking room?

JUDE COLE: You're right, there's iron everywhere the eye can see. But the iron has been hollowed out and filled with a substance that takes away any z effect. In fact, it even adds a very subtle high end but there's no reflection at all. We were curious at first about its effect and now it's really grown into its name [Ironworks]. Not to mention any pictures taken in this room will be instantly recognizable…it's very signature.

You didn't cut any corners when it came to equipment. How did you select the gear?

COLE: Mark Somguinari and myself selected most of the equipment. We talked about it, excluding the extensive guitar and amp collection Kiefer has, which is an exquisite collection that he takes pride in and for good reason. When you see all those guitars together it's a piece of work.

Mark and I pretty much went through the wish list and then reviewed the realities of the budget, which came into play. We put money where we felt it was going to be able to shine the best. We put a lot of money into compressors and we're just building a microphone collection. The console was very important and I knew I wanted an SSL. We found one that was previously owned by Larrabee, an SSL 4000 G+. It's got a nice round EQ system and it really suits our needs.

The racks at Ironworks are stocked with new, vintage, and vintage re-issue gear. Among the highlights are a Lexicon 960L, Empirical Labs Distressor and Fatso Jr, and Universal Audio LA-2A and 1176LN. Mic preamps include Brent Avrill's Neve 1073 clones's and Chandler Ltd. TG2 EMI Abbey Road reissue and LTD-1 Neve clone. According to Jude Cole, "We've run the gamut of pre's, and nothing touches the Chandlers. We're running everything through them and they never disappoint. Big and open."

Why did you go with the RADAR system?

COLE: I was really skeptical about RADAR at first. In fact, I second-guessed it so many times that I almost got two 24-track analog machines. In designing the room it was crucial that I

Studio Stats

CONSOLE: SSL 4072G+ with Ultimation

RECORDERS: iZ Technology RADAR [2], Studer A-827 24-Track 2-inch tape, Digidesign Pro Tools Mix Plus

MONITORING: Genelec 1032, 1034B; Bag End 18-inch sub, Mackie HR824, Yamaha NS-10 [3 pair], Bryston Pro 4B [4]

PROCESSING: Lexicon 960L, PCM90; Yamaha REV-7, SPX-90II; TC Electronic D-Two, Line 6 Echo Pro, POD Pro; Universal Audio LA-2A, 1176LN; Drawmer 201, Empirical Labs Distressor, Fatso Jr. Chandler Ltd. TG1

MICROPHONE PREAMPS: Chandler Ltd. TG2, LTD-1; Brent Averill 1073

MICROPHONES: Audio-Technica 4050, 4060, 4047, ATM-25; AKG SolidTube, C1000S, D190E; Electro-Voice RE-20. Groove Tubes 1A, Neumann U47, U47FET, U87, KSM184, TLM103; Oktava MK012, Sennheiser MD421, Shure SM57, Beta 58A

GUITARS AND AMPLIFIERS: Almost 70 vintage guitars (all with SIT strings), Fender Harvard (1959), Twin Reverb (1695), Bassman w/2x12 cab (1964); Vox AC-30 Top Boost (1963), Marshall 2104 2x12 combo (1979), JCM 900 50 watt w/1960TV 4x12 cab; Matchless combo prototype (1991), Bogner Shiva combo

KEYBOARDS/SYNTHS/SAMPLERS: Hammond B-3 organ with foot pedals and matching PR-20 Tone Cabinet & Leslie 147 (1959), Wurlitzer 200 (1972), Korg Triton, Micro; Roland RS-5, various cool Casio battery-powered hit-makers, a plethora of MIDI gear.

MISCELLANEOUS: Monster Cable throughout, full guitar/repair shop on premises with Stewart-Mac tools. Every guitar pedal known to God and man (okay, close)! Almost every '80s beat box and drum machine ever on record. JVC plasma and Mitsubishi flat-screen monitors.

didn't want to use this room with my eyes. I spent the last two years making Pro Tools records. I really felt like I was beginning to disassemble some good work. Like you go in and cut a track and it would be good and feel really fresh and then you get in with Pro Tools and you start using your eyes. It's really using the wrong sense to create. I think, music is supposed to move people with their ears.

Pro Tools has its place but I wanted to do that in another room, I didn't want that to be a part of the main room. So I was really skeptical about using RADAR. The first couple things I cut in this room were on tape and it sounded wonderful. Then it was time to transfer the 48 tracks to RADAR. . . now I doubt very much that I will go back to the tape. It's wonderful. I can't say enough about it.

Tell us about the Pro Tools room at Ironworks.

COLE: Our Pro Tools room has a window directly on the main tracking room. It's really a nice feature that I haven't seen in a lot of other rooms. We can track in the Pro Tools room while we're mixing a session in the main room. So while it's a relatively small studio, it really uses every square inch to it's fullest potential.

Processors at Ironworks include a Lexicon PCM90, Yamaha REV7 and SPX90II, TC Electronic D-Two, and a Line 6 Echo Pro.

Dynamics processors in regular use at Ironworks include a Universal Audio LA-2A and 1176LN, a Chandler Ltd. TG1, and a Drawmer DS201.

How did you come to amass such a collection of vintage guitars?

SUTHERLAND: The guitar collection started when Jude and I first met. He's one of the most beautiful guitar players in the world and there were just some guitars that he should have been playing and he couldn't afford. So I would buy a couple guitars and then I would lend them to him. The collection started like that and Jude started to do really well and I said, "I want my guitars back" and that's when I realized we had kind of a collection going and have just been adding onto it over the years.

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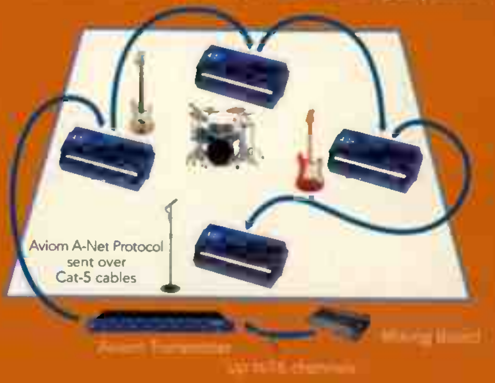
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All the Les Paul's are really amazing. The '58 and '56 Les Paul Special, '54 Les Paul Jr., '55 Les Paul Jr., those are fantastic guitars. I've got a '59 Strat, a '66 Strat that plays beautifully. A lot of people like to come in, friends of mine from different bands; they'll borrow it for a session. It's really difficult to say which ones are my favorites, the collection is so extensive — I've got a '51 ES225, which is a rare Gibson hollowbody, that I like as well.

What are the pros and cons of being in a studio partnership so far?

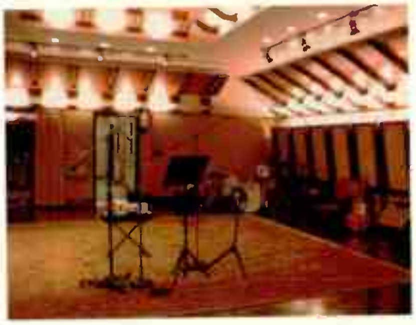
SUTHERLAND: I don't really have any cons because the people that are working here are people that I really like as well as the music that they're making. Our whole vantage point is to make records and have those records sell — that will ultimately be the business end of the studio.

As for the partnership with Jude — Jude's like a brother to me. We've been best friends since I was a teenager and we just knew we were going to kind of live our lives together. For me to watch a talent like that and want to do everything you can to kind of — I don't know — partner up with him and make sure that they've got every opportunity available to be able to express what they do.

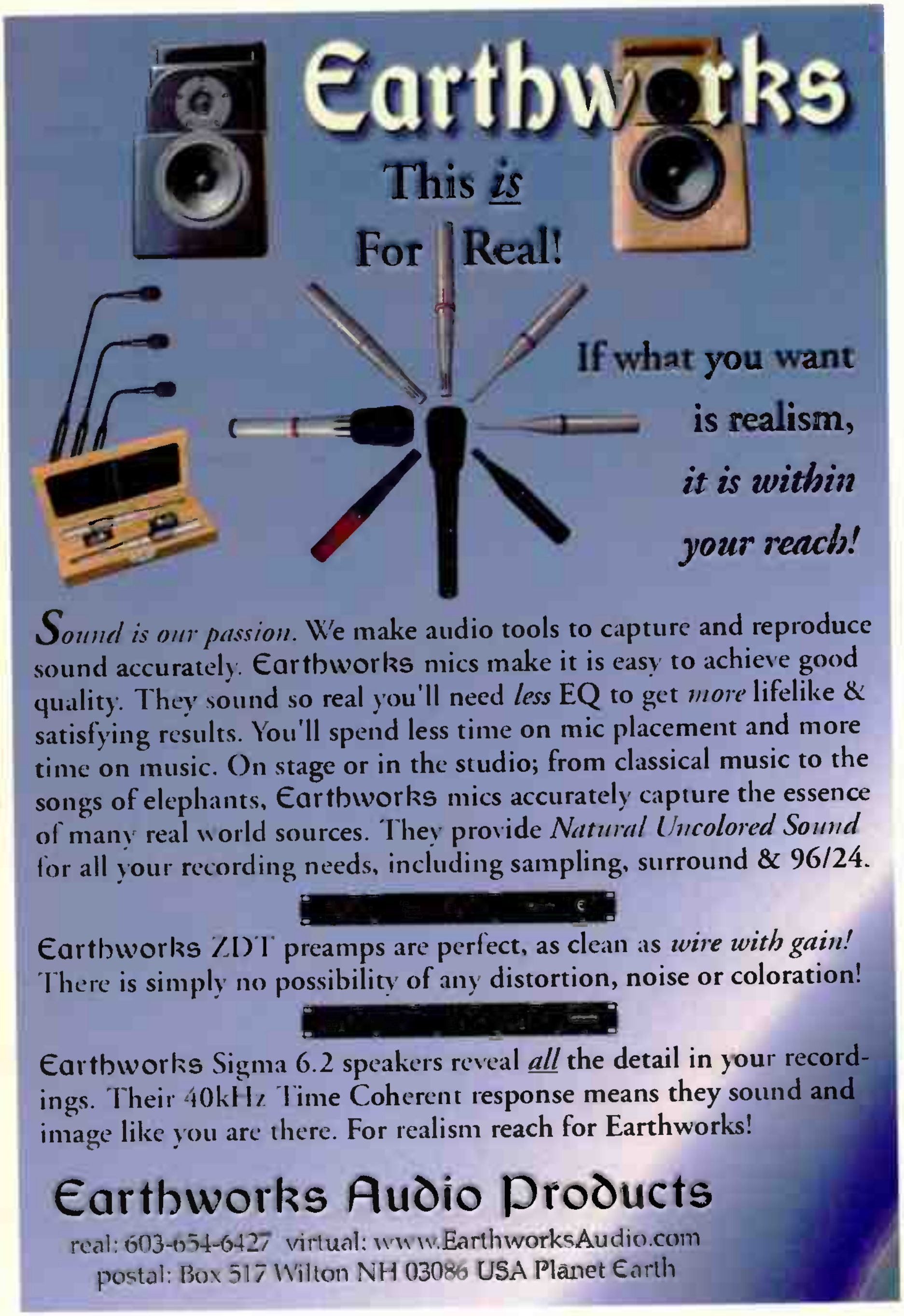
COLE: We've just been kind of brothers for the last 17 years. We've always had a great time. It's always been about great music as well. Kiefer's been an incredible supportive friend in my life and obviously there are a lot of musicians that he loves and would love to have the ability to help along the way. I think he just loves the whole environment and he's also a pretty damn good guitar player.

As for the studio, the nice part is not having the constraint of a budget when developing an artist. It's the nicest luxury I've ever had. I'm humbled by it because it took a lot of faith on Kiefer's part to get it going and put it together. This is a product of something that's come from a conversation that's lasted for the last 15 years.

Although Kiefer Sutherland and Jude Cole own a massive selection of vintage guitar amplifers, a Line 6 Pod Pro is available as a convenient guitar processor (and for processing other signals).



The Ironworks' main tracking room is quite spacious, and features unusual decorative iron accents. All the iron has been specially treated to reduce resonances and reflections.



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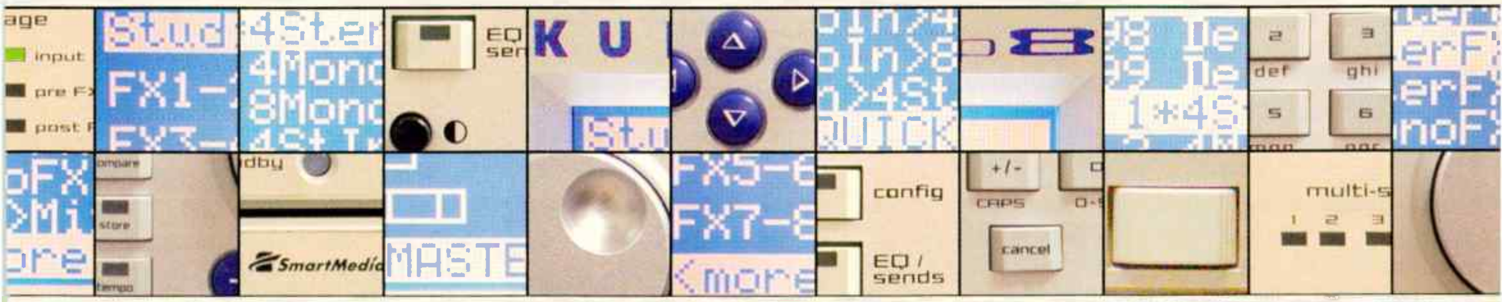

"...I set up a Studio with one stereo and three mono inputs feeding four stereo effects buses. I configured a stereo Chain for the sax on effects buses 1 and 2 and placed a warm plate reverb on buses 3 and 4 for the vocal. Next I submixed all the bass and drum tracks to stereo and inserted a mastering effects Chain across buses 7 and 8 to pump up the low end and tame the dynamics. Last, I set up a basic club ambience for the entire mix.

"The fact that I was able to process an entire mix of this complexity through a single device is amazing. Better still, it sounded great! If I could only have one piece of gear in my rack, this would be it."

–*Mark Nelson, Electronic Musician Feb. 2003*

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Studios of the Stars

The Bacon Brothers

Making music in Manhattan

"Check out their music on their web site…they've got a good site," recommended The Bacon Brothers manager William Derella. He was right; with just one click I was downloading "Can't Complain." After several listens it became apparent that this duo is deeply serious about the music they make and how it's recorded. The work has impressed critics, garnering such reviews as "a solid Americana album," "natural musical performances," "extremely well written," and, "there's no denying The Bacon Brothers have put together a nice album here."

So exactly how did those Bacon boys put this record together? "We started the recordings in my mid-town Manhattan studio and we recorded to DA-88's. We then transferred those basic tracks to Pro Tools and moved the project to Paul Guzzone's home studio, who is our co-producer and bass player," explains the musical statesman Michael Bacon. "At one point we took the Pro Tools tracks to a larger facility and recorded 20 strings and overdubbed guitars and drums. It was really kind of all over the place in terms of the techniques and kind of equipment we used."

Just like their music, neither brother is shy of experimenting with technology in the studio, as the multi-talented other half of the Bacon Brothers explains. "We're thinking maybe we need to go the other direction technically, and we're talking about trying to record something in a more down and dirty live sort of way, and not use Pro Tools really, keeping it as analog as possible," describes Kevin.

EQ caught up with the brothers to discuss the studio in Manhattan, scoring for films with Michael, doing demo's at home with Kevin, recording the Brothers live for DVD, and making igloo's.

EQ: Tell us about Michael Bacon Music Studio in Manhattan.

MICHAEL BACON: I share the space with another fella and each of our control rooms faces a fairly good-sized recording room. When he's using the tracking room all the microphones are plugged into his control room and vice-versa. We don't do any outside projects and we just kind of stay out of each others way so it works well for us.

Do you have the studio mainly to do Bacon Brothers records?

MICHAEL: I write for films and television and I've had a studio in New York in various forms all over the city for about 15 years. Before that it was in our living

Bacon gear photos by Wes Bender

room and my wife made it pretty clear that she really didn't want a recording studio in the living room. It ended up being very important to always keep the two things separated. Now she manages all my musical business, my film scores, and the band's touring, production, and publishing companies.

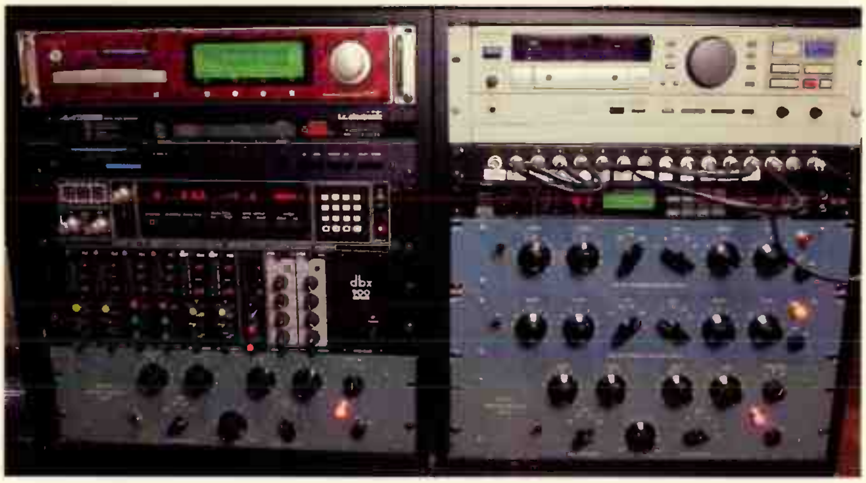
Did you do the three Bacon Brothers records at Michael Bacon Music Studio?

KEVIN BACON: No we didn't. We started *Forosoco*, at Avatar Studios. It was our first record and it was a great place to record. We did all the tracks there with our producer at the time, Rob Galbraith. We would work all night at Michael's studio comping vocals on ADAT's and then take the tracks back to Avatar and lay them back.

MICHAEL: We recorded it analog and then transferred to Sony 3348 and then we mixed there as well. We've been saying recently that we miss that whole sort of mode of recording where you go into a big comfortable studio and work on the songs and build them as a group as opposed to the Pro Tools mode where it's broken down pretty much into very tiny pieces.

It seems that recording in computers is the future. How do you guys feel about that?

KEVIN: Pro Tools is a fantastic and very helpful tool and yet at the same time when we play live, as a band in the studio or during rehearsals, we really like the feel. The grooves that come out of that and the excitement that comes out



The racks at Michael Bacon Studios comprise a variety of tube, analog, and digital processing gear. Shown here are (left side) Sony DRE 777, TC Electronic M5000, AMS RMX-16, dbx 900 rack, Pultec EQH 2; (right) Panasonic SV3700 DAT, patch panel, SPX 1000, two Pultec EQP 1-A, Pultec EQH 2.

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Joe Chiccarelli

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

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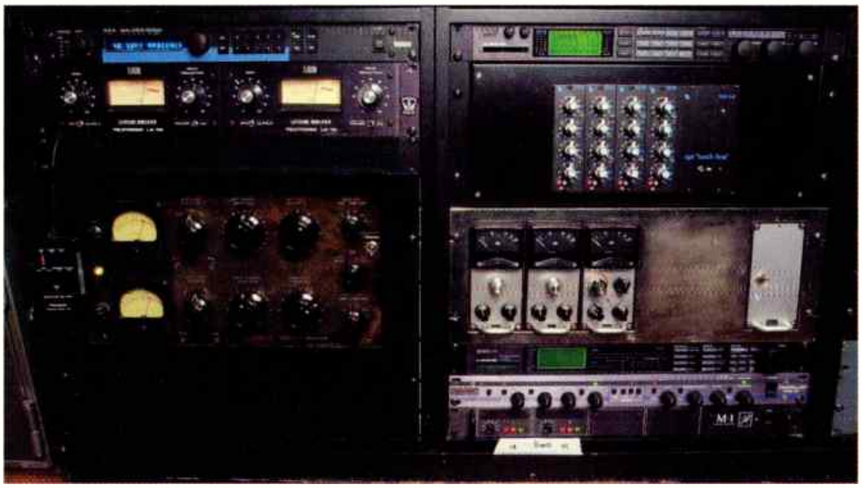

The Bacon Brothers make use of an array of vintage and not-so-vintage gear. On the left side of this rack, there's a Lexicon PCM 70, two UREI LA-3A, and a Fairchild 670. On the right, a TC Electronic Fireworx, an API 550B lunch box with four modules, a Pye Limiter, and a TC Electronic Finalizer, Aphex Compellor, and John Hardy two-channel M1 mic preamp.

of that — it becomes less about putting a lot of layers or overdubs and more about having one sound that comes out of a bunch of musicians playing together. That's how I'd like to record our next record. We'll see how that goes…we'll probably end up back in Pro Tools doing everything. [*Laughs.*]

Don't you think there's room for both analog and Pro Tools to co-exist in the studio?

KEVIN: Pro Tools is very seductive. You can walk in, and in a very short amount of time you can get pretty amazing sounding things. But I would like to see us go back to the way we really started playing, which was sitting around in a room and playing live.

You've written and played music together for more than 20 years. I know being a studio owner, Michael spends a lot of time in the studio. Describe your studio experiences Kevin.

KEVIN: I'd spent almost no time in the studio at all before The Bacon Brothers first record. It was a totally new place for me. I always compare it to if you've done a bunch of theatre, you're an actor, and you do the same thing. But it's that first day you walk onto a movie set, you're like, "Oh my God, what the hell is this?" It's a totally different world with different kinds of demands and a different way of performing. I felt like on the first record I was really kind of overwhelmed and sort of thrown by it. I just let Michael and the guys and Rob Galbraith lead the way.

Now I feel a lot more comfortable in the studio. Besides the three records, we've also done many demos and I even record stuff at home. I really like it actually. It's like being on a movie set, which is a very comfortable place for me to be.

What gear do you have in your home studio?

KEVIN: I have a thing called a PSO2, which is made by Zoom and it costs about $250. [*Laughs.*] It's got three tracks and another track that you can use one of the pre-programmed bass and drums on. You kind of build the songs with that first. It's got a built-in mic and I just overdub on that. You can take it on the road too.

When I first started recording demos I used a basic $100 keyboard, it was almost like a toy. [*Laughs.*] I just needed a DAT player then and push a button and then play along with it on my guitar. When I work on songs I like to have some kind of beat because it gives me ideas about the way the song's going to feel and it helps when you only have a guitar. So my home gear is really down and dirty. It's really just a writing tool.

When The Bacon Brothers go into to the studio to record, what are some of your must-haves?

MICHAEL: I've spent so much of my life in the studio that I'm pretty much used to anything. I would say being in the studio with people that I feel really comfortable and have enormous respect for the musicianship, pretty much outweighs the gear. Luckily the guy I share studio space with is a total gear freak. He has one of the most amazing microphone collections and he's got every vintage limiter.

KEVIN: I like a big bottle of water and I don't like it too bright if I'm doing vocals. That's pretty much it.

Michael you forged a career fronting the '70s folk-rock band Good News, and then moved into composing for film and television,

Studio Stats

CONSOLE: TASCAM M3700 automated console

RECORDERS: Otari MX 80 two-inch 24-track, Ampex ATR 102 two-track, Panasonic SV series DAT [4], TASCAM CD recorders [3], Digidesign Pro Tools Mix Plus [3], 888/24 I/O [5]

MONITORS: Genelec 1031A, Yamaha NS-10M, Tannoy PBM 6.5, Auratones

OUTBOARD: Fairchild 670, Teletronix LA 2A [2], LA 3A [2]; UREI LA 4A [2], Universal Audio 1176LN [2], PYE Limiter [3], RCA BA6A, Neve 33609, SSL G384, Aphex Expressor [2], 320 Compellor; dbx 903 [2], 902 [4]; Greg Hanks BA 660, Pultec EQP 1A [2], EQH 2 [2], MEQ-5 [2]; GML 8200, API 550b [4], TC Electronic Finalizer

MICROPHONE PREAMP: Neve 33115 [2], 33114 [2], API 312 [8], John Hardy M-1 [2], Telefunken V 76 [2], V 72 [2]

MICROPHONES: Telefunken ELA M 251 [2], Neumann M 50, U 47 [2], M 269, U67, SM 69, KM54 [2], KM53 [2], U 87 [2], FET 47; AKG C12B [2], C12B [2], D12; Sennheiser 421 [2], 441; Shure SM 57 [4], SM 94 [2], SM 7; Coles 4038, RCA KU3A

EFFECTS: Sony DRE S777 [two engines], EMT 250, EMT 140 with remote and Martek upgrade, AMS RMX 16, TC Electronic M 5000 [two engines], Fireworx; Lexicon PCM 42 [2], PCM 70; Yamaha SPX 1000, dbx 120 XP, Roland Dimension D, RE 501 Chorus Echo; Maestro Echoplex

INSTRUMENT AMPLIFIER: Marshall 50-watt plexi, 4x12 cab; Mesa Boogie Dual Rectifier, Orange 50-watt amplifier, 4x12 cab; Vox AC50, AC30; Fender Deluxe Reverb, 59 Bassman; Gibson Falcon, Ampeg SVT, 8x10 SVT cabinet; Leslie 122

(Special thanks to Jamie Lamm for assistance with this list)

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earning an Emmy for your score for the documentary *The Kennedy's*. Kevin your credits include singer/songwriter/guitarist/director and as one of the most prolific screen actors of our generation. What do you consider yourselves first and foremost?

MICHAEL: Musician — because I think that's really the way you survive and try to make a living in creating music. You really have to have a good sense of thinking of yourself as a musician. There's also a lot of daunting challenges because if you do consider yourself a musician you're putting yourself up against Leonard Bernstein and Igor Stravinsky and all these amazing musical minds.

If I call myself a musician, I should be able to do what all those people do. And on the other side, the music I was brought up with, the exquisite simplicity of American folk music and the acoustic guitar, the possibilities of one person, what they can do sitting down with a song and an acoustic guitar is also a huge challenge.

A seven-foot Yamaha grand piano is one of the highlights of the tracking space at Michael Bacon Music. The studio also features an array of Gibson, Fender, Taylor, and Silvertone guitars and amps from Marshall, Orange, Mesa Boogie, Vox, Gibson, and Ampeg.

When I first moved to New York, I gave up being a singer/songwriter because I had a family to support. When Kevin and I put the band together that brought back all that other side of me that I had to give up; so I consider myself a really lucky person. One of the things we're real excited about is we have a gig next weekend at the first place we ever played eight years ago, just Kevin and I. We've been working our asses off trying to figure out how we change what we do into a duet situation from a six-piece band. The other thing I'm looking forward to is we're shooting a high-definition video of an upcoming live concert at the John Harm Center for the Arts in Englewood, New Jersey. The Bacon Brothers will be on DVD!

KEVIN: I guess if somebody asked me what I consider myself my first response would be I'm an actor and my second response would be I'm a songwriter. I like to be able to do as many things as possible. My daughter and I built a really nice igloo this weekend, so I'm also an igloo builder! ■

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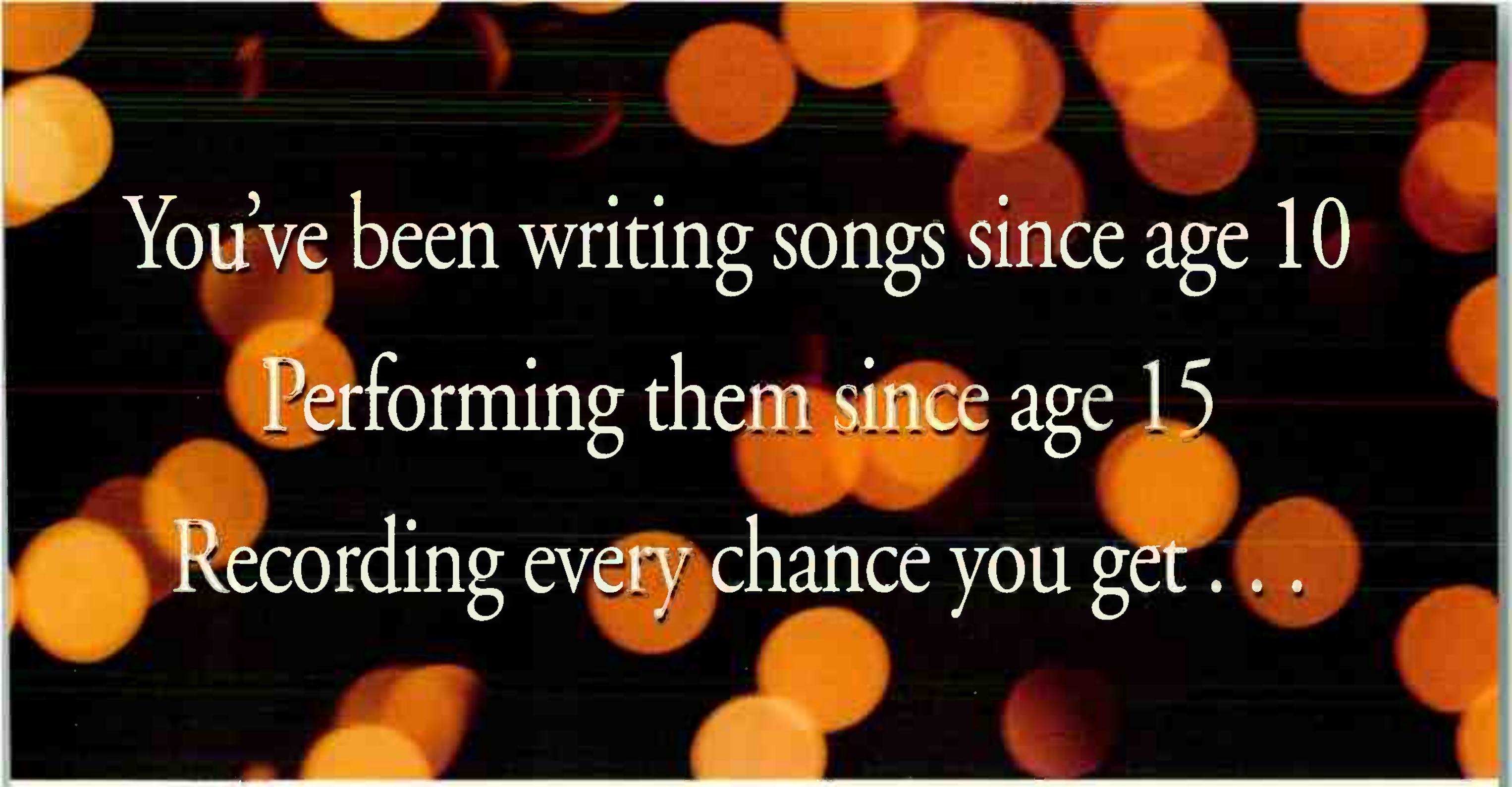
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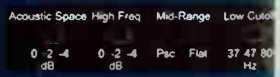

The Studiophile series is also designed to let you take your music to ne dimensions with surround sound so you can mix for today's home theat environments. The Studiophile SP-8S active subwoofer with stereo bas management adds low end that you can really feel to any stereo pair. A the minimal size, weight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

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Soft Synth Special

Welcome to the Soft Machine

On May 23, 1997, a small Swedish company named Propellerhead Software released a program called ReBirth. I'm sure they had no idea that their moment of inspired whimsy would change the musical world.

ReBirth was a software emulation of Roland's TR-808 drum machine and TB-303 Bass Line — instruments long out of production, but coveted by dance music enthusiasts. The sound was the same, the front panels were the same, the controls worked the same. But they lived on a computer screen, not the physical world.

Roland, to their credit, correctly took this as an homage, not infringement. . . and the idea of creating software versions of classic instruments was on its way. Native Instruments followed up with an uncannily accurate emulation of the Hammond B3, Minimoog emulations hit the market, Steinberg brought the PPG Wave 2.2 back to life, and classic instruments from the past once more breathed life into contemporary music.

But soft synths are also about innovation, not just emulation. Nemesys GigaSampler laughed at RAM limitations by streaming long samples from hard disk. Cycling '74 and Sound Quest made the software synth equivalent of Lego blocks, so inspired users could build their own synths. Instruments with no hardware precedents, such as Steinberg's Plex, started to emerge. Companies even produced soft versions of their own hardware, such as the Access Virus and recently, the Akai VZ8.

As faster, more powerful computers became more affordable, the trickle of instruments became a flood. Propellerhead delivered ReBirth's follow-up, Reason, and jaws dropped around the world at the brilliance of a virtual studio that lived in software. Digidesign gave soft instruments a hardware boost in their TDM environment. Meanwhile, a new generation of instrument designers created public domain programs of astonishing depth — programs such as Glenn Olander's Crystal (Green Oak) and René Germán Ceballos's Triangle II (rgc:audio) proved that not only can you get something for nothing, you can get a *lot* for nothing.

Instruments started sprouting multiple outs, the DXi standard defined a native instrument protocol optimized for Windows, and parameters became easier to automate. Sample libraries turned into plug-ins, and plug-ins turned into sample libraries. MIDI delay became a thing of the past, as data jacked in directly to the data superhighway of high-speed computers, rather than through a pokey serial port to a pile of parts.

Now we've come full circle: hardware boxes host plug-ins, and fader boxes bring hands-on programmability back to software. As the yin and yang of hardware and software converge, devices such as CreamWare's Noah, Manifold Labs' Plugzilla, and Open Labs' eKo — hardware devices dedicated to running plug-ins — point the way to a new direction for software synthesis.

Not all is rosy, though. Petty thieves who distribute "cracked" software threaten the survival of companies who have no real protection against people without a conscience. Conflicting "standards" force engineers to re-work the same plug-ins for different platforms, rather than concentrate on new product development. And as operating systems evolve, some — maybe most — of today's instruments won't be able to run on the platforms of the future.

But the soft machine is here to stay. Debates about whether they sound as good as "the real thing" fade as even the detractors realize that soft synths can perform tricks that hardware synths can't do, and probably never will. 200 virtual knobs don't cost a lot; 200 real knobs do.

At one time, you brought instruments to the studio. Now, at least for keyboards, instruments can live in tracks, not racks. Control signals flow through an invisible central nervous system within computers, not on patch cords linking isolated islands of hardware. And music, manifesting itself as a torrent of numbers floating along the pins of integrated circuits and the conduit of an edge connector, now lives in a new environment where the physical world has ever-diminishing power to limit the human imagination.

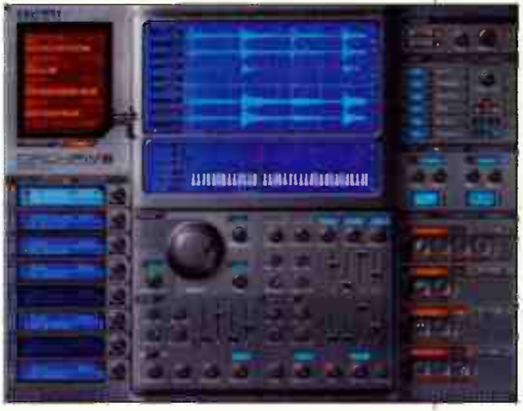
Welcome to the soft machine. — *Craig Anderton*

PRODUCT VIEWS

Soft Synths At NAMM

Compiled by Craig Anderton

(As part of this issue's special section on software synths, Product Views concentrates on significant soft synth news from the 2003 Winter NAMM show. The complete NAMM report will appear in next month's issue.)



Akai. The **VZ8** software-based sampler is a VSTi (Windows) and an Audio Unit (Mac OS X) implementation of the hardware Z8 Performance Sampler. Featuring up to 24-bit/96 kHz performance, 64 voices for each instance and 16 virtual audio outputs, the VZ8 can trigger samples from RAM or stream from disk. It offers over 30 filter types; a modulation matrix routes up to 35 control sources to over 50 targets. Eight virtual Q-Link controls enable real-time performance control. Sounds can be loaded from Mac/PC hard drives, or using the ak.Sys disk browser, directly from Akai sound library CD-ROMs inserted in your computer's CD-ROM drive. **www.akaipro.com**

Applied Acoustics Systems. **Tassman Version 3** is now cross-platform compatible (OS 9.x, OS X.2, WinXP/2000/ME/98SE; MAS/VST/DXi; ASIO/DirectConnect). It features 50 new instruments that cover analog, acoustic, and hybrid types. An integrated browser allows drag-and-drop access to instruments and other program elements; new modules include sequencers, filter models, compressor, dedicated tremolo, syncable delays and LFOs, and envelopes with modulation input for all stages. Other features include MIDI learn/forget modes on all parameters, recorder module with start/stop input for cutting perfect loops, and aftertouch support. **www.applied-acoustics.com**

Arturia. The **Modular System 3C** emulates the original Moog modular synthesizer. Supported plug-in formats are VST, DXi, MAS, RTAS, and HDTM; it works with Windows 95/98/ME/2K/XP, Mac OS 9.X, and OS X.2 or higher. Its complement of modules includes nine oscillators, three filter slots, six ADSR envelopes, and many more; unlike the original, polyphonic operation is possible. **www.arturia.com**

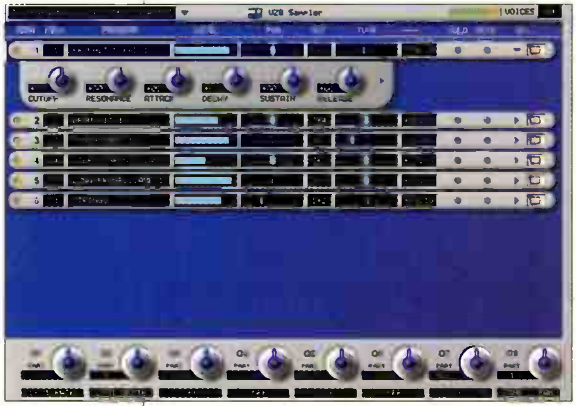
BitHeadz. In addition to OS X support in stand-alone mode, **Unity 3.0**, **Phrazer 2.0**, and **Phrazer LE** will support Audio Units in a future update . . . **Unity Synth Expander 1** ($199) includes six plug-ins: FM-1 eight-operator FM synth, BR-1 brass physical modeler, EP-1 electric piano modeler, GL-1 glottal/vocal physical modeler, VS-1 vector synth, and WS-1 wave sequencer synth. They can be brought into Unity Session, Unity DS-1, Unity US-1, or into sequencers as a plug-in . . . PC Version 3.0 of **Unity Session**, **Unity DS-1**, and **Unity AS-1** will support Win 2K/XP. **www.bitheadz.com**

Cakewalk. The **Project5 Soft Synth Workstation** ($429) includes five instruments, nine effects, sequencing, pattern generation, automation, etc. For more information, see the First Look in the January 2003 *EQ*. **www.cakewalk.com**

CreamWare. The **Noah** hardware host for software synthesizers now includes the following instruments: Minimax (Minimoog emulation), B-2003 drawbar organ emulation, Vectron Player (based on the Prophet VS vector synthesizer), Lightwave wavetable synthesizer with 128 waveforms and modulation matrix, and Six-String, which models string characteristics with exceptional realism. **www.creamware.com**

IK Multimedia. **SampleTank2** includes three different synthesis engines: traditional resampling, pitch shifting/time stretching, and the Stretch engine, which offers independent control over basic sound components like intonation, tempo and frequency spectrum. Redesigned synth functionality provides control over up to 64 parameters, and a loop sync feature automatically resyncs loops to the host tempo, with independent pitch/formant control. Other features include a new zone control, mix panel, expanded effects section, 256-voice polyphony, and enhanced audio file import. **www.ikmultimedia.com**

MOTU. The **Mach 5** is a surround-capable sampler for Windows/Mac OS 9/X that can play and transpose 5.1 surround files in real time, and add multichannel effects. It handles up to 24-bit/192 kHz audio (WAV, AIF, SDII), imports Akai, SampleCell, HALion, EXS24, Pulsar STS, Gigasampler, Kurzweil, Roland, and E-mu samples, and is compatible with MAS, VST, RTAS, HTDM, Audio Units, and DXi. All parameters can be controlled and automated via MIDI. **www.motu.com**



Native Instruments. **Intakt** ($199) is a cross-platform sampler designed for rhythmic loop playback and manipulation. It automatically syncs to tempo, includes a library of loops from Zero-G and East West, and can export a MIDI file for manipulating the loop's "groove" in a host sequencer. The Beat Machine function opens REX files that already contain marker information; the Time Machine does real time stretch/compress. It imports WAV, AIFF, REX1 and REX2 files, Gigasampler, Akai, HALion, EXS, Battery, and Kontakt instruments; supported interfaces include VST 2.0, MAS, DXi, ASIO, Soundmanager, FreeMIDI, OMS, Audio Units, Core Audio, and RTAS... **Kompakt** ($199) ships with a 2 GB sample library and can import Kontakt, Gigasampler, HALion, EXS, Akai, and other common formats. It also streams from disk and provides integrated effects, up to 256 voice polyphony, and supports the same interfaces as Impakt...**Reaktor 4** ($499), an upgrade to NI's modular instrument construction kit for VST/DXi/Audio Units, is compatible with all major interface standards and Windows/Mac OS 9/X. It includes the Pro-53's anti-aliasing oscillators, several new filters, and can perform real-time granular effects such as freezing and scattering. Its instrument Library includes dozens of instruments; effects include multi-band compressors, spatializers, surround reverbs, and vocoder...**Vokator** ($299) is a vocoder effect plug-in and vocoder-based synthesizer that features a dual-oscillator design; its granular sampler can independently control a sample's pitch and time. A full range of modulators are routable to any of the synthesizer's or sampler's parameters. It supports VST, MAS, Audio Units, DXi II, ASIO, Soundmanager, and Core Audio...**Reaktor Session** ($249) features Reaktor 4's audio engine and core instrument library (synthesizers and resynthesizers, samplers and beat-loopers, groove and drum machines, surround and other effects), as well as access to NI's online instruments library. It supports VST 2.0, Audio Units, and DXi. www.native-instruments.com

Ohm Force. The **Quad Frohmage Melohman's Pack** consists of two plug-ins: a synthesizer that produces new sounds from existing materials, and a quad filter for further sound-shaping. It supports RTAS and VST on Mac OS 9.x and PC, and RTAS, VST, and Audio Units for Mac OS X. www.ohmforce.com

Open Labs. **eKo** ($1,995 to $5,200, depending on configuration) is a keyboard-based instrument that hosts VST plug-ins and instruments. In addition to a standard AGO keyboard, there's an internal modem (and QWERTY keyboard) for net surfing to download upgrades and sounds, interchangeable control surface slots, power management system that keeps the system going during power interruptions, 15-inch LCD screen, near-zero latency, and operation based on standard Windows XP and Linux operating systems. Very cool. www.opnlabs.com

Propellerhead Software. **Reload** (free to registered users, otherwise $49) is a utility program for Mac OS X and Windows XP that allows Reason and ReCycle users to load Akai S1000/S3000 sound disks. It can load complete Akai programs and samples, including keyboard mapping and parameters, into the NN-XT as well as samples (including looping) into the NN-19 sampler and ReDrum...**Digidesign** will incorporate **ReWire 2**, allowing Reason instruments to show up in the Pro Tools environment. www.propellerheads.se

Roland. **VariOS** is a hardware/software system; the VariOS module handles all processing, and is controlled via USB using bundled software. The first software bundle, **V-Producer** for VariOS, can independently manipulate pitch, time and formant, add effects, and build audio-based arrangements — in real time, and without CPU drain. The VariOS module is updatable via PC card. www.rolandus.com

Sound Quest. **Infinity 2.05**, a virtual device creation program, contains 390 modules for making audio and MIDI instruments, which you can then load in to hosts as a plug-in. Infinity 2.05 supports DXi, VSTi, VST, DirectX 8.0 and MFX; however, it also accepts DXi, VSTi, VST, DirectX 8.0 and MFX plug-ins as modules, so existing soft synths and effects can serve as components for larger plug-in devices of your own design. The package includes a collection of 40 synthesizers, three drum kits, and over 60 audio processors; it supports control automation within itself and host programs. www.squest.com

Steinberg. The **D'Cota** synthesizer ($249.95) incorporates three types of synthesis: analog, spectrum, and wave impulse; an effects section offers delay, distortion, modulators, and three oscillators with more than 60 waveforms for frequency, pulse width, and ring modulation. D'Cota is eight-way multitimbral with four stereo outputs. www.steinberg.net

Synapse Audio Software. **Orion Platinum**, a virtual studio for Windows 95/98/ME/NT/2K/XP with ASIO/MME compatibility, includes 10 instruments (synths and drum machines), 27 effects, mixer (with parametric EQ, VU meters, FX sends, inserts, etc.), and supports synth and effect plug-ins (VST, DX, VSTi, DXi, and ReWire). The boxed version includes a 600 MB library of presets and samples; Orion can also load Akai S5000/6000, SoundFont2, and Kurzweil patches. www.synapse-audio.com

IT'S A WRAP(PER)

Soft synth "wrappers" let different soft synth standards live in peace

By Craig Anderton

Although the cross-platform VST 2.0 protocol is the dominant standard for software instruments, there are several others — including MAS for MOTU's Digital Performer, RTAS for Pro Tools, and DXi for Windows-based programs, such as Sonar. Although a program that follows one protocol theoretically can't accept instruments following a different one, there is a workaround: The wrapper.

A wrapper "wraps" a software translation layer around an instrument that fools the host into thinking it's compatible. An analogy is like going to a fancy restaurant and not being let in because you don't have a proper suit and tie. So you "wrap" yourself with the right clothes, and as if by magic, you're restaurant-compatible.

A CASE HISTORY

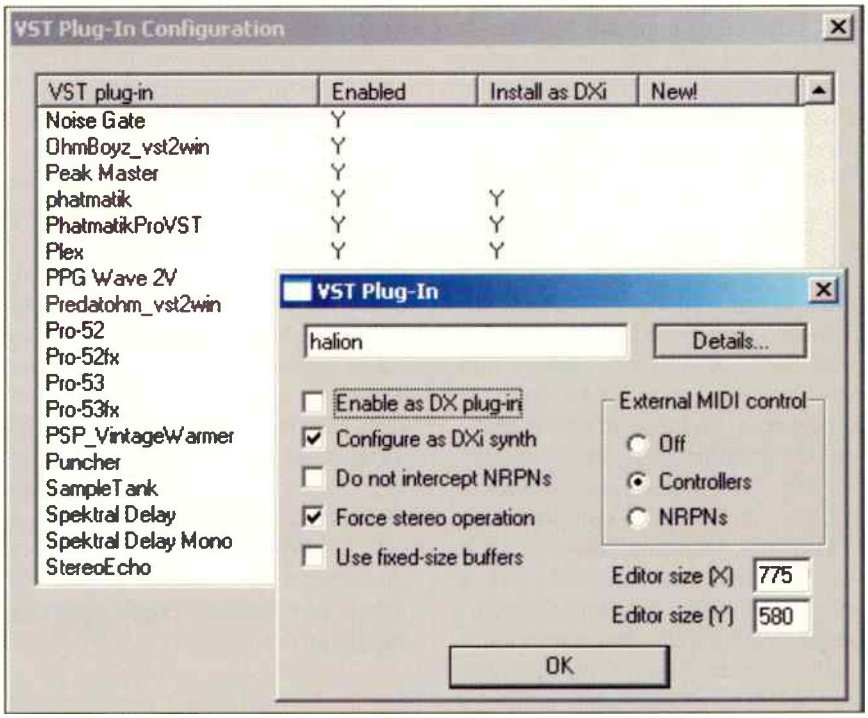
Because Sonar adopted the DXi standard after VST 2.0 was firmly entrenched, support was slow in coming, which made the need for a wrapper crucial. As a result, Sonar is a great program for investigating how wrappers work, and what you can expect in terms of performance. These experiences translate roughly to using any type of wrapper, such as VST wrappers for Digital Performer.

The two wrappers I've used with Sonar are VST-DX Adapter by Fxpansion and DirectiXer by Kirill Katsnelson. Both have been around for a while, and while both work, at least with my system VST-DX Adapter seems more solid with soft synths. Trial versions are available at www.fxpansion.com and www.tonewise/directixer.com and they're easy to de-install, so you can evaluate them without fear.

HOW VST-DX ADAPTER OPERATES

Wrapper programs generally need to know where to look for plug-ins. As Cubase SX is also installed on my computer, a folder for VST plug-ins already exists, so I direct the wrapper to find its plug-ins there. If you haven't installed any VST hosts, you'll need to create a folder for VST plug-ins.

With VST-DX Adapter, you invoke a configuration program that allows several options. It can automatically scan the folder you selected, then creates a list of available plug-ins along with data about them. You can also select individual plug-ins manually, and edit characteristics unique to the programs (Figure 1). For example, Steinberg's HALion sampler opens up with a compact "macro" window; when you access larger pages, the window may remain limited to the macro size. In VST-DX Adapter, you can specify a fixed editor size (in pixels) to accommodate the larger pages.



VST Plug-In Configuration

VST plug-in	Enabled	Install as DXi	New!
Noise Gate	Y		
OhmBoyz_vst2win	Y		
Peak Master	Y		
phatmatik	Y	Y	
PhatmatikProVST	Y	Y	
Plex	Y	Y	
PPG Wave 2V			
Predatohm_vst2win			
Pro-52			
Pro-52fx			
Pro-53			
Pro-53fx			
PSP_VintageWarmer			
Puncher			
SampleTank			
Spektral Delay			
Spektral Delay Mono			
StereoEcho			

VST Plug-In

halion

☐ Enable as DX plug-in
☑ Configure as DXi synth
☐ Do not intercept NRPNs
☑ Force stereo operation
☐ Use fixed-size buffers

External MIDI control
○ Off
● Controllers
○ NRPNs

Editor size (X) 775
Editor size (Y) 580

Fig. 1: VST-DX Adapter allows manually adjusting several important instrument parameters.

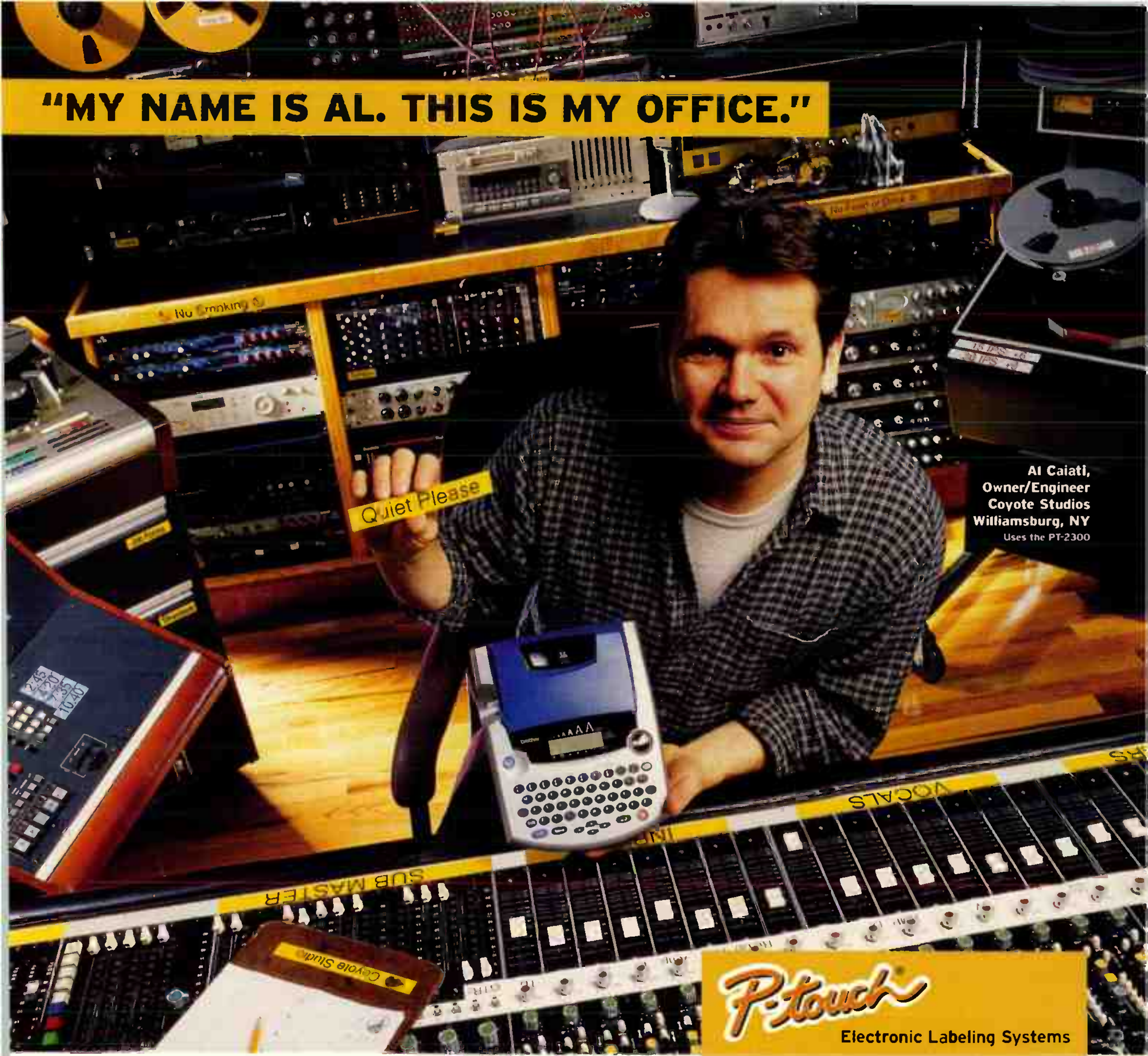
Manually configuring plug-ins may let you circumvent limitations. For example, sometimes a plug-in will fail to load, and although it will show up on the list of plug-ins, will not be recognized as a soft synth. If you go in manually and specify that the device is indeed a soft synth, VST-DX Adapter takes your word for it, and the plug-in then loads properly.

DirectiXer needs to have plug-ins entered manually, which gives you a chance to customize each entry as you assign plug-ins. VST-DX Adapter automates the process more, although everything is editable, should that be necessary.

HIT PERFORMANCE, OR PERFORMANCE HIT?

Although you might expect performance issues, "wrapped" programs work amazingly well. In fact, some VST plug-ins running under a wrapper offer functions not available in DXi plug-ins. However, there are nonetheless instances where a plug-in just won't work properly. For example, there was one HALion rev that didn't work with either wrapper, although previous and subsequent revs worked just fine. Also, sometimes certain features

"MY NAME IS AL. THIS IS MY OFFICE."



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Owner/Engineer
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Instrument	Format	ArmP	Menv	Aenv	Mrec	XMC
DreamStation DXi2	DXi	N	Y	N	Y	Y
Edirol VSC	DXi	N	Y	N	Y	Y
Emagic EVP73	VST	Y	Y	Y	N	N(1)
Fxpansion DR-008	DXi	N	Y	N	N	Y
Green Oak Crystal	VST	Y(2)	Y(3)	N	N	Y(3)
NI B4	DXi	N	Y	N	N	Y
NI B4	VST	Y	Y	Y	N	Y
NI Battery	DXi	N	Y	N	N	Y
NI Battery	VST	Y	Y	Y	N	Y
NI FM7	DXi	N	Y	N	N	Y
NI FM7	VST	Y	Y	Y	N	Y
NI Kontakt	DXi	N	Y	N	N	Y
NI Kontakt	VST	N(4)	Y	N	N	Y
NI Pro-53	DXi	N	Y	N	N	Y
NI Pro-53	VST	Y	Y	Y	N	Y
ReValver SE	DXi	N	Y	N	N	N
Rgc Audio Triangle II	DXi	N	Y	N	N	Y
Steinberg HALion	VST	N(5)	Y	N	N	Y
Steinberg LM4 MII (6)	VST	Y	Y	Y	N	N
Steinberg Model-E	VST	Y	Y	N	N	Y
Steinberg Neon	VST	Y	Y	Y	N	Y
Steinberg Plex	VST	Y	Y	Y	N	Y

1. This should have worked with MIDI controllers, but seemed to work only with NRPN automation.
2. No parameters showed up, but checking "select all" allowed choosing and programming them.
3. Parameter values follow the envelopes, but controls don't reflect these changes (although they change colors to show they've been tied to external control).
4. No parameters showed up in the Arm Parameter check list, and checking "Select All" didn't choose them.
5 .A list of parameters appears, but doesn't work for parameter automation, and envelopes can't be created in the audio track. MIDI controller-based automation works, however.
6. Generally slow graphic response — you get the feeling it's working hard to do automation, even though the sound is okay.

aren't handled correctly, like when you try to arm an instrument for automation and instead of seeing a tidy list of parameters, there's a blank window or gibberish.

Furthermore, no wrapper can translate VST variants that are keyed to a particular program. For example, Cubase SX's A1 synthesizer won't work in other other VST hosts, let alone with a wrapper. Thankfully, though, problems are the exception rather than the rule.

MULTIPLE OUTS OR OUT WITH MULTIPLES?

Both wrappers can recognize instruments with multiple outputs, which is new to Sonar 2.0 (Sonar 1.0 handled stereo only). But because of backward compatibility and other issues, Sonar 2.0 allows two ways to install soft synths.

- Right-click on an audio track's FX bin and select the instrument, then assign a MIDI track's output to drive it. This approach allows only stereo outs. However, it is the only mode that allows using an instrument as a signal processor (*e.g.,* the filter and effects section of Native Instruments' FM7).
- Go *Insert > DXi Synth >* and choose the instrument you want to insert. This installs the synth in the "Synth Rack View," and presents an options screen that allows choosing "All Synth Outputs," which will create an audio track for each instrument output (you can also specify just the main synth output, which is typically stereo). In this case, the instrument resides in the synth rack and has an associated audio track, but the track's FX bin doesn't have an instrument in it.

With DXi instruments, the Insert approach works best. But with VST instruments, unless you require multiple outputs, load them into the FX bin. This way, right-clicking on the instrument's name will usually bring up a list of parameters that can be armed for automation (Figure 2). When you arm parameters and click on the toolbar's Record Automation icon, you can move the on-screen controls corresponding to the armed parameters, and their motion will create editable track envelopes in the audio track.

Unfortunately, this particular automation option isn't possible with DXi synthesizers (although it does work well with automatable effects, including VST effects run through a wrapper).

WELL-ARMED

Sometimes, though, there won't be a list of parameters (just boxes), or there may be a blank window. In this case, select "Arm All" and you may be able to automate parameters anyway. However, as today's virtual synths may have dozens of parameters (or more), arming them all might slow things down to the point where you think you have a 25 MHz 386 processor running the show (when you're done, be sure to select "Disarm All").

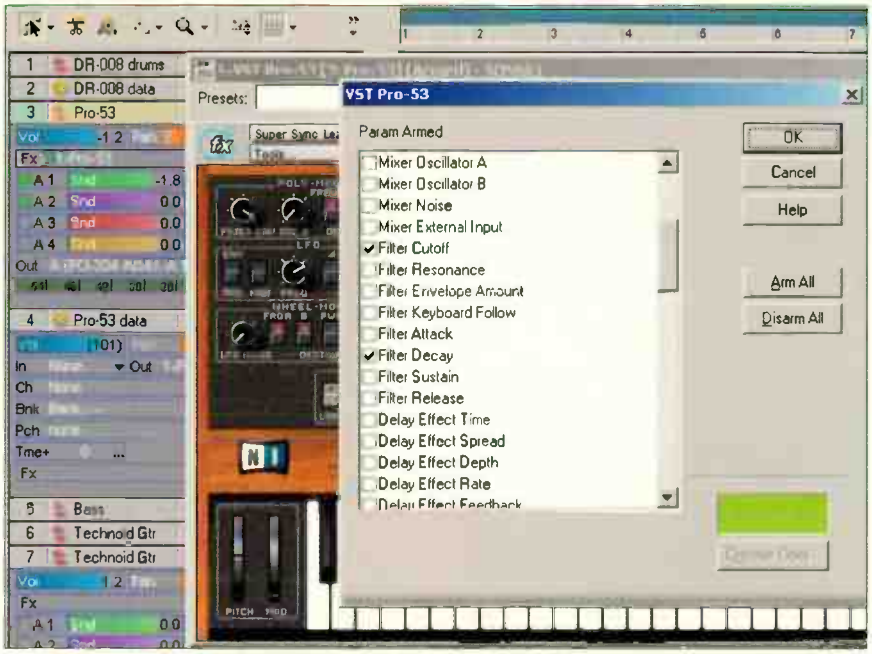
When arming parameters doesn't work, note that you can also right-click in the audio track itself (go *Envelopes > Create Track Envelope > click on instrument name),* and then create envelopes for editing specific parameters. However, this is a non-real-time process.

Sometimes you can even combine these approaches. Steinberg's Neon may be old and basic (it's still one of my favorite plug-ins, though), but it works like a champ with VST-DX Adapter (Figure 3). You can add envelopes for parameter control in the Audio track, the MIDI track, and even record MIDI control signals from an external fader box.

Note that DXi devices *can* be designed so that control motions are recorded as MIDI data in the MIDI track driving the instrument. Although this is the case with the DreamStation DXi2 and Edirol VSC included with Sonar, few other DXi instruments have this capability. However, there's an easy, and in some ways better, workaround: if a DXi device responds to external MIDI controllers (many, if not most, do), use an external MIDI fader or control box (*e.g.*, Peavey PC-1600X, Event EZ-Bus, etc.) to change the parameters in real time using hardware, and record this as MIDI data in the MIDI track.

AUTOMATION RESULTS

Wrappers make it easy to play notes, but the real test comes with automation. The table on the facing page shows the results when automating several instruments using VST-DX Adapter. (Overall, DirectiXer didn't work as well with the soft synths, but does offer a talent VST-DX Adapter doesn't: the ability to record control motions for some VST instruments into MIDI tracks, as NRPNs. This allows loading VST instruments into the Synth View to partake of the multiple outputs, yet still enjoy flexible automation.)



Param Armed

- ☐ Mixer Oscillator A
- ☐ Mixer Oscillator B
- ☐ Mixer Noise
- ☐ Mixer External Input
- ☑ Filter Cutoff
- ☐ Filter Resonance
- ☐ Filter Envelope Amount
- ☐ Filter Keyboard Follow
- ☐ Filter Attack
- ☑ Filter Decay
- ☐ Filter Sustain
- ☐ Filter Release
- ☐ Delay Effect Time
- ☐ Delay Effect Spread
- ☐ Delay Effect Depth
- ☐ Delay Effect Rate
- ☐ Delay Effect Feedback

Fig. 2: Right-clicking on the Pro-53 instrument name in Track 3 brings up a list of automatable parameters.

Here's what each column heading stands for:

Format: Either DXi or VSTi.

ArmP: "Y" (yes) means you can load the instrument into the FX bin, right-click, and choose the controls whose motion you want to record in real time.

Menv: Stands for MIDI Track Envelope.

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If "Y," you can right-click in the instrument's MIDI control track, and create envelopes to control parameters.

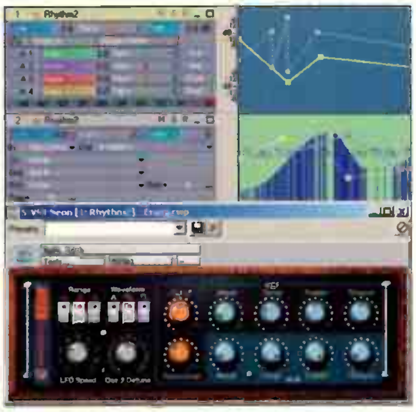

Fig. 3: The audio track contains two envelopes for parameter control; the MIDI track contains two more, as well as a controller curve from a MIDI fader box's output.

> MOST OF THE TIME, YOU CAN FORGET AN INSTRUMENT IS BEING "WRAPPED," AND USE IT AS YOU WOULD AN INSTRUMENT IN A HOST'S NATIVE FORMAT.

Aenv: This works with instruments where you can arm automation parameters. "Y" means you can right-click in the instrument's audio track and create envelopes that modify particular parameters. Note that as you drag the envelope, the controlled parameter's knob, switch, etc. will follow the envelope value. An existing envelope will be overwritten if you Arm Parameter and do new control motions.

Mrec: If "Y," you can manipulate knobs on the instrument, and the motions can be recorded in the instrument's associated MIDI track.

XMC: This stands for external MIDI control. If "Y," then you can feed in external MIDI control signals that manipulate the instrument parameters, which can also be recorded in the instrument's MIDI track to provide automation.

Also see the notes below the chart.

Clearly, different instruments respond in different ways to automation. Some methods work better than others, although this is partially a matter of choice. Personally, I often use M-Audio's Oxygen8 with soft synths, because I can play notes and tweak knobs at the same time. Of course, those who aren't as much into real-time control might prefer using envelopes.

IT'S A WRAP

Although we've dwelled on some of the differences and limitations involved in using wrappers, and focused on Sonar to keep things simple (you'll find similar issues with other programs, however), in practice wrappers work very well — especially if you don't feel compelled to load up every public domain plug-in you've ever found on the net. Most of the time, you can forget an instrument is being "wrapped," and use it as you would an instrument in a host's native format. ✱

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Al Stewart
Johnny Mathis
Vertical Horizon
Tracy Chapman
The Dave Matthews Band
Cherry Poppin' Daddies
Peter Gabriel
Carly Simon
moe.
Natalie Merchant
Meshell Ndegeocello
Tony Bennett
Dar Williams
Walter Becker
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Paul Schaffer (late night
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Bob Weir
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Big Bounce = Happy CPU

Convert soft synths to hard disk tracks to lighten your CPU's load

By Craig Anderton and Mitch Gallagher

Even the most macho computers can't run a sophisticated hard disk recorder along with loads of processor-hogging virtual effects and synthesizers. One solution lies with using separate DSP hardware to host soft synths; that way, the main processor doesn't have to take a big performance hit. But a more universally applicable option is to convert a soft synth's output into a hard disk track, which consumes much less CPU power than a virtual instrument.

The general idea is that you solo the instrument and the MIDI data that feeds it, while muting all other tracks. Then, you invoke the program's "bounce to audio" or "export" audio function to create an audio track. This may appear automatically within the program as another track, or as an exported file, which you then need to import.

At this point you can turn off the instrument, or remove it completely (if needed, save any modified patches before doing so). However, be sure to keep the MIDI track that drove it. A MIDI track consumes almost no CPU power, and if you decide to edit the soft synth track later, no problem — Instantiate the synth, drive it with MIDI, make your tweaks, re-bounce, then remove the synth again. It's also a good idea to include the soft synth patch name (or number) in the audio track's name, in case you want to re-visit this sound later for tweaking purposes.

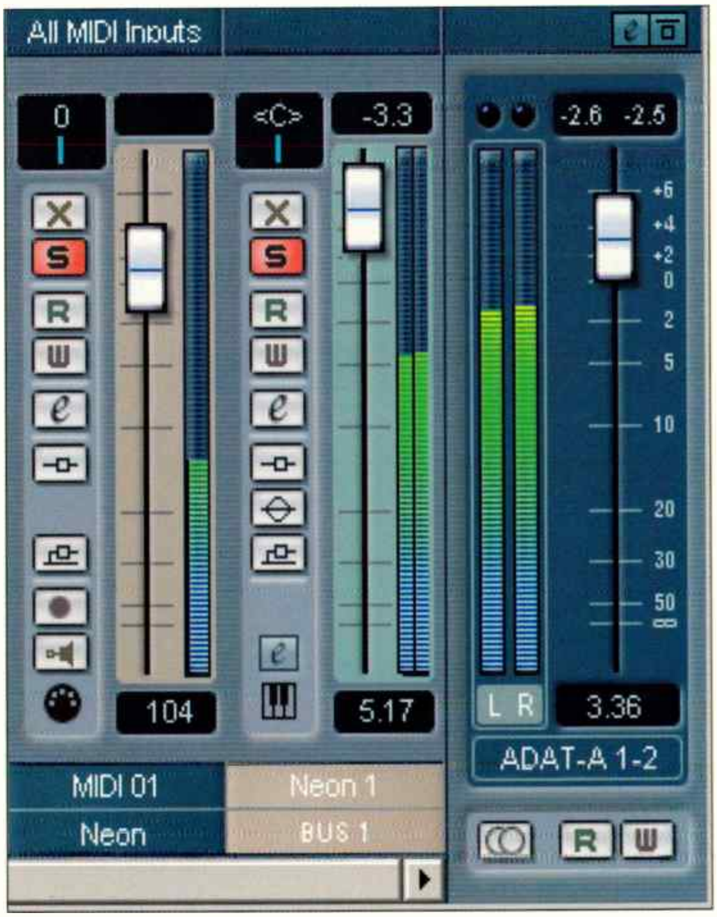

Fig. 1. The VST Instrument and MIDI Track driving it have both been soloed; the audio is being checked for distortion prior to bouncing.

Following are step-by-step instructions for converting soft synth tracks into audio for Cubase SX/Nuendo, Sonar, Logic Audio, and Pro Tools. Note that as you are basically mixing down audio, you can mix down more than one soft synth at a time, and these can include any processing from audio plug-ins. Also note that if your digital audio sequencer of choice doesn't support this style of track bouncing (Digital Performer, for example, doesn't send MIDI data during bounces), you can still bus the output of the synth to another track and record it.

CUBASE SX/NUENDO

1. In the VST Mixer, solo both the VST instrument track and the MIDI track that drives it (Fig. 1). Set all effects, enables, sends, etc. as desired.

2. Use the locators to set up the right and left boundaries of the area you want to bounce to a hard disk track.

3. Play the area to be bounced, and check that neither the instrument nor master meters hit overload. If so, trim levels at the MIDI track or instrument track (or the master out), as needed, to get the level as close as possible to 0.

4. Once the levels are correct, go *File > Export > Audio Mixdown.*

5. A dialog box appears where you can enter the file name, file type, destination, attributes, whether to include automation and effects, etc. Enter the desired values then click on *Save.*

6. Cubase renders the track to hard disk.

7. Select the track where you want the audio to appear, and place the cursor where you want the audio to begin. (In the Nuendo Audio Mixdown dialog box, you can set the program to automatically import the audio into a new track. If you do so, steps 7 and 8 are unnecessary in that program.)

8. Go *File > Import > Audio File*, navigate to the file, select it, and click on *Open.* Check the desired parameters in the Import Options dialog box (usually the defaults are fine), then click on *OK.* The file will appear starting at the designated location.

SONAR

1. Select the range you want to bounce by dragging across the desired

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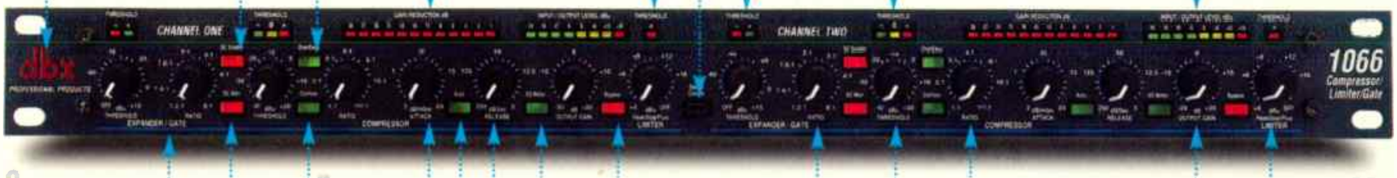

4 Sidechain Enable allows for quick A/B selection of the sound with or without sidechain processing. No re-patching required

5 dbx's exclusive OverEasy® allows for faster attack times and higher compression ratios while still maintaining the natural characteristics of the sound.

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

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

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

1 dbx—the only choice when your sound matters

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

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

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

2 Flexible expander/gate works over a 70 dB range.

3 Sidechain Monitor selection connects the sidechain return signal to the 1066's output. This allows monitoring of any signal that is inserted into the sidechain loop to assist in setup.

6 The Contour switch is extremely useful in keeping low frequencies from "muffling" or "punching" holes in your sound.

9 Monitor either input or output signals.

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

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

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

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

17 Adjusts from mild compression to ∞ : 1 limiting.

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

20 Patented PeakStopPlus™ circuit intelligently tames signal peaks.

Internal power supply with easily replaceable power cord.

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

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CHANNEL ONE
OUTPUTS
INPUTS
SIDECHAIN
RETURN
SEND
OPERATING LEVEL

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

23 Connect the unit hassle free using either unbalanced or balanced 1/4" TRS or balanced XLR connectors.

24 Ensure signal path integrity with gold plated locking Neutrik® XLR connectors.

25 Add processing to detector path (using the sidechain) for frequency-conscious compression/gating/special effects.

26 Servo-balanced outputs drive up to +22dBu

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

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

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

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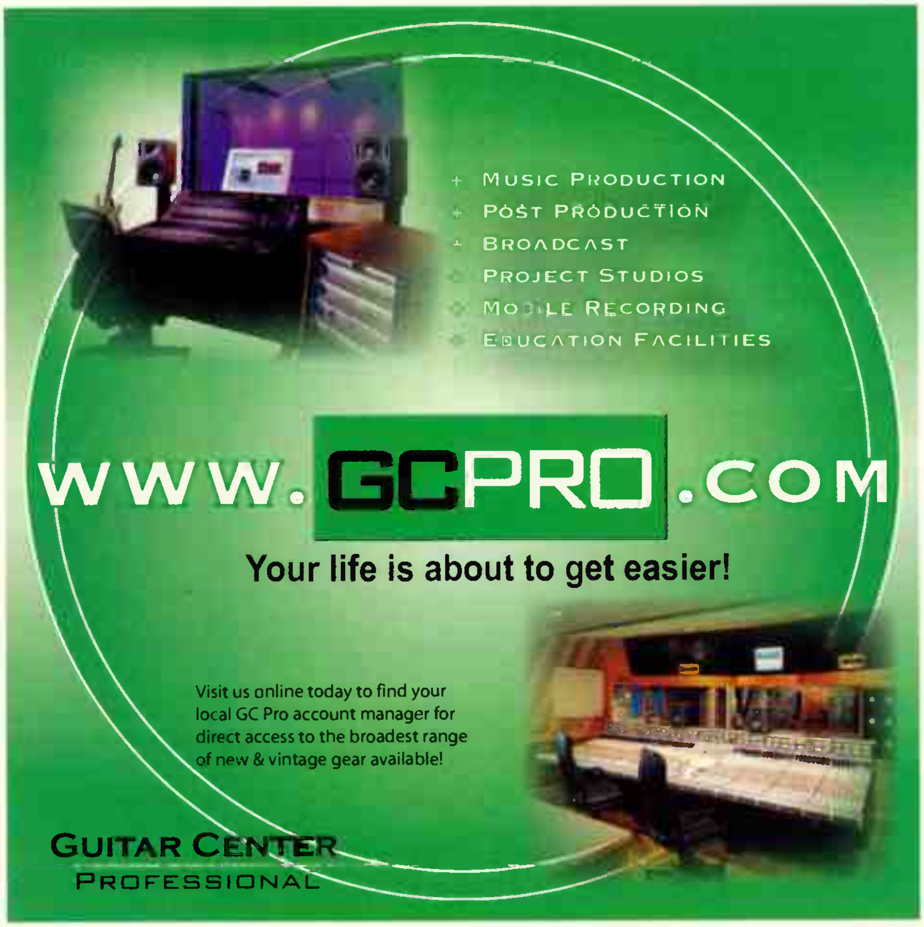
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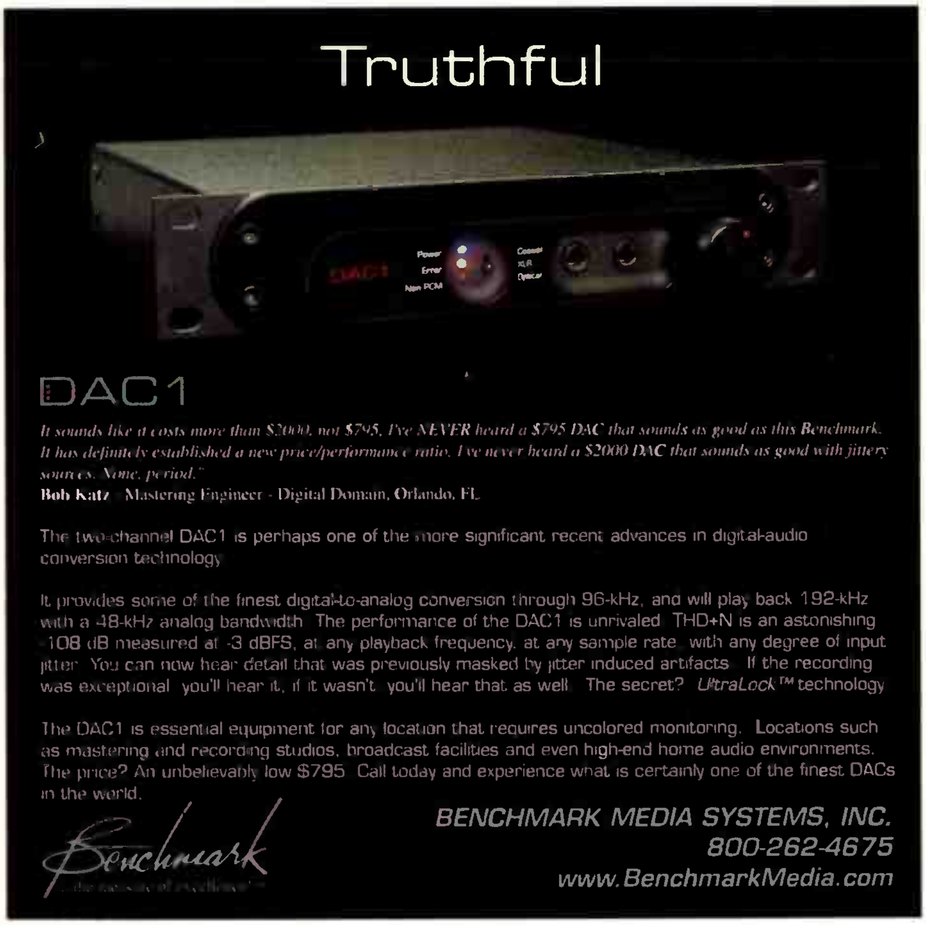
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DAC1

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Bob Katz - Mastering Engineer - Digital Domain, Orlando, FL

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region in the time line above the tracks.

2. Solo both the track containing the soft synth audio and the related MIDI track that drives the soft synth. In the track view, control-click on both track numbers so that their backgrounds turn blue (Fig. 2).

3. Make sure the meters for the instrument's audio track *and* the bus it's feeding are both visible. Play the tune, and check that neither the track nor bus meter hit overload. If so, trim levels as needed to get the level as close as possible to 0.

4. Once the levels are correct, go *Edit > Bounce to Track(s).*

5. Enter the desired destination track number, as well as the source bus (*e.g.*, the audio bus fed by the instrument). You can leave all the Mix Enable boxes checked.

6. Click on *OK*, and Sonar creates a hard disk audio track from the instrument output at the specified destination track number (if this is a track that already has audio, the new audio will just "land" on top of it, and *not* overwrite it. The audio can then be dragged elsewhere).

7 For convenience, I generally drag the bounced data into the instrument's corresponding audio track.

LOGIC

1. Select the range you want to bounce by dragging across the desired region in the time line above the tracks.

2. In the Audio Mixer, solo the Audio Instrument track containing the soft synth and the MIDI data that drives it.

3. Play the song, and make sure that the levels are okay, both for the Audio Instrument track, and for the outputs/busses it's feeding. If necessary, trim levels to get as close to 0 on the meters as possible.

4. In the Audio Mixer, go to the Output object the Audio Instrument track is feeding. Click the *Bnce* (Bounce) button on the lower right part of the Output object. The Bounce dialog box will open.

5. Set the parameters (bit resolution, file format, dither, etc.) for the output file as required.

6. At the bottom of the bounce dialog box, you're given two choices:

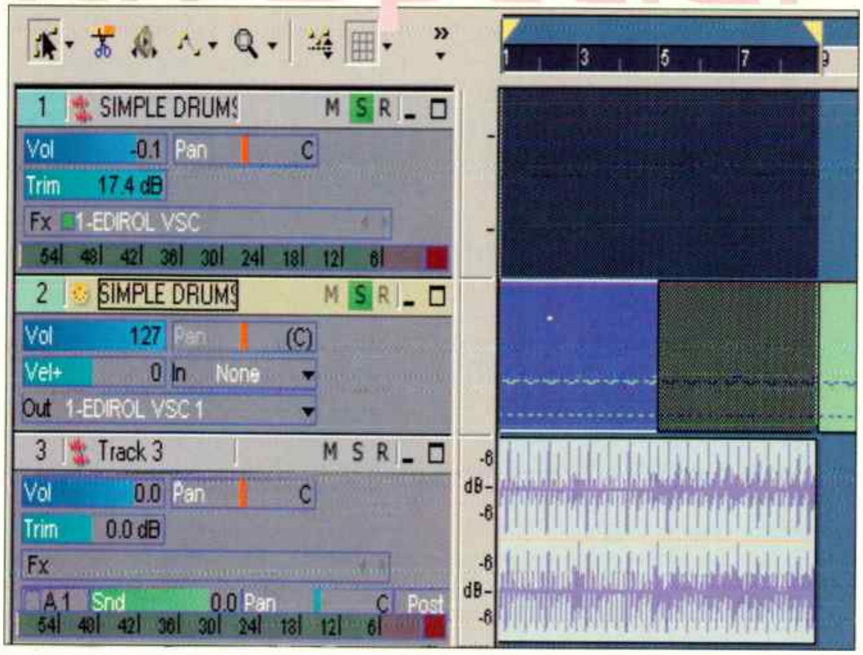

Fig. 2, Measures 1-9 have been selected for bouncing; Track holds the instrument (Editorl VSC), Track 2 the MIDI data that drives it, and Track 3 is the resulting audio mixdown.

Bounce, which writes the soft synth output to a file on your hard disk, and *Bounce & Add*, which does the same thing, then automatically loads the resulting files into Logic's Audio window. I generally use *Bounce & Add* as it saves having to manually load the files back into Logic. Click the one you want, name the file, then click *Save*.

7. If you used *Bounce & Add*, open the Audio window, and drag the new files to the appropriate audio track(s). If you used *Bounce*, open the Audio window, and go *Audio File > Add Audio File*. Locate and select the desired file(s), click *Add*, then click *Done*. The files will appear in the Audio window, and can now be dragged to audio tracks in the Arrange window.

PRO TOOLS

1. Select the range you want to bounce by dragging across the desired region in the time line above the tracks in the Edit window.

2. Solo the track containing the soft synth and the MIDI track that drives it.

3. Play the song, and make sure that the levels are okay, both for the soft synth track, and for the outputs/busses it's feeding. If necessary, trim levels to get as close to 0 on the meters as possible.

4. When you're happy with the levels, go *File > Bounce to Disk*.

5. In the Bounce to Disk dialog, set the parameters (bit resolution, file format, etc.) for the output file as required — be sure that you set the right audio output source (this defaults to the main stereo outs, which works fine in most cases).

6. In the Bounce to Disk dialog box, you're given the option to *Import After Bounce*, which writes the soft synth output to a file on your hard disk, then automatically loads the resulting files into Pro Tools' Audio Region List. I normally use this option as it saves having to manually import the files back into the Pro Tools session. When you're ready, click *Bounce*. Set the location where you want the bounced file, name it, then click *Save*.

7. If you used *Import After Bounce*, go to the Audio Region List and drag the new files to the appropriate audio track(s). If you didn't use *Import After Bounce*, go to the Audio Region List and go *Audio > Import Audio File*. Locate and select the desired file(s), click *Add*, then click *Done*. The files will appear in the Audio Region List, and can now be dragged to audio tracks in the Edit window. *

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THE STORM SYNTH RACK

Add a synth rack to your Mac/Windows VST host for $99

By Craig Anderton

Arturia's Storm is an all-in-one studio, but it can also serve as a ReWire device or VST instrument. For those unfamiliar with Storm, it's a "studio construction set" with slots for four instruments and three effects, as chosen from a roster of 11 instruments: analog bass line synth, modeled bass, two tone generators optimized for chord generation, five drum sets each with different "kits," polyphonic synthesizer, and a fun "scratching" module with two virtual turntables. (Storm's two additional "recording" instruments are somewhat redundant with a VST host.) There are also ten effects — chorus, compressor, distortion, dual delays, flanger, low pass filter, reverb, ring modulator, sequencer filter, and vocoder.

Storm can ReWire into hosts such as Cubase, Logic, Live, etc. (it also works with Sonar if you have a VST "wrapper"). However, as Storm isn't a ReWire 2 device, you can't control it from the host's sequencer — which you can when used as a VST instrument.

APPLYING STORM

Here's an example of how to set up Storm as a VST instrument, using Cubase SX. Hit F11 to call up the VST Instruments window, and insert Storm. Storm automatically grabs five output buses: one for each of the four main instruments, and a "primary" (master) bus. These show up in the VST Mixer.

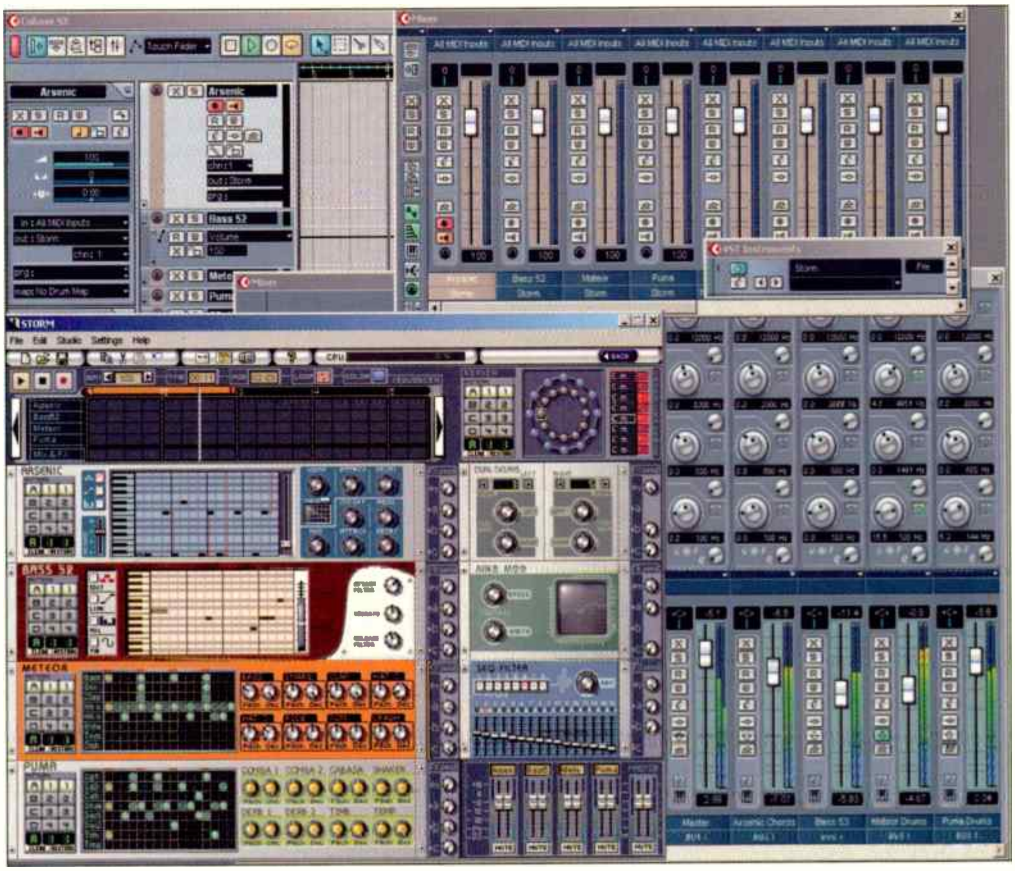
As Storm loads with patterns for the various instruments, you should hear them play if you click Play on the Cubase SX transport. (Note that if you're using Sonar, you must define some sort of region before Storm will play, as pressing "Play" on Sonar starts triggering Storm's pattern generators. If there's no area to loop in, the pattern generators get frustrated.)

In the host mixer, bringing up the individual instrument faders *and* the primary bus causes comb filtering. When using the multiple outputs, I use the primary bus only for adding in effects, which is easy to do. Each instrument has three effects sends and "dry." Dry sends the output to the master bus, so just keep all dry controls down. The effect outs dump into the master (but note they also have send controls, so that effects can feed other effects before going to the master). The master slider then becomes a master effects return control.

MIDI FUN

Although Storm is pattern-oriented, you can clear an instrument's pattern and play sounds via MIDI. Right-click on the blank part of an instrument, select MIDI configuration, check On, and choose the desired channel. Specify that channel in the host MIDI track's Ch parameter (Out should be set to Storm). Set the instruments to different channels, and use the track's output channel assignment to select the one you want to play (or don't channelize the out, and change MIDI channels on your master keyboard). You may want to create additional MIDI tracks so there's one for each instrument.

Ctrl-clicking on a Storm instrument knob lets you specify an external MIDI controller (the learn mode makes this easy). I generally use the controller



The upper left shows the MIDI tracks driving various Storm instruments. Moving clockwise, note the corresponding faders in the MIDI mixer, VST Instrument window where Storm is called up, VST Audio mixer (note the five audio channels containing Storm's audio), and finally, the complete Storm instrument.

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knobs on my M-Audio Oxygen8, but any fader box will do. If you put the host into record, it will record the control signals, which automates Storm's sound on playback and is indeed a Good Thing. (This is in addition to the parameter automation that's built into the drum boxes, which requires no automation from the host.)

Depending on the host, you may also be able to create control envelopes. For example, I often create envelopes in Sonar's MIDI tracks. Parameters aren't correlated to controller numbers, but you can just Ctrl-click on the Storm parameter you want to control, and it will show the existing assignment, which you can enter in the "create envelope" dialog box. Don't forget that Storm's effects parameters and sends are also automatable.

STORMY WEATHER?

Storm likes CPU power, and was originally intended as a stand-alone instrument. Although I've experienced solid operation with Sonar using Fxpansion's VST-DX Adapter (and simply bounce tracks to hard disk audio if the CPU starts complaining) as well as with Cubase VST, operation with Cubase SX has been hit-and-miss — sometimes it works just fine, sometimes a few restarts are needed to get things working. To be fair, though, SX is still on Version 1, and compatibility problems are likely to be sorted out over time.

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Storm does work well with SX as a ReWire device, although you can't control it with the SX sequencer — using ReWire is mostly for playing back compositions and loops created in Storm within the Cubase SX environment. However, you can then take advantage of Cubase's processing, EQ, and level automation to add useful variations. One quirk is that I've needed to use Storm's transport and not SX's, even when running Storm as a slave.

Overall, Storm represents tremendous bang for the buck — either as a VST instrument, ReWire device, or stand-alone loop mojo creation device. Download the demo version (Windows or Mac, including OS X) at www.arturia.com and give it a spin, especially if you're into creating groove-oriented music. ✱

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PLUGGO 3: SYNTHIFY YOUR MAC

Pluggo 3 adds a plethora of VST soft synths to your Mac

By Craig Anderton

Based on the Max/MSP development kit, Cycling 74's Pluggo has become a staple for adventurous Mac musicians by offering an astounding collection of tools that ranges from utilitarian to downright inspiring. Version 3 adds 21 VST plug-in instruments; given the list price of $199, and the fact that you also get a ton of processors, this is a helluva deal. (In the context of this special section, we'll look at only the instruments — but the signal processing plug-ins are hotties, too.)

Pluggo runs on Macs as humble as a 604e running System 8.6; as of this writing, an OS X version is due soon. It supports VST 2.0, MAS, RTAS, and can sync to the host tempo with VST 2 and MAS.

AUTOMATION

When I tested Pluggo with Cubase VST, processor automation worked as expected. Although instruments can't be automated similarly, a huge number of instrument parameters respond to MIDI controller data from an external hardware box, "virtual control panel" that you create within the host program, or controller envelopes you draw in the host. This is important, because creative tweaking can make even simple, everyday instruments such as drum machines sound alive.

THE INSTRUMENT ROSTER

Pluggo calls these "essential instruments," but some essentials — such as sampling — are missing. No big deal, though, because all the instruments have some degree of Inspiration Factor. Following are thumbnail descriptions.

Analogue Percussion has four identical sound generators, each with two multi-waveform oscillators, and breakpoint envelopes for overall amplitude, pitch, and noise. There are also controls for pitch envelope depth, noise master volume, envelope scaling, etc., and each sound is triggerable over a one-octave range. The end result: four very electronic percussive (and if desired, melodic) sounds.

Additive Heaven has eight adjustable sine wave partials and a master ADSR envelope. Weird harmonics produce bell-like tones; use octave-related partials for tone wheel organ effects.

Analogue Drums is seven standard drum sounds, with various controls.

Bassline is a single-oscillator, TB-303 type sound with sub-bass and filter, LFO, and ADSR envelopes for filter and amplitude.

Deep Bass is a step sequencer with sliders to change filter cutoff and pitch. Pitch settings offset the pitch compared to incoming MIDI notes. The bass controls are the usual suspects: cutoff, resonance, envelope level, attack, decay, glide, etc.

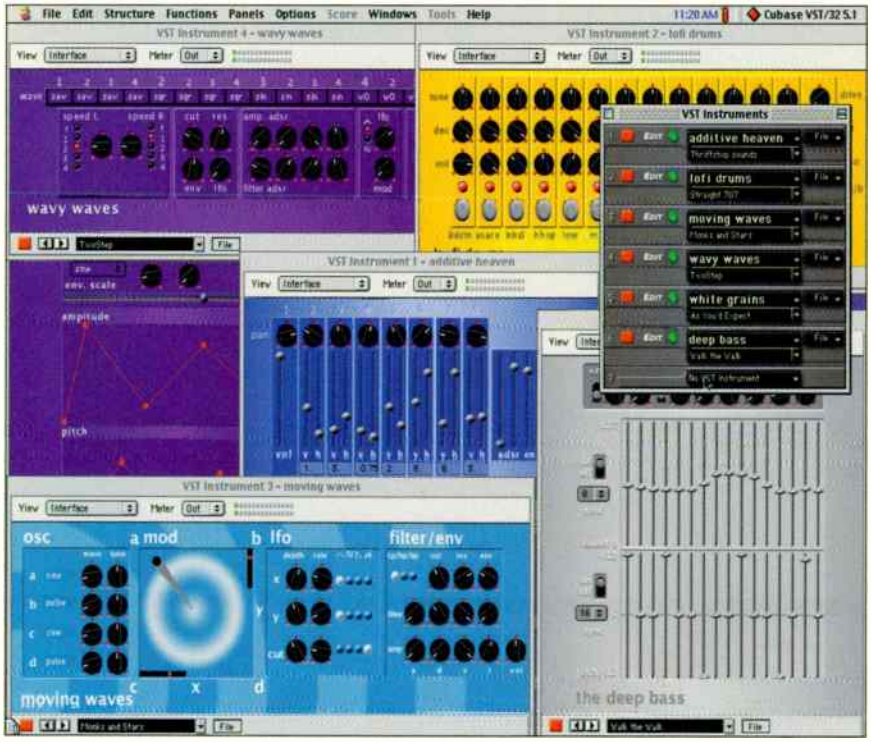
Filtered Drums has eight drum sounds, each with tune, attack, decay, pan, volume, and a button to send the output through a three-mode filter. This can produce an awesome 909-type kick drum.

Big Ben Bell is an FM synthesizer variation that does just bell sounds.

Easy Sampler loads one sample and plays it back. The sample can be looped, tuned, and processed through an ADSR envelope. Not exactly earth-shaking, but responds to MIDI control.

Flying Waves is an X-Y controller that changes pitch and volume of the internal sound generator (or load an external file) — think "software theremin."

FM 4-Op gives those cool FM sounds (clangs, glorps, and other rude sounds); it includes multiple algorithms, laid out in front of you with graphic envelopes.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VST Instrument 4 - wavy waves
VST Instrument 2 - lofi drums
wavy waves
VST Instrument 1 - additive heaven
VST Instruments
additive heaven
lofi drums
moving waves
wavy waves
white grains
deep bass
VST Instrument 3 - moving waves
osc
a mod
b lfo
filter/env
moving waves
the deep bass

Pluggo used to be only about signal processors, but no more: version 3 extends its toolset with a useful, low-cost collection of VST/MAS/RTAS-compatible soft synths.

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Harmonic Dreamz is another partial-based synth with 16 partials, detuning, and tremolo.

Laverne is a simple subtractive synth whose interface is simply sliders. It doesn't respond to MIDI controllers, and the response is slow — several public domain synth plugs on the web are better.

Lofi Drums has three kits: 707, 808, and 909. There are 13 drum sounds, each with Tune, Decay, and Volume, which feed a master section with filter. The samples are 22 kHz, 8-bit types…hence the name.

Moving Waves is a unique Pluggo thang, with four oscillators, two LFOs (each pans between an oscillator pair), two high-cut filters, an X-Y matrix controller for changing the LFO range bias, multimode filter (the usual low/hi/bandpass responses), and envelopes for both the filter and envelope. The basic result is moving, animated sound that fulfills the same kind of musical vibe as an arpeggiator.

PGS-1 is a synth with three oscillators, two multi-mode filters, four envelopes, two multi-waveform LFOs, two post-filter VCAs, overdrive and delay, and five mod wheel routings. There's some overdrive within the various stages, so the sound has some grit — but you can convert dirt to truly edgy with the overdrive control. The bad news: no response to external controllers.

Qsynth has an oscillator, modulatable by LFO, that drives three resonant filters. You can get some truly wild sounds and stereo imaging with this one; if avalanches were made out of sound and relatively polite, they'd sound like this.

Quick Drums has eight drum sounds, each with pan, volume, and trigger. There are several useful kits — the usual 707/909, but also "dirty" 909 and 808 kits, two "modular" kits with less conventional drum sounds, an HR-16 kit, and a "strange days mix" kit that combines multiple drum sounds.

Shape Synth has two detunable oscillators that feed a waveshaping module, followed by a filter/ADSR and VCA/ADSR. It's great for sustained sounds — work the wave shape control with the mod wheel for evolving, moving pad sounds.

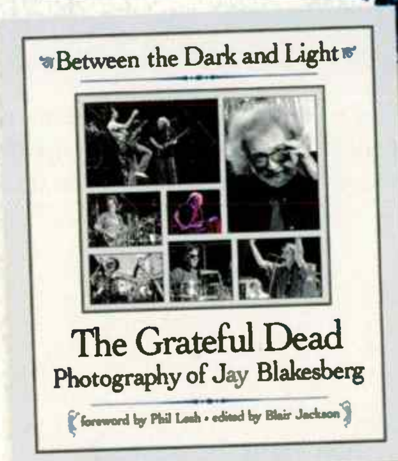
Wavy Waves plays back a 16-step sequence of waveforms. The overall sound can be processed through a filter and amp, each with an ADSR, and there's the ubiquitous LFO. This one left me scratching my head as to exactly what was going on, but it made cool rhythmic effects, and it seemed that any time I turned a control something new and interesting came out.

White Grains is a granular synthesizer that slices a waveform into what seems like little pieces, puts them in a blender, selects "puree," then sets off tiny explosive charges within the blender to add further mayhem. Or at least that's a sound I got. Translation: thumbs up.

Xmod Synth, is an analog modeled synth with three oscillators, two LFOs, two envelopes, and noise generator. All of these are available as modulation sources, which can feed the filter frequency or vary any of the oscillator's FM or pulse width inputs. It creates rich, modulated sounds with lots of animation and motion.

That's quite a list, and these instruments are a lot of fun. Pluggo is available as a download, so check it out; at $199, it's hard to go wrong. ✱

Between the Dark and Light
The Grateful Dead
Photography of Jay Blakesberg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THE SAMPLE LIBRARY AS INSTRUMENT

They're more compatible — but are they more expressive?

by Craig Anderton

The sample library is a great idea — but how do you deal with compatibility for different sample formats? If you create a Red Book audio CD, will people be industrious enough to rip the sounds, trim them, and loop them? If you use the ancient Akai S-1000 format, will it be translated properly?

Those questions give sample developers headaches, but now there's an alternative: meet the "sample-library-as-instrument."

The trend started with IK Multimedia's SampleTank, a VST plug-in with a huge assortment of useful sounds. If you wanted, say, a cello, you didn't fire up a sampler, load the cello sound, then feed the outputs into your DAW: you just inserted the plug-in into a compatible host, and dialed up the cello.

When SampleTank became popular enough that it turned into yet another format, it seemed like a return to "format wars." But IK produced SampleTank LE, a "lite" sample playback engine sample producers could include with their sounds. Thus, although sounds could play on SampleTank, if someone didn't have it, they could use the LE "shell" instead.

The UVI engine, created by Ultimate Sound Bank, powers both the PlugSound series and the Spectrasonics virtual instrument series. However, implementations vary; for example, Spectrasonics' Atmosphere instrument allows complex layering, and pushes the instrument aspect more deeply than the PlugSound instruments, which are more "plug-and-play." In fact, Spectrasonics eschews the term "sample library," regarding their "core sounds" more as elements to be combined and modified rather than just played back.

At Winter NAMM, two new contenders appeared: the Modular Virtual Instruments from Yellow Tools, and a collaboration among East West, Zero-G, and Native Instruments to produce libraries that use NI's Kompakt and Impakt engines for playback. Although Impakt is loop-oriented, it's not the only option: Bitshift Audio's pHATfactory 001 (see review, page **QQ**) marries a loop library to the pHATmatik PRO loop playback/modification engine.

HOW FLEXIBLE?

Plug-ins have several advantages compared to hardware samplers: lower cost, polyphony limited only by your computer, and faster loading time. However, they're often less flexible with respect to programmability, particularly regarding modulation options (although there's a trend toward greater control). For example, SampleTank has four real-time and/or MIDI-triggerable controls, but these are "hard-wired" to particular parameters. (SampleTank II, just announced, gives much greater access to editable parameters.) However, many users find cost-effectiveness and sonic variety more important than extensive programmability.

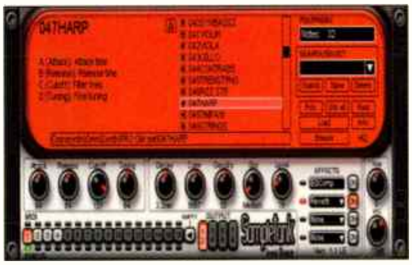
TYPICAL PRODUCTS

Let's look at some representative products; all the ones listed here have web-based authorization procedures. They require copying the data over to your hard drive, so you'll need a high-capacity drive if you plan to install several of these types of instruments. You'll also need a lot of RAM, as these don't stream from disk.

Please note that the following aren't meant as comprehensive reviews, but merely provide an overview of the features and prices you can expect from these new types of instruments.

Sonic Reality OmniSynth

If you're living in DAW-land but miss that General MIDI set in your old hardware synth, here's a soft replacement that uses the VST/MAS SampleTank LE engine. The interface is obvious, and the sounds themselves — which range from useable to superb — fill their roles as "all-purpose-useful-stuff." There are three folders of sounds: a pro set, an "economy" set with slightly smaller programs for less RAM usage, and a folder of 44 alternate sounds (42 instruments and two drum kits); there's also a bonus CD with more sounds.



Four effects slots draw from the 27 different effects, of which seven can sync to the host BPM. Four "tweak" knobs per program (which generally control attack, release, filter cutoff, and fine tuning) can be tweaked, automated, or accessed with external MIDI controls.

While the sound programming options are limited — I often wanted to tie filter cutoff to velocity or aftertouch, but couldn't — the effects are surprisingly adjustable. However, although the playback engine is important, sounds are the bottom line. OmniSynth delivers the equivalent of a very high-quality General MIDI ROM set for $129. (www.esoundz.com, www.ikmultimedia.com)

USB PlugSound Hip Hop Toolkit

The UVI engine used in USB's PlugSound instruments has separate envelopes for filter and amp, as well as an LFO (this is slated to sync to host tempo in future updates) with

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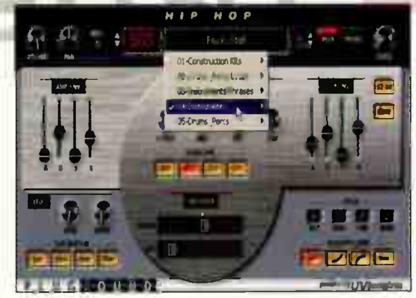
four possible destinations, several filter types, pitch controls, velocity curve, and filter controls (cutoff, resonance, key follow, and envelope amount). However, MIDI control is limited to an additional filter, where you can tweak or automate cutoff and resonance. This filter structure is unusual but cool: moving from center to left lowers a lowpass filter cutoff, while moving from center to right raises a highpass filter cutoff.

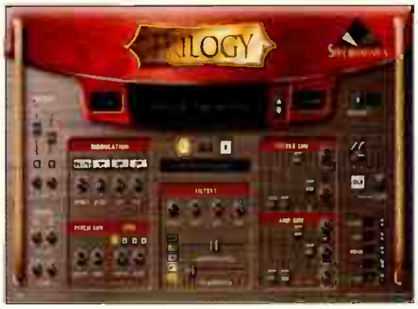
The sounds are what you would expect from a hip-hop toolkit — a combination of "construction kits" (loops and elements) at various BPM, individual loops for instruments such as bass, guitar, keyboards, etc., as well as several "playable" instruments including vinyl FX, hits, guitar, keys, and the like. As with most of these instruments, choosing sounds works by going to a hierarchical menu, so you don't have to deal with the "needle in a haystack" problem. The price is certainly right: $99.95. Distributed by Ilio (www.ilio.com).



Spectrasonics Trilogy

Stylus (reviewed October 2002) was the first Spectrasonics virtual instrument, followed by Atmosphere, which was originally intended as the ultimate pad creation instrument but grew beyond its initial charter. Both combine great-sounding samples with enough programmability to generate truly unique sounds; much of the info in the Stylus review applies to all the Spectrasonics instruments.

Trilogy ($349), the latest, is pure bass — electric, acoustic, and synth.



The samples sound as good as, or better than, any bass samples you've heard — period. Although Trilogy uses the UVI engine, there are several additional capabilities compared to the PlugSound instruments: the ability to layer patches and edit each layer independently, alter the mix between the layers, and respond to MIDI continuous controller commands for all significant parameters.

Several basses are available in different sizes (some of the bigger ones are hundreds of megabytes) but even the "lite" ones sound great. Realistic string release sounds for the acoustic basses add to the realism, as does a "true staccato" mode that places sustained notes on the left of the keyboard and staccato notes toward the right. Alternating between the two options gives far more realistic effects with repeated note attacks. If you need bass, you don't really need to look further. Distributed by Ilio (www.ilio.com). ✱

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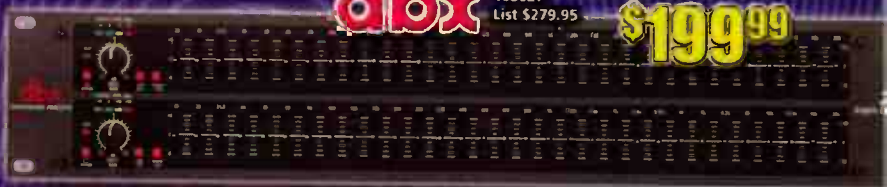

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when dealing with a synth that is, well, an oddity.

WHAT'S NOT: Polyphonic operation would have been nice. On the other hand, in addition to the authenticity issue, you know that all the CPU power is going to the sounds, not generating lots of notes.

THE VERDICT: This is an aficionado's plug-in. You need to know about synthesis to program it and work your way around the front panel, but there's a level of flexibility not found in most other soft synths, especially when creating effects. If you already have sample playback and polyphonic synthesis covered, and want to branch out into more esoteric territory (or if you once had an Oddity and miss it like an old lover), this plug-in will turn your crank.

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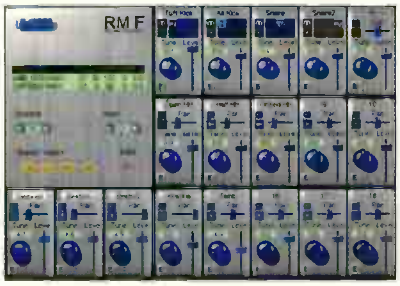
LinPlug RM F Rhythm Sampler

LinPlug produces a variety of cool plug-ins, but what distinguishes the RM F drum module VSTi is that it's *free.* If you're expecting something cut down and cheap, forget it — this is one useful little plug that far exceeds expectations.

THE VIBE: There's no wasted space or effort here, it's all quite simple and clean. The graphics are functional but not spectacular; clearly the effort here went into the feature set. But the more you get into the RM F, the more you find that a lot of attention has been paid to details.



WHAT'S HOT: You can load up two samples (stereo or mono, WAV or AIFF, eight to 24 bits, up to 96 kHz) for the 18 instruments, triggerable over different velocity ranges on the note of your choice. Sample start time and volume trim are also adjustable for each sample, and they can play over any channel. Drums can go to a stereo mix or one of six individual outputs; there's also tune and level controls, as well as several "choke" options — sounds can belong to mute groups, or mute the instrument to the right or left when hit.

All parameters are automatable and controllable via MIDI. The learn function is super: click on the CC button, click on a button, diddle your fader — and just keep clicking and diddling until you're done, with the option to have up to 128 controllers.

Although the RM F can load kits from Steinberg's LM-9 and LM-4, you're limited to two samples per pad. RM F can also import kits from the LinPlug Rupsta alpha, and setups you create can be exported (including the ability to gather together samples from disparate sources into one place).

WHAT'S NOT: It's PC-only for now. There's no processing, such as filtering, bit reduction, etc. However, this is mitigated by the separate outputs, which can feed these sorts of processors. There's no velocity crossfading (only triggering) with overlapping velocity ranges, so you can't really "morph" between sounds. But considering what you get for what you pay, any complaints seem downright petty…so I'll just shut up.

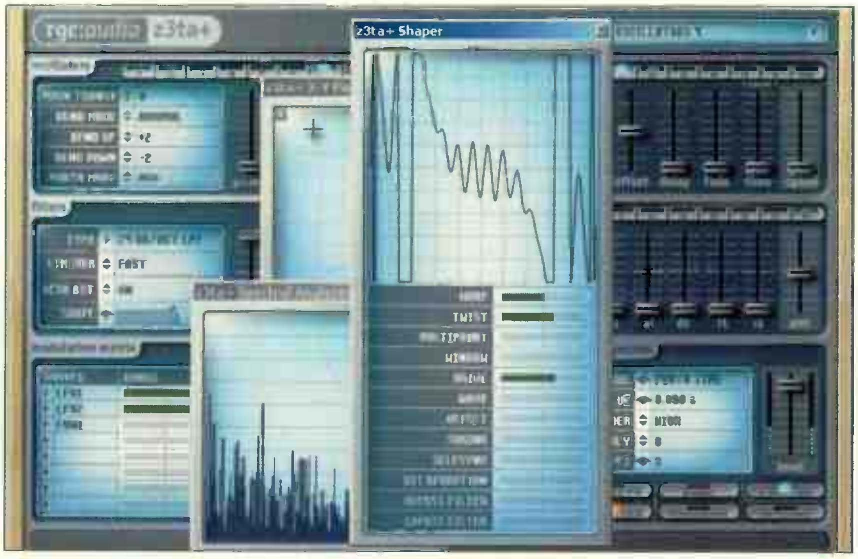
THE VERDICT: If you want a quick, easy, simple drum module, this would be worth actual money — so getting it for free is quite a deal. Want more? The $29 RM 2 offers pitch and amplitude envelopes, the ability to layer up to 32 samples, unrestricted LM-4 import, solo/mute switches, etc.; the $59 RM III adds in compression, distortion, and velocity-controlled filtering for each pad, along with other extras and drum kits. When it comes to value, these instruments deliver.

COPY PROTECTION: None
PRICE: Free (VST)
CONTACT: www.linplug.com

rgc:audio z3ta+

My first encounter with software designer rgc:audio was their free Triangle II synth; with its great sound quality and ease of use, I was hooked. So when I saw some raves on my Musicplayer.com forum about the z3ta+, rgc's new VST/DXi/standalone ASIO-compatible synth, I was definitely interested.

But I wasn't ready for this: six oscillators, 60 waveforms, six user waveforms, oscillator interaction via ring mod/hard sync/FM/etc., dual filters (with individual limiters and 10 filter modes), six morphable LFOs with more waveforms than I care to count right now, eight six-stage envelope generators, 16-row modulation matrix with a few brilliant extras, over 200 modulation controls, lots of effects (with synched modulation tempo)…get the idea? This is a synth programmer's dream, and it's not hard to learn, either.



rgc:audio z3ta+

THE VIBE: The look and feel is totally "pro," with a user inteface synth veterans won't have to think about. There's a clean, inviting aura; the z3ta+ has the vibe of being designed by someone who loves synthesizers, saw no need to limit any aspect of the device's performance, and knows how to write tight, efficient code. The sound ranges from old school analog, to pads corpulent enough to take on a Sumo wrestler, to cutting-edge arpeggiator and stepped patches (with host tempo sync) that slide into a remix so smoothly you'd think they were coated with WD-40.

WHAT'S HOT: There are separate windows for an X-Y controller pad, spectrum analyzer (not calibrated, though, so it's more of a relative indicator), and also, a highly versatile waveshaper for each oscillator. Although it's easy to get started, there's also friendly documentation to help you discover some of the more esoteric features. And the z3ta+ is ideal for recording: limiters are sprinkled liberally throughout for those situations where, say, the filter resonance has gone berserk; there's even a master limiter. Of course, you can bash the limiters really hard for squashing effects if that's your thing.

The MIDI learn function is particularly painless: any on-screen controller ties to any MIDI controller, and multiple parameters can be assigned to a single controller, or multiple controllers to a single parameter.

WHAT'S NOT: There's no Mac version, and the shaper controls can't be modulation destinations.

THE VERDICT: The zt3a+ doesn't really break new ground; you've seen all of the elements before (even the shaper, albeit in more limited form). But that's not the point. What we have here is sort of like a 21st century Oberheim Xpander, with a thorough implementation and righteous price. This is a monster synth with fantastic sound quality — a few minutes spent with the generous selection of patches will make you a believer.

COPY PROTECTION: Serial number
PRICE: $149 (VST/Dxi)
CONTACT: www.rgcaudio.com

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

– Tim Hauser, Vocalist, Manhattan Transfer

"I use ADK LE Matched Pairs for recording my toms, and two ADK Transformerless for overheads. Warm and accurate, the perfect complement to my sound!"

– Joel Rosenblatt, Spyro Gyra Drummer

"The sound is huge and wide open when tracking vocals. The accurate and transparent sound reproduction, especially on the acoustic grand piano, is nothing short of amazing!"

– Dale Sticha
Piano Tech for Sir Elton John

"I've now used the A-51s on almost everything including vocals, guitars, and drums. They remind me of very expensive German mics I have tracked with before."

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

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"We took ADK Microphones on our Christmas tour last year with Jaci Velasquez. The entire band was totally impressed by the sound! From the violins to percussion, ADK covered it all. We will be using these mics again in future tours."

– Jay Lipschutz, FOH Engineer, Jaci Velasquez

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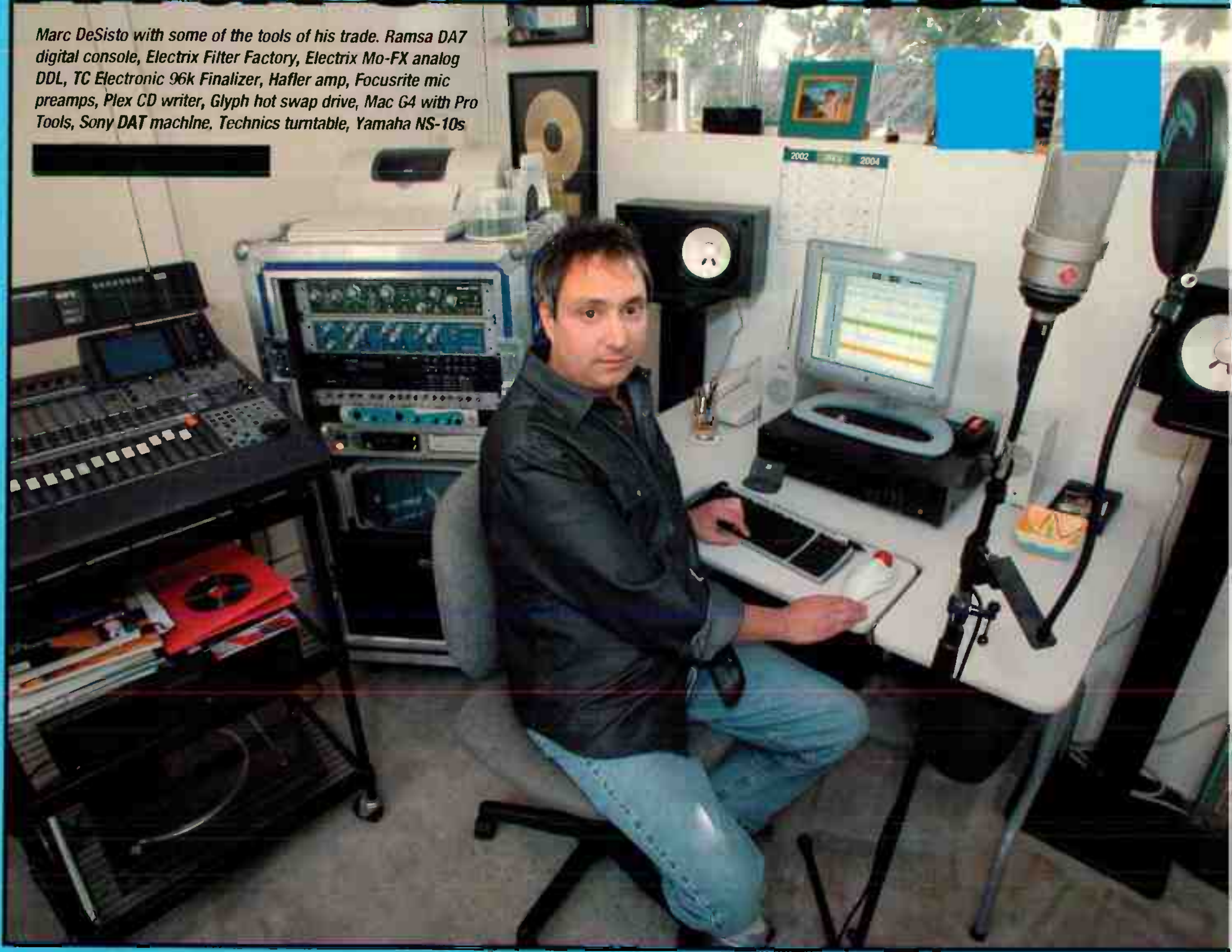

Marc DeSisto with some of the tools of his trade. Ramsa DA7 digital console, Electrix Filter Factory, Electrix Mo-FX analog DDL, TC Electronic 96k Finalizer, Hafler amp, Focusrite mic preamps, Plex CD writer, Glyph hot swap drive, Mac G4 with Pro Tools, Sony DAT machine, Technics turntable, Yamaha NS-10s

[redacted]

Inside Michelle Branch's Spirit Room

Story and photos by Mr Bonzai

What goes into the making of a platinum-selling debut album by a 16-year-old artist? Good songs, compelling performances, great arrangements, and that elusive quality of superb recording. In the case of Michelle Branch, it was engineer Marc DeSisto who captured the sound, in unison with the artist, producer John Shanks, ProTools dude Lars Fox, top musicians, and three mixers: DeSisto, Chris Lord-Alge, and Dave Way.

DeSisto has been adding his touch to good records for some time, with artists such as Melissa Etheridge, U2, Chris Isaak, Stevie Nicks, and Joe Cocker, to name but a few. Let's take a look inside *The Spirit Room*, Branch's reference to the recording studio.

EQ: How did you get involved in this project?

MARC DESISTO: I've been engineering for the producer John Shanks for years and he called me up.

Marc DeSisto

Were there demos made?

It's funny, but I never heard a note of her early song demos. The songs we recorded had a basic bed of loops, grooves, acoustic guitars and a scratch vocal.

What did you think about as you prepared for recording?

I always have my basic setup. When you go into a new environment, it's peace of mind to know what works and is sonically reliable for yourself. Once you feel comfortable, then you can present your sound as the starting point and see how it fits in the song you are recording.

> I ALWAYS HAVE MY BASIC SETUP. WHEN YOU GO INTO A NEW ENVIRONMENT, IT'S PEACE OF MIND TO KNOW WHAT WORKS AND IS SONICALLY RELIABLE FOR YOURSELF.

You mentioned that things moved along briskly with John Shanks providing a lot of the instrumentation. . . .

Yes, he has a great song sense. As a guitar player, his feel is excellent and tight. He is also fast when he records — let's buckle up and go! All the rhythm tracks are thick on *The Spirit Room*. His equipment arsenal is a serious selection of vintage guitars, amps, cabinets, and guitar FX pedals. The different tones that scream out of the amps are enormous. He is also quite astute with background harmonies and arrangement parts. That can be an extensive process to record.

Did anything strike you about Michelle's writing, delivery, style?

Being that young and writing these songs is admirable. When she sang we let her go. We only stopped when we needed specific vocal lines or sections from her. She doubled her self really great, and when we would solo the vocals, they were on.

Where did you basic track and could you describe the set-ups?

We recorded at Sunset Sound. It's a studio with history. Some of my favorite records were made there — Led Zeppelin, The Stones, Prince — the list goes on.

My set up: Find a superb place in the room to put the drums. Set up all the musicians so they are all in the same room together, Beatles-style. Bass drum: Sennheiser '421 close and a Shure Beta 52 on the outside rim with a drum tunnel — that keeps out cymbals and snare leakage and helps a ton for separation. API EQ's on the inserts. Snare top: Shure '57 with a Pultec EQ, adding alongside an AKG '451 with a 20 dB pad and a '57 underneath, out of phase, all combined to one track.

I like to EQ each microphone separately, so I get the sound from each, then get a blend. With every song each blend of the mics is different, so you're creating this tonality on the instrument. The toms: '421s top and bottom, with Drawmer gates and phase reverse. Hi-hats are AKG '451s or '414s — I sometimes like to combine the top cymbal from one hi-hat with the bottom from another set, to get the right sound for that particular song. Sometimes you want a trashy sound and sometimes you want a sweeter sound.

Overheads, either a pair of [Neumann] U 87s or individual cymbal mics. If I am not getting the impact of the cymbals, I will put '451s on each cymbal. Recently, I found an AKG D-19, the "Ringo" mic. I'll put that in the overheads, as well, and with that one you just move it up or down till you hear the honk of the snare drum just right. It adds a great visual touch as well.

For drum ambience, I prefer to have six to eight mics in the room. It's usually two U 87s far, two [Neumann] U 67s closer to the drums and not as high. And a mono [Neumann] U 47 six feet away at my ear height, in front of the drums. A cheap omni lavalier as a high overhead — that is sweet through the [Empirical Labs] Distressor.

So, with all of these mics, I combine them to 12 tracks. You can make mono tracks, too. I am aware of all the phase shift going on, so my key is mono — I start in mono and stay there for awhile. Then I go back into the studio and move mics around. If a microphone sounds thin, move it a bit and you will hear a big difference. I don't use every mic for every song, because every song is different, with a different tempo. Be creative and when the band is rehearsing, make your blends. Now you are onto creating the ambience of the song. Changing drums and making them fit to the song

Seen around the Pro Tools rig at Sunset Sound are (clockwise from lower left) drummer Vinnie Colaiuta, engineer Marc DeSisto, Design FX general manager Michael May, Pro Tools engineer Lars Fox, DFX systems manager Vernon Harveaux, producer John Shanks, and Michelle Branch.

is cool. It's also better to have too many mics set up than too few on tracking sessions.

Let's talk about the drum sound of Kenny Aronoff and Vinnie Colaiuta.

First off, I have so much respect for each guy I can't wait to get to the session. They can play any beat or cool drum fill. Play to any loop — *fagetaboutit*! These guys can play anything. I love watching that come together, learning the song and arriving at this trademark fill or something that is theirs. They play different drums and their configurations are their own. I like to have all my sounds set up before they arrive. Using a drum tech to play first always helps to adjust initial levels, gates, room phase — that stuff. Once he gets there, he'll make his adjustments and when they warm up I am already getting my sound. I find to get the tone of the drummer, it is best to get it while he is playing, when it's natural. Always record it, as well, and then you can play it for him and yourself and focus on areas you don't have yet. Both Kenny and Vinnie are cool about getting it right. Both guy's are totally accommodating.

How did you interface with Lars Fox, the Pro Tools dude?

Supa Lars. Fast with changes. We work together to create templates for the tunes, the ins and outs, so it's consistent from song to song. Pro Tools is the living new tape recorder of endless options and possibilities — crazy!

Guitar recording — amps, direct, mics?

Yeah, more fun stuff. Okay, hear you are looking at all the goodies. I'll start off with a '57 and a '421 on one speaker. Get a flashlight look through

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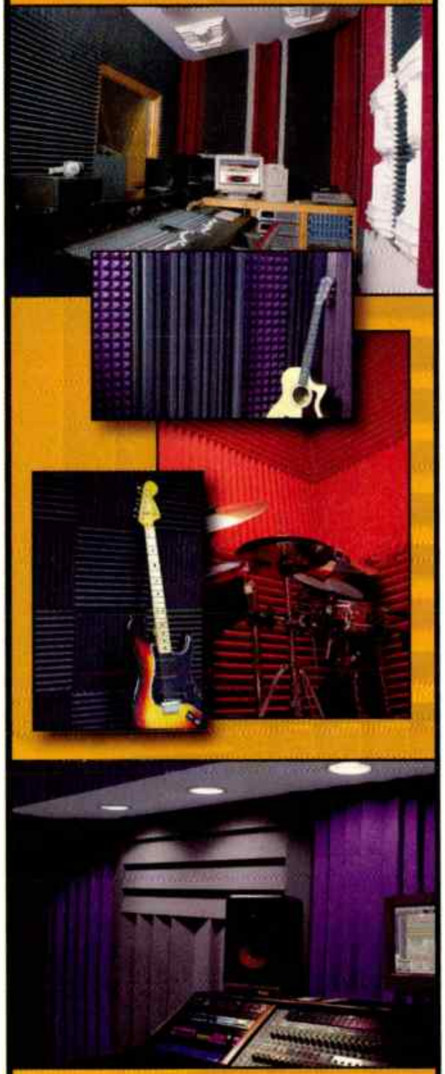

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Marc DeSisto

the grille and find the spot on the speaker you like to start with. Maybe add a U 67 or a ribbon mic for close ambience. Go listen to the amp. Retain that sound, then in the control room find the proper phase relationship between the mics, by knocking one of the mics out of phase. Find their null spot, go back in-phase, and boom — it should fit right in. If it doesn't, move the mics. As songs develop, change the balance of the mics to fit each one. It's a cool way of "EQ-ing." For compression, I'll have a compressed signal underneath the original. [UREI] 1176s work well, Fairchilds always, if they're around.

MIXING IS A VERY INTERESTING STAGE. YOU ARE ALONE FOR AWHILE, IT'S YOUR INTERPRETATION OF THE SONG YOU'VE RECORDED.

For acoustic guitars we went into the Neumann FET 47, on the bus it went to a Pultec EQ, [Teletronix] LA 2A with minimal compression, adjusted accordingly for each song.

Bass considerations?

John [Shanks] played bass, probably a Yamaha bass with old strings and a warm sound. Mostly a passive DI with a Pultec H2 EQ to a Joe Meek compressor. Occasionally we used an Ampeg B15, and I like Electro-Voice RE-20s, Pultec, LA-2A. Hard to beat.

Who did the arrangements?

That's John mostly. Patrick Warren on Chamberlin strings and cello parts.

Michelle Branch, just 16 years old when this record was recorded. How did she adapt to the studio?

Well, it didn't seem like this was the first record she made. When you meet her she is very cool. Watching her, you appreciate her talent and what was going on with her music as it came to life. She was open to the process, you might say. With that, you get very little resistance. Her vocal mic was an FET 47 with a Millennia mic pre, to an LA-3A. For her guitar, we set up an acoustic guitar station. FET 47, a Neve mic pre to a Pultec EQ to an LA-2A. I had a '451 mic set up, too.

Special tools of yours, processors, mic pre's?

My equipment rack follows me: Distressors, Focusrite mic pre's, BBS EQ, envelope filters, analog delays. An additional assortment of mics, too. I record with Universal Audio 2610 mic preamps — they're great on snare mics and with '57s on guitars. I use both new and old stomp boxes. They

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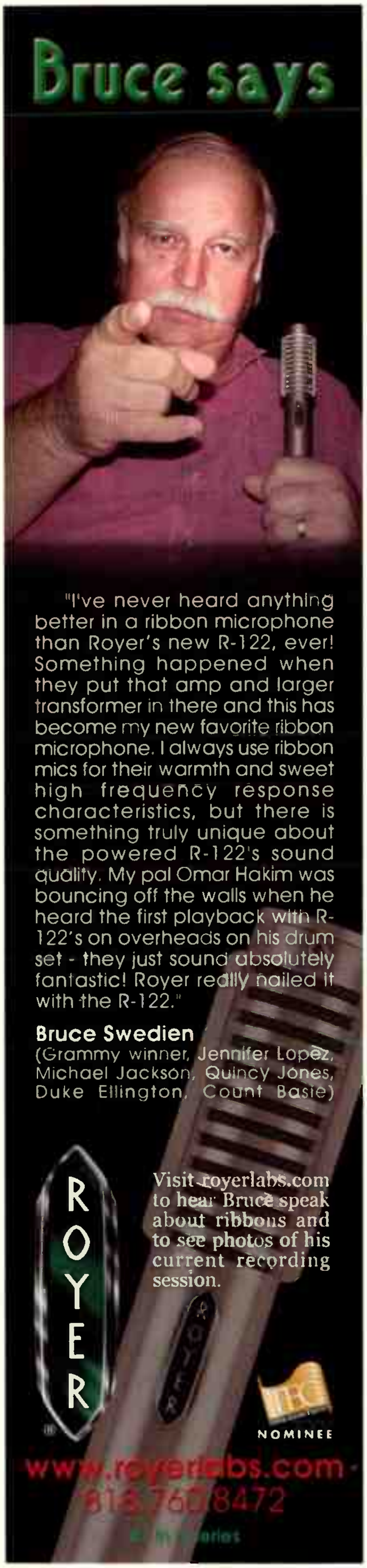

Bruce says

"I've never heard anything better in a ribbon microphone than Royer's new R-122, ever! Something happened when they put that amp and larger transformer in there and this has become my new favorite ribbon microphone. I always use ribbon mics for their warmth and sweet high frequency response characteristics, but there is something truly unique about the powered R-122's sound quality. My pal Omar Hakim was bouncing off the walls when he heard the first playback with R-122's on overheads on his drum set - they just sound absolutely fantastic! Royer really nailed it with the R-122."

Bruce Swedien
(Grammy winner, Jennifer Lopez, Michael Jackson, Quincy Jones, Duke Ellington, Count Basie)

Visit royerlabs.com to hear Bruce speak about ribbons and to see photos of his current recording session.

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Marc DeSisto

In Studio A at Henson Recording during the tracking of new songs for Chris Isaak's Greatest Hits are (L-R) Ron Rutledge, VP/Henson Recording Studios; John Shanks, producer; Marc DeSisto, engineer; Ross Garfield, "The Drum Doctor"; and Tal Herzberg, programmer.

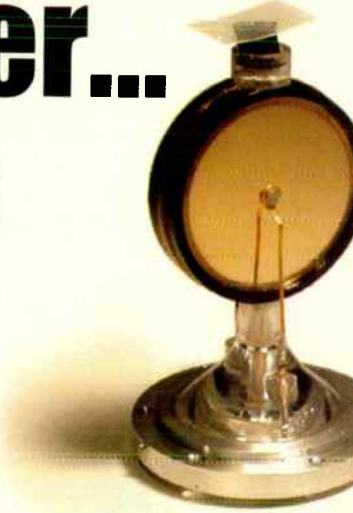
open up doors for ideas. I'm continually looking for live chambers in studios and the ones at Sunset Sound are fantastic.

Mixdown time — your personal approach to mixing?

I mixed at Westlake Studios, SSL G+ mixed down to half-inch tape on an Ampex-102 tape machine. I also had a four-track machine with vari-speed for slapback effects. Great for all vocals, guitars, pianos — got to love it. It's a super sound I love.

Mixing is a very interesting stage. You are alone for awhile, it's your interpretation of the song you've recorded. Experiment with effects, mutes, and levels while it is your time. My approach is to get the band to sound as live as possible. Concentrate on a great balance. EQ within the track. Work on panning. Then get the vocal. It's important to create the right vocal sound. It will sit in the track. Then I look for various contrasts, between the verse to the chorus, and into the bridge. I'm continually trying to make an impact on the chorus.

75 years later... Nothing has Changed!



2003 - UM92.1S capsule.

1957 - UM57 capsule.

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

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Marc DeSisto

Did you make any breakthroughs or discover anything new in the recording of this album?

24-bit. Hated to see analog multitrack machines go away!

Did you have a feeling that this album would be so successful?

You want all of the records you make to do well. It's quite a ride and you get to see what's happening with the album and the artist. Literally, her single was "Everywhere." Besides having your work enjoyed by other people, it's exciting, too. Not everyone will like it, we know that.

Recording the songs and watching them fully develop is a complex process and at the end of the day, hopefully you've done something good. I believe this is a modern-sounding record with a singer who can sing and play guitar with or without her band, and really capture the listener.

Why did you become an engineer?

It's just a passion to record. When you first walk into a studio there's a scent, and it's like this explosion goes off in my head. I dig music, musical instruments, the movement. Each session is unique, and I like to work with musicians playing live together and recording it that way. Microphones, EQ, effects — it's all a blast. The next step is to record the performance, because that's what it's all about. Because emotion is the key factor. When you see a performer live and the audience freaks out, you say "why?" It's because the emotion of what they're singing about means something to the singer and it translates to the audience. So, to capture that in a recording session is a thrill. When you're a kid, you hear new music that blows you away. Your world has just changed. Doing this makes me feel like a kid. ■

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By Mitch Gallagher, mgallagher@musicplayer.com

Universal Audio 6176 Tube channel strip

The whole is greater than the sum of the parts

Universal Audio has made a big splash with their 1176LN reissue limiters. Likewise, the company has stirred up the preamp world with a reissue of the classic 610 preamp, originally part of the '60s-era console at United Recording in West Hollywood (now Oceanway). Both products have had positive acceptance in the modern recording world, and are in wide use. Now UA has packaged these two vintage units into one package, the 6176, which comprises a single-channel 610 tube mic preamp and an 1176 limiter in one 2-rackspace chassis.

The two "sides" of the 6176 can be used together in a "channel strip" arrangement, where the preamp output feeds the input of the limiter, or the preamp and the limiter can be used entirely independently as separate units. To this end, there are separate inputs and outputs on the back panel for each section. The preamp has both line and mic level XLR inputs, as well as an XLR line level output. Likewise, the 1176 section has an XLR input and and an XLR output. The input impedance of the 1176 section can be changed from 15,000 ohms to 600 ohms using a back-panel Input Loading switch. Depending on the gear you're interfacing to the 1176, you may find that the tone is a bit brighter using the 15k position.

Around front, the faceplate is divided into two sections. The 610 tube preamp controls are on the left; all the controls from the 610 and 2-610 stand-alone preamps are included: a stepped gain control (–10, –5, 0, +5, +10 dB), an impedance/input select control (500 and 2k mic, line, 47k and 2.2m instrument level), a large output level knob, and a two-band EQ. The high EQ can operate at 4.5k, 7k, or 10k Hz with a range of ±9 dB, while the low EQ can operate at 70, 100, or 200 Hz, with a ±9 dB boost/cut range. There's no dedicated EQ bypass button, but the EQ boost/cut controls are rotary switches with a "0" position that effectively bypasses the circuit. Rounding out the preamp controls are a polarity switch, a 1/4-inch instrument input, and something not found on the original 610 models, a 15 dB pad switch.

DIGIDESIGN DIGI 002

MANUFACTURER: Universal Audio, P.O. Box 3818, Santa Cruz, CA 95063. Tel: 831-466-3737. Web: www.uaudio.com.

SUMMARY: Combining two high-end components in one unit provides great flexibility and power in a convenient, easy-to-use package.

STRENGTHS: Preamp and compressor can be used independently or together. Line, instrument, and mic-level inputs. Two units may interconnect for stereo operation. Includes all the features and sound quality that made the originals so cool. Pad switch for preamp (not included on the original). Input loading switch for compressor.

LIMITATIONS: No 1/4-inch line-level connections.

PRICE: $2,495

On the right side of the front panel are the controls for the 1176 section. As with the preamp, these duplicate those found on a stand-alone 1176, although the form fact is slightly different. There are knobs for attack and release times, input and output levels, and a seven-position rotary switch (instead of push button switches) for setting the compression ratio. In addition to bypass, this switch offers 4:1, 8:1, 12:1, and 20:1 ratios. There's also a 1:1 setting that passes the signal through the limiter with no gain reduction — for adding "color" without compression, according to the manual — and a final switch position that enables the "all four buttons pushed at once" trick from the original. Above the ratio control is a meter function switch for choosing among preamp level, gain reduction, and compressor output being displayed on the front-panel mechanical VU meter.

In the center of the front panel are the power switch and indicator, 48-volt phantom power switch, and a Join/Split switch for choosing whether the two sections of the 6176 operate together as a chain or as independent units. This last item is convenient; I ended up leaving both the preamp and limiter sections physically wired up all the time, and was able to use them together and separately as the task required by simply flipping the switch.

IN USE

The 6176 is quite easy to use — the front panel is clearly laid out, and all the control choices make sense — but this doesn't prevent the unit from offering a ton of flexibility. Aside from the obvious choice of whether or not you're going to use both the preamp and the limiter on a given track, and whether or not you're going to apply EQ to the high, low, or both bands, you're given other options. One example: the

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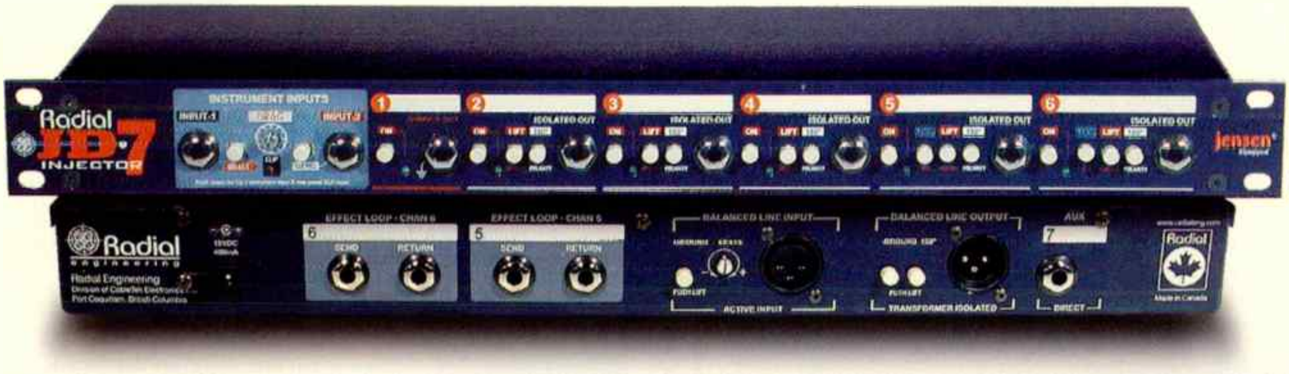
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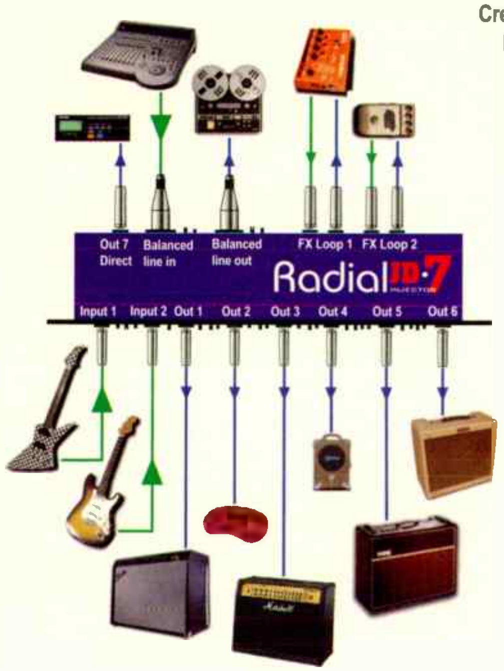
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preamp impedance setting may or may not make a significant difference in the tone of the mic you're working with. With a Soundelux E47, for example, there was a noticeable sonic difference between the two settings; I preferred the 500 ohm setting when tracking my vocals.

But as far as the preamp section is concerned, the most tonal flexibility is provided by the way the gain controls are set up. It works almost like a guitar amp: If you run the Gain setting low (say, –10) and set the Level control high (above 7 or so), you'll get a crystal clear, transparent tone. But turn up the Gain control to +5 or +10, and turn down the Level control, and the preamp gets fatter, warmer, and almost fuzzy (in a good way). You can spend a lot of hours futzing with the gain controls as you're trying out mics and impedance settings on a sound source; all the results that you get will be good (as far as the sound of the 6176 anyway!). It's up to you to sort through them and choose which settings are best for your recording.

But having this flexibility is great. For fingerpicked acoustic guitar tracks and other delicate sources, you can dial in a clean, dynamic, round tone, while on crunchy or screaming guitars, you can punch things up with additional fatness and "texture." Similarly on vocals, a clean transparent sound suits certain styles and singers, while cranking things up works wonders to fatten up and round out a nu-metal screamer. Combine this with the ability to quickly drop a full-featured 1176 compressor into your signal path with the flip of a switch, and you've got one extremely powerful, flexible unit.

But that's not all this unit can do. Don't forget that you can use the 1176 section separately from the preamp section. And there's that front-panel hi-Z input that can be used for DI connection of a guitar or bass to the preamp — this sounds every bit as good as using many stand-alone DI boxes, and has the option of switchable impedance. While this made a subtle difference with some of my guitars (a Les Paul and a Strat equipped with active EMG pickups), the difference was startling with my Tele, which is equipped with "standard" single-coil pickups. The difference was even more dramatic with the under-saddle pickup in an acoustic guitar.

JOIN

In the time I've had to use the 6176, I've become quite enamored of it. The unit is tremendously flexible, both functionally and tonally. I never found a source where I couldn't dial up exactly the preamp sound that I wanted. Throwing a top-end compressor into the mix and a flexible DI input makes this one versatile and powerful package.

To sum it up: The preamp sounds awesome, and is extremely flexible tonally. The EQ is useful for shaping your signals. The 1176 limiter section provides sought-after compression and limiting characteristics. The pre and limiter can be used together as a channel strip or as totally independent units. And there's nice extras, such as the DI. With the 6176, Universal Audio has created a box where the whole is greater than the sum of the parts, and has done it at a reasonable price. All in all, an outstanding package. ■

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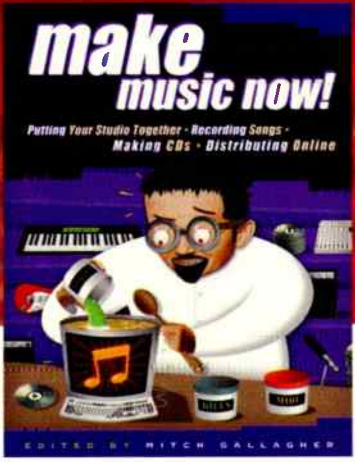
Edited by Mitch Gallagher, Editor of EQ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By Roger Nichols • rogernichols@mindsprng.com

Digidesign Digi 002 FireWire interface/control surface

Pro Tools goes FireWire

Digidesign spelled it out pretty well in the opening sentence of the Digi 002 manual. “Welcome to Digi 002. The cross-platform, Pro Tools workstation for music, sound design, and multimedia production.” The Digi 002 consists of Pro Tools LE software and a miniature digital console that connects to the host computer via FireWire.

Is this new entrant into the Digidesign stable going to become “Pro Tools for the masses”? Let's look at some of the features and see.

- Record and play up to 32 mono digital audio tracks.
- Sample rates of 44.1, 48, and 96 kHz.
- 16- and 24-bit capability.
- Up to 128 MIDI tracks.
- Full sample-accurate automation.
- Up to five RTAS (Real Time Audio Suite) plug-ins per track.
- Up to five inserts and five sends per track.
- Routing with 16 internal busses.

DIGIDESIGN DIGI 002

MANUFACTURER: Digidesign, 2001 Junipero Serra Blvd., Daly City, CA 94014. Tel: 650-731-6300. Web: www.digidesign.com.

SUMMARY: A comprehensive portable audio interface/control surface solution for Pro Tools user.

STRENGTHS: A lot of bang for the buck. 96 kHz recording. 1,024-step faders for accurate mix adjustments. The Mini-Me version of Digidesign's Control 24.

LIMITATIONS: Only four mic preamps. Only works with Pro Tools LE software.

PRICE: $2,495

Keep in mind that Pro Tools LE is a host-based system that uses your computer's processor to do all of the work. Actual sample rates, number of tracks, and number of simultaneous plug-ins depends on processor speed.

Now lets check out the hardware features.

- Eight analog audio inputs, four of which have mic preamps and phantom power.
- 96 kHz, 24-bit A/D and D/A converters.
- +4 monitor outputs, two pairs of main outputs, and stereo headphone jack with level control.
- Optical connectors for eight channels of ADAT I/O at 48 kHz, or two channels of S/PDIF I/O at 96 kHz/24 bits.
- RCA connectors for coax S/PDIF audio at up to 96 kHz/24-bit.
- 16 channel MIDI on one in port and 32 channels of MIDI on two out ports.
- Eight touch-sensitive moving faders with 0.1 dB resolution.
- Dedicated solo, mute, and channel select/ record arm controls.
- Eight multi-function rotary encoders for pan, send, and program control.
- Transport and navigation controls.
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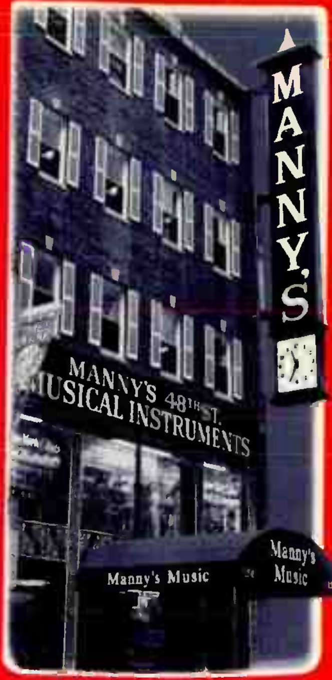

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- Eight analog inputs (four with mic preamps) with dedicated volume, pan, solo, and mute controls.
- Dedicated three-band EQ on input channels 1-8.
- Dedicated compressor/limiter on input channels 1-4.
- Built-in reverb and delay.
- Four sends on each input channel
- Stereo output with dedicated master fader.
- Main +4 outputs
- Monitor +4 outputs with volume control
- Stereo headphone output.
- 10 scribble strips for channel info.
- Channel metering using the rotary encoder ring.

And, the Digi 002 is compatible with Macintosh or Windows.

A DRIVE AROUND THE BLOCK

How does the Digi 002 work in the trenches? I took it for a spin to find out. I recorded a three-hour concert consisting of a 100-piece choir accompanied by an 80-piece orchestra. The Digi 002 console was connected via FireWire to a Macintosh Titanium Powerbook. The recordings were made on a 7200 RPM 120 GB FireWire drive connected to the second FireWire port on the Digi 002 console.

I used the mic preamps in the 002 for four of the microphones, and used a small-format digital console for an additional eight microphones. The output from the digital console was ADAT optical. The ADAT optical cable was connected to the Digi 002 console and Pro Tools LE was configured to sync to the ADAT optical.

The concert was also being video taped, so everything had to be in sync. I used an Aardvark AardSync with black burst option to provide all of the clock sources. The black burst video went to the video truck and served as "house sync" for all of the video gear. Word clock was fed to the small-format digital console. Since the Digi 002 was synced to the console, it was also synced to word clock. Since the Digi 002 doesn't offer SMPTE lock (although it does offer MTC trigger-start), I recorded SMPTE on an audio track for later use.

I used four B&K 4002 mics for the orchestra and four Shure KSM-441 mics for the choir, all suspended from the ceiling of the hall. I used two Shure KSM-32 mics on the piano, and two AKG 421EB mics for vocal soloists.

Everything went off without a hitch. Perfect recordings, perfect sync, and perfect mixes. As I write this review the mixes are done and the CDs and DVDs are being manufactured. Everyone was happy, especially me.

I just have one question. Why don't you have one yet?

Roger offers further insight into the Digi 002 system in this month's Across The Board column.

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Value: $2,495

TC Helicon VoiceOne

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1. To enter: You may enter by printing your name and address on the official entry card or on a postcard and mailing it to Music Player/The Total Studio Vocal Package Giveaway, P.O Box 51015, Boulder CO 80322-1015 or online at www.musicplayer.com beginning approximately February 5, 2003. Entries must be received by March 31, 2003. Enter as often as you wish (as often as once per day online), but each entry must be separately postmarked. Copies, mechanically reproduced, or automated entries, and computer-aided or computer-generated script entries will not be eligible and are void. The sponsor of this game is United Entertainment Media, Inc. ("Sponsor"), and such Sponsor is not responsible for printing or typographical errors in any sweepstakes – related materials, late, lost, or misdirected mail or transactions that are lost, fail to enter into the processing system or are processed or transmitted late.

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7. Winner's List: To obtain the name of the prize winners, send a self-addressed, stamped envelope to "Winner", The Total Studio Vocal Package Giveaway, Music Player Network, 2800 Campus Drive, San Mateo, CA 94403, USA, October 31, 2003.

By Craig Anderton • canderton@musicplayer.com

CreamWare PowerPulsar Audio Interface/DSP Accelerator

Power to burn for computer-based studios

When Creamware's Pulsar first appeared, I appreciated the hardware and software engineering. However, because much of my studio remained outside the computer, I didn't really "get" the full picture; the benefits didn't seem to compensate for the price.

But after using PowerPulsar 3.1c (PP for short), I finally got it. PP isn't just about an audio interface, software synths, processing plug-ins, patch bay, mixer, and set of samplers, although that's part of the picture. The key point is that in addition to virtualizing a studio's functions in software, PP integrates a studio's *hardware* as well, thanks to the 15 SHARC DSP chips.

It's as if someone took an inventory of all my outboard gear, removed all the DSP chips, put them on a PCI card, then designed a software interface. You can then run a sequencer (Cubase, Logic, Sonar, etc.) within this environment, but its role is more like a multitrack machine in traditional studios. (We'll call this type of program a "recording app" because PP is more like the "host.") Of course, the recording app can host its own soft synths and plug-ins too.

CREAMWARE POWERPULSAR

MANUFACTURER: CreamWare US, 6879 Russel Ave.. Burnaby, B.C., V5J 4R8, Canada. Tel: 604-435-5158. Web: www.creamware.com.

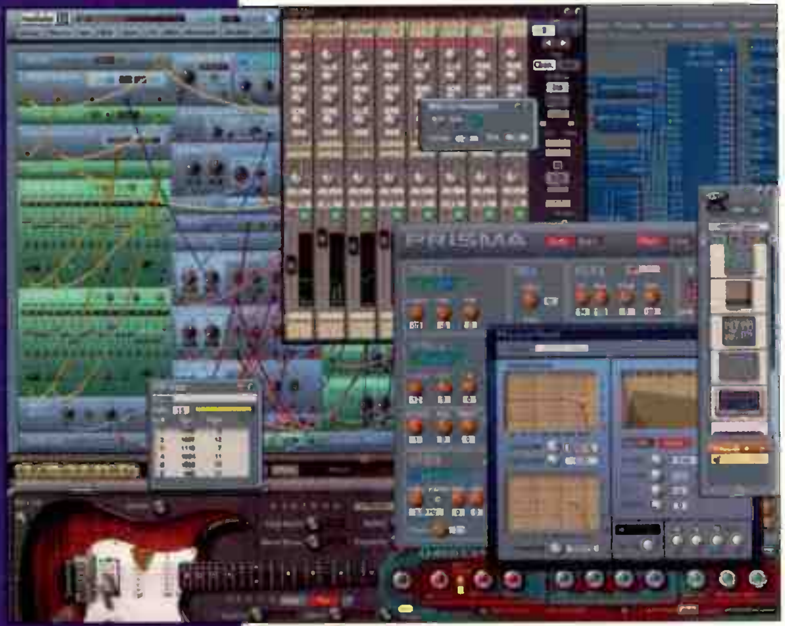
SUMMARY: With 15 SHARC DSP chips, comprehensive software, and 24/96 audio hardware, this system turbocharges existing computer environments with interfacing, mixing, synths, and processors, all of which integrate with hard disk recording programs

STRENGTHS: Customizable. Expandable. Exceptionally low latency. Great selection of soft synths, samplers, and signal processors. Sophisticated mixer. Third-party support. Rich, full sound quality. Visually appealing. XTC mode allows ASIO/VST applications to use PowerPulsar effects and soft synths. Blows my mind every time I boot it up.

LIMITATIONS: Audio pop upon opening and closing. XTC mode not available for Mac. This level of performance doesn't come cheap.

MINIMUM SYSTEM REQUIREMENTS: Windows 95/98/2000/XP, 400 MHz processor, 128 MB RAM; MacOS 9.2. G3/400 MHz, 128 MB RAM.

PRICE: Classic 20 version with software, $1,999; until 3/31/03, $2,495 with one optional software package (Mix 'n' Master Pack or Synths 'n' Sampler Pack). Other configurations/variations available.



Clockwise from top middle: The STM1632 provides 16 stereo channel strips; next is the routing window. The small strip along the right is the Live Bar, which controls the PowerPulsar and floats over any sequencer you're using. Next up: the Prisma and EZSynth, and MasterVerb processor. Lower left shows the Six-String, and upper left, part of the Modular III. These are set for lots of voices, so the DSP meter is just about hitting max.

THE HARDWARE

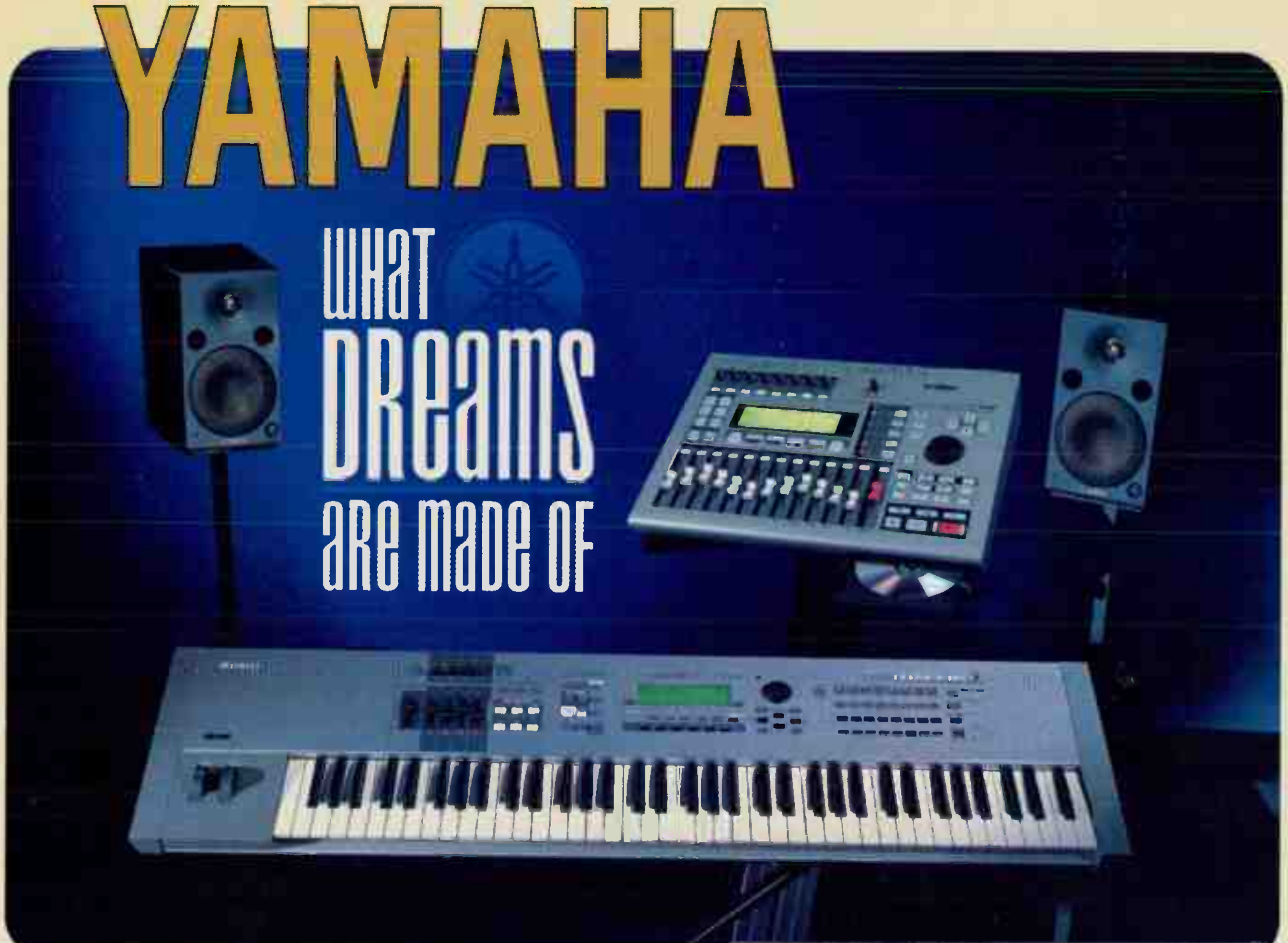
The PCI card is 12 inches long, so it needs room. Four I/O daughterboard options plug into the main board. I reviewed the Classic 20, with 16 channels of ADAT, two channels analog unbalanced, two channels S/PDIF, and MIDI in/out/thru. The ADAT connectors are on the backplane, while a multipin connector/breakout cable provides the other connections.

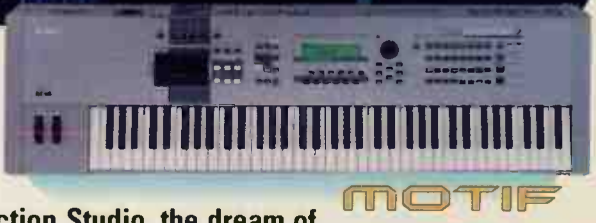
The PLUS version has balanced analog and AES/EBU instead of S/PDIF; the ADAT24 offers 24 channels of ADAT; and a board with CreamWare's Z-Link interface is optimized for multichannel 24/96 audio (however, any board handles the Sonorus S-Mux protocol for running ADAT interfaces at 24/96).

With WDM or ASIO, under 5 ms of latency was cake. Other drivers include DirectSound, MME, tripleDAT, GigaSampler, Sound Manager and OMS. PP also uses CreamWare's S/TDM bus (SCOPE Time-Division Multiplexing, not the Digidesign protocol), which interconnects additional SCOPE-family boards for extra DSP or I/O.

INSTALLATION

Windows XP installation was simple: The OS saw the new hardware device, asked for the CD, and installed the drivers — done. However, some installation issue (apparently unique to my





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ON THE OPTION FRONT

I also checked out some optional software: the Minimax (a blockbuster Minimoog emulation, $249), Modular III (awesome update from the Modular V2, $249 or $98 upgrade from V2), and Six-String ($249). Bottom line: they're great. Six-String does beautiful physical modeling of guitar timbres, from distorted leads to acoustics, but has enough programming options so you can also create abstract, synth-like tones. It's both traditional and original.

Minimax has to be heard to be believed. The sound is incredibly big — I think my head would probably explode if multiple instances were playing in surround with a giant subwoofer, especially with the patches done by Dr. Walker.

setup) failed to copy over all the DSP files. With some help from responsive tech support, I dragged over the missing files from the distribution CD, and all was well.

I tested Cubase SX and Sonar in the PowerPulsar environment — zero problems. ASIO programs can also access the interface directly. The system didn't crash once during all my testing. For best results, I highly recommend a second monitor — one for your recording app, and one for PP.

THE STUDIO'S HEART

The hardware lets PP talk to the rest of the world. In its own world, start with the routing window — a cross between a schematic diagram of your studio and a patch bay.

A typical setup starts with one (or several) of the five included mixers, from a micromixer that sums 16 stereo channels, to a 24-channel 5.1 surround mixer with four auxes, to a 62 channel eight-bus console with six mono aux channels, inserts, and dynamics/EQ for each channel. All mixer parameters, like seemingly everything else in PP, can be MIDI-controlled with a painless "learn" mode. Other modules represent software and hardware I/O (patched with virtual patch cords), and everything can be saved as a setup. So, you can create a setup for tracking in Cubase SX, another for mixing in Sonar, another for live synth performance, etc.

The mixer can blend the synths and samplers, add processors, then patch the outs back into your recording app's input. This works just like plugging an outboard synth into a mixer — but with no latency! Synths can be triggered by your app's sequencer (with multiple soft MIDI ports available) or an external controller plugged into PP's MIDI in.

This means you can load up a great-sounding synth that eats processing power, set it for mondo voices, feed it through PP's lush-sounding reverb and perhaps some other processors, layer it with more synths, play the whole thing with less latency than many (if not most) hardware synths, then record it as a track in your recording app — *all without stressing your computer's CPU.*

You get options that aren't part of normal digital life, such as routing sequencer tracks through outboard analog effects then back into the system, or monitoring through effects without annoying echoes — and voices sure sound wonderful through the MasterVerb.

MORE SOFTWARE

There are 60 stereo, 32-bit effects (with many available in mono); these include delay, distortion, filtering, modulation, reverb, dynamics, vocoder, and "utility" effects like a DC filter. They sound great, and really benefit from the DSP headroom.

There are plenty of fat, luscious synths (10 including a modular synth system, vector synthesis playback module, two Minimoog emulations, wavetable synth with Prophet VS waveshaping abilities, drum machine, etc.), and a cool arpeggiator. Of the two samplers, one is mostly for Akai format playback, while the other is more like the PowerSampler (reviewed March '01), with full editing. (Another

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

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sampler, the Volksampler, comes with PC systems only). And don't get me started on the Modular Version 2 synth with 140 modules and 80 pre-patched synthesizers . . . and that pales next to the optional Modular III.

I'M IN XTC. . . .

Furthermore, an XTC mode that allows ASIO/VST programs (I tested with Cubase SX and Acid 4.0) to use PP's processors and synths as standard VST and VSTi plug-ins with no CPU loading. However, you can't run the PP system simultaneously; the mixer, routing, etc. aren't available in XTC mode, nor could I get XTC effects to work with Sonar with a VST wrapper.

There was severe distortion running XTC under Cubase SX; CreamWare's site advised disabling SX multiprocessor support. Oh well . . . but it solved the problem. Given the plug-in quality and how much they reduce the processor's load, it's an okay tradeoff.

MOST EXCELLENT, INDEED!

To call this an "audio interface" is like calling the Taj Mahal a house — technically correct, but conceptually wrong. There is no equivalent product that offers such a wide range of software to "accessorize" a virtualized studio and interface. Nor are you forced into a specific recording app — PP plays nicely with others.

PP is like adding afterburners to your setup; it's not too much to say it has transformed my studio in a way that reminds me of when I first started using computers. Not dealing with synth latency is a huge attraction, the sound quality is awesome, the software is visually striking, and the whole concept is genius. Although it's not too hard to figure out (despite somewhat scattered documentation), it's deep enough to keep the surprises coming.

So what's the bottom line? For the price of a decent synth, my virtual studio made a quantum leap in power, flexibility, and sound quality. In fact, when it was time to return PowerPulsar to the factory, I had no choice: I bought it. ■

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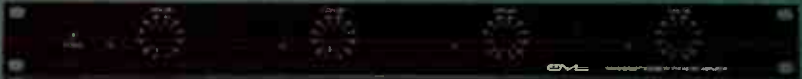

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* 2002 *Mix Magazine* Tec Award, 2001 *Pro Audio Review* Excellence Award, 2000 *EQ Magazine* Blue Ribbon Editor's Choice Award.

By Craig Anderton • canderton@musicplayer.com

Sample CD Reviews

METHODS OF MAYHEM II

PrimeSounds (www.primesounds.com)

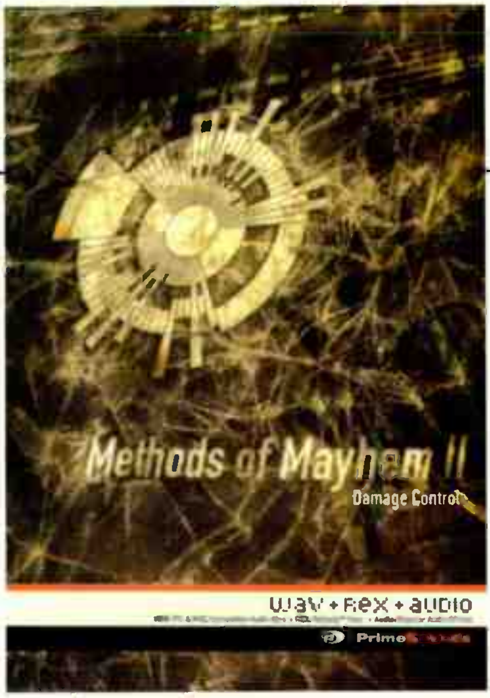
The first Methods of Mayhem sample CD promulgated the idea *SCRONCH CRASH* that nasty is good *BOMP-CHA BOMP-BOMP CHA*, and that distortion *ZWEECH ZWEECH* has its own beauty. So here we have more of the same, in WAV, audio, and REX2 formats.

Drum loops range from 80 to 160 BPM, and include the individual samples used to make up the loop (nice!) so you can create alternate loops yourself. There are *GRONK SNURK* bass effects such as distorted slides and growls, as well as bass loops from 120 to 160 BPM. All are rude, haven't shaved in a week, and probably *DUGGA DUGGA SPLAT* need a bath.

There are lots of guitar squeaks, feedback *VROOOO-WOOO-WOOO*, and noises from not just guitar but a variety of sources. Guitar loops (again with a wide range of BPM) are also well represented, and favor the "distorto-industrial-people-leaping-around-on-stage-and-sneering" kind of vibe. Another folder contains rude percussion loops (that do not sound like traditional percussion instruments), suitable for layering on top of the other insanity. Finally, there are ambient samples *ZZZZRRR-WHEEEN-ZZZZRRR-BWAAAN*, some of which are seriously disturbed. They sound like they were derived mostly by processing the sound of comets exploding through a digital audio editor.

Amazingly, I'm not going to complain about the acidization, but that's because the 454 MB of WAV files aren't acidized. That's also why there's a goodly assortment of tempos. The REX2 files (125 MB) are of only the loops, not one-shots (makes sense). The audio files are on a separate CD.

So the bottom line *SKRONK ACK ACK ACK* is that if you want nasty, rude sounds with the same pedigree as the original Methods of Mayhem, here they are. A great application would be the scene in the movie where the detective goes into the decrepit club with the really weird kids who are probably engaging in willful chemical self-poisoning; the band playing in the background could be made up entirely from this CD. The sounds also provide fine accents for dance music when you want to shovel some sonic dirt into the mix. Very cool for its intended audience. (one audio CD, one WAV/RX2 CD, $99)



PERFORMANCE LOOPS: ACOUSTIC GUITARS

Big Fish Audio (www.bigfishaudio.com)

The "performance loops" concept strings together compatible loops to create complete compositions. The loops are taken from multitrack recordings of songs, yielding various chord progressions but also, several loops are repeated with small variations. The loops are basically rhythm guitar parts using six-string (474 MB; mono, stereo, and double-tracked), 12-string (112 MB; stereo and double-tracked), and nylon-string guitars (53 MB; various samples). Several styles are represented (ballad, rock, folk rock, some country, funk rock, some Latin, etc.) in both audio and acidized WAV form (the acidization, which is hard to do with sustained sounds, is very well done).

Recording quality is excellent, but more importantly, there are variations to the guitar sounds — some of the acoustic guitars are bright, others have a somewhat more "midrangey" sound. All of them work well. Mode-wise, although the voicings are generally major, there's liberal use of tonic/fifth and suspended chords so they're compatible with minor moods.

The main advantage, yet also disadvantage, of the performance loops approach is that the loops define the song. For example, in the 100 BPM 12-string selection, there are several chord progression loops (A to C, A to G, C to D, D to A, D to E, F-D-G-D, G to C), and loops that vamp on D, E, A, and C. But if you want to go from, for example, Am to F, you can't get there from here without transposition and cut/paste.

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This type of CD really shines for situations where you need to come up with a quick acoustic guitar track. ("Hey, we need two minutes of acoustic guitar to accompany our promotional video *Napa Valley Wine Tasting*, can you get it to Fed Ex by 5 PM?" With this CD, you can say yes.) However, because of the variety of loops and the acidization, you can get more versatility out of these parts than expected. There are sprinklings of individual chord hits and other goodies to add more interest.

This is a fine example of a production-oriented CD. Songwriters will find it of very limited use — but those doing audio-for-video, or who need to add acoustic guitar accents to existing tunes, will find it useful indeed. (two CDs, one audio, one acidized WAV, $99.95)

SONIC REFILL 1.0

Sonic Reality (www.esoundz.com)

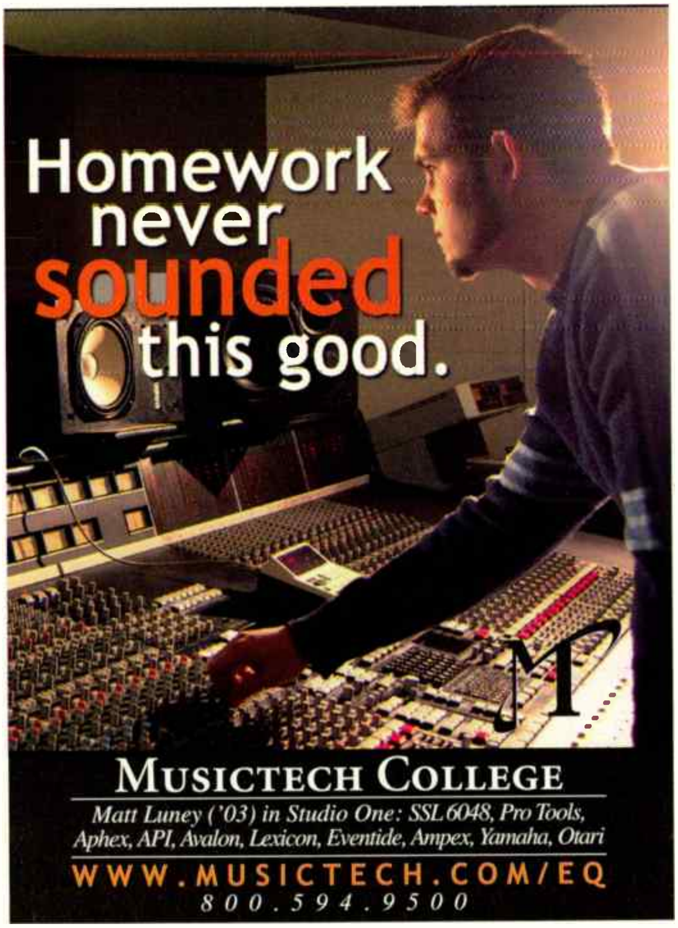
Given Reason's popularity and open-ended nature, I'm surprised more refills haven't ventured beyond the dance music world. However, SR's Sonic ReFill 1.0 (for Reason 2.0) provides essential acoustic, orchestral, and electric instruments that expand Reason's reach.

ReDrum kits include some tasty acoustic drum sets, shakers, congas, but also some excellent lo-fi kits, a world kit, and a variety of alternatives to Reason's factory refill. SubTractor patches (bass, FX, monosynth, pads, percussive, and poly synth) make good use of the mod wheel — some companies seem to have forgotten it can be used for parameters other than vibrato. Dr. Rex loops include acoustic drums, processed acoustic drums, electronic drums, percussion, and lo-fi drums. They're all fine, but I was hoping for other tempo-stretchable sounds, such as bass or guitar loops. On the other hand, if you save out the slices, you end up with around 1,000 hits you can play with.

The NN-XT patches are standouts, and clearly the collection's centerpiece. There are some wonderful touches, such as having a hint of breath noise in the trumpet with high velocities. Basses, wind and brass, chromatic percussion, effects, guitars, leads, pads, pianos, strings, voices — they're all here. If you've heard Sonic Reality's products, you're already aware they know how to sample, and fit good sound in a reasonable-sized space; the NN-XT patches are no exception. (There are no patches provided for the NN-19, although of course, it will read Dr. Rex files.)

As to Malström, I was somewhat disappointed in the bass and leads; I was expecting something more groundbreaking. But when I dialed in the pads — wow. They really make good use of Malström's talents, as do the synth patches and especially, the effects. I've been told that extra Malström patches will be posted at www.esoundz.com for registered owners, so perhaps SR will get as adventurous with future bass/lead patches as they were with the pads.

In Europe, Reason's new ad campaign says it's "compatible with all styles of music." Sonic Refill 1.0 gives the tools to justify that claim, and pushes Reason further toward being a synth rack for other programs as well as an all-in-one studio. If you want to expand Reason's sonic realm beyond dance music, this is well worth the bucks. (one CD-ROM, $179) ■



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▶ continued from page 120

back through the aux return on the TDM system to become part of the final mix.

The Digi 002 was synced to the ADAT optical input, which made the TDM system the master. The SMPTE track was routed out one of the analog connections on the Digi 002 console and connected to the SMPTE input of the USD sync box connected to the TDM system. We used the transport controls on the Digi 002 console to locate to the various sections of the song, and for Play and Stop commands. The TDM system was the time code slave, even though the TDM system was the clock master. It all worked perfectly.

One small speed bump. Bounce-to-Disc couldn't be used because the systems wouldn't lock together during this process. We had no more tracks available on the TDM system to record the mix back to Pro Tools, so we routed the mix digitally out of the TDM system, through the ADAT optical connection to the Digi 002 system, and printed the mix on two new tracks on the Digi 002.

ALTERNATE SYNC

I used SMPTE to sync the Pro Tools TDM system to the Digi 002 because that is what I am used to doing. Because the Digi 002 doesn't support SMPTE, I had to cheat and use the Digi 002 as the time code master and make the TDM system chase. You could sync the Digi 002 to the TDM system by using MTC (MIDI Time Code) as an alternative. You could then have the Digi 002 system act as the slave and chase the TDM system.

On the TDM system you go into the Session Setup window and select Generate Time Code using MTC. On the Digi 002 system all you have to do is place Pro Tools LE in chase mode by clicking on the clock icon in the transport window. MTC coming from the TDM system will trigger the start of the Digi 002 system. You must, of course, have a MIDI connection from the USD interface to the Digi 002 console.

TRIGGER VERSUS CHASE

Just a quick explanation of the difference between actual SMPTE chase and triggered sync.

With SMPTE chase mode, SMPTE time code provides the time reference and the speed reference. If the SMPTE time code slows down, the chasing machine must also slow down. If this doesn't happen, you lose sync. This is the common sync method if you are chasing an analog machine.

Trigger sync looks at the SMPTE time code and derives the position of the master tape. The Pro Tools slave system starts playing instantly at the reference time. Once Pro Tools (or any digital DAW or tape machine) starts, it no longer looks at SMPTE for speed. The speed reference comes from word clock or the digital sync (*i.e.*, ADAT optical or S/PDIF connection) between the master and slave device.

Even when using SMPTE, digital audio workstations and digital tape machines use word clock or the digital sync connection to stay synchronized after the machines are locked together. So, trigger sync is not a less accurate method of locking digital devices, it is the *only* way to lock digital audio devices. Therefore, MTC trigger sync is just as good as SMPTE sync in most cases.

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ON THE COVER
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WINTER NAMM 2003
EQ's editors combed the aisles and sorted through a mountain of info to bring you the most comprehensive report on what's new and cool in the world of professional audio. From softball-sized (and shaped) mics to surround-capable software samplers, we've got it all covered.

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

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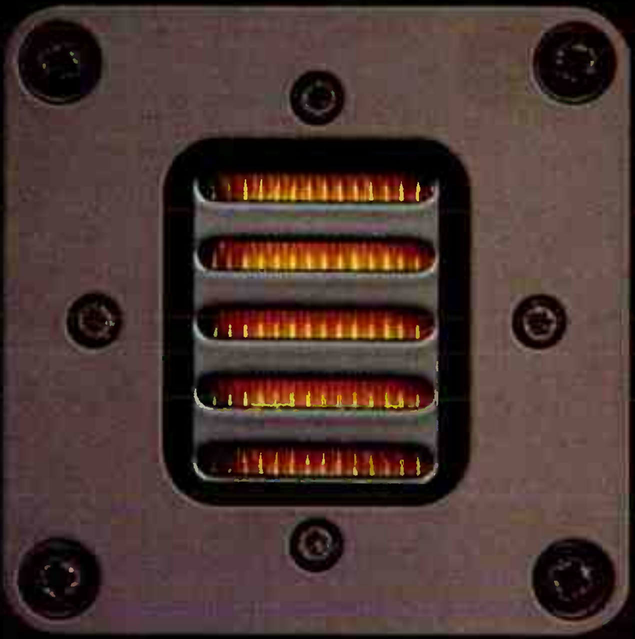

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Mail your entry to:
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Each entry must consist of:

- **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, 2003.

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

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

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

SIGNATURE DATE

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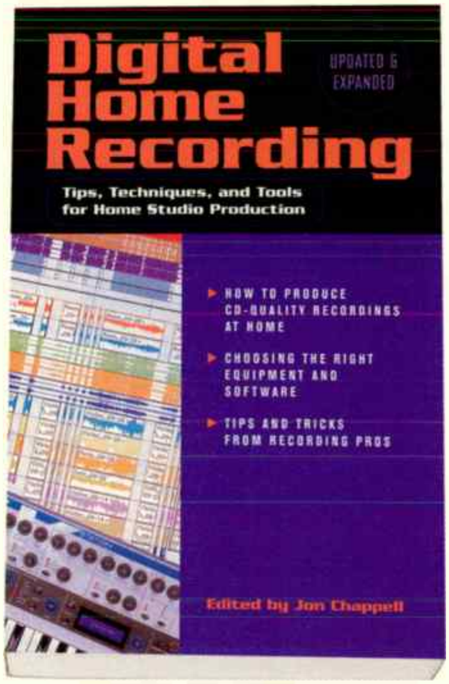
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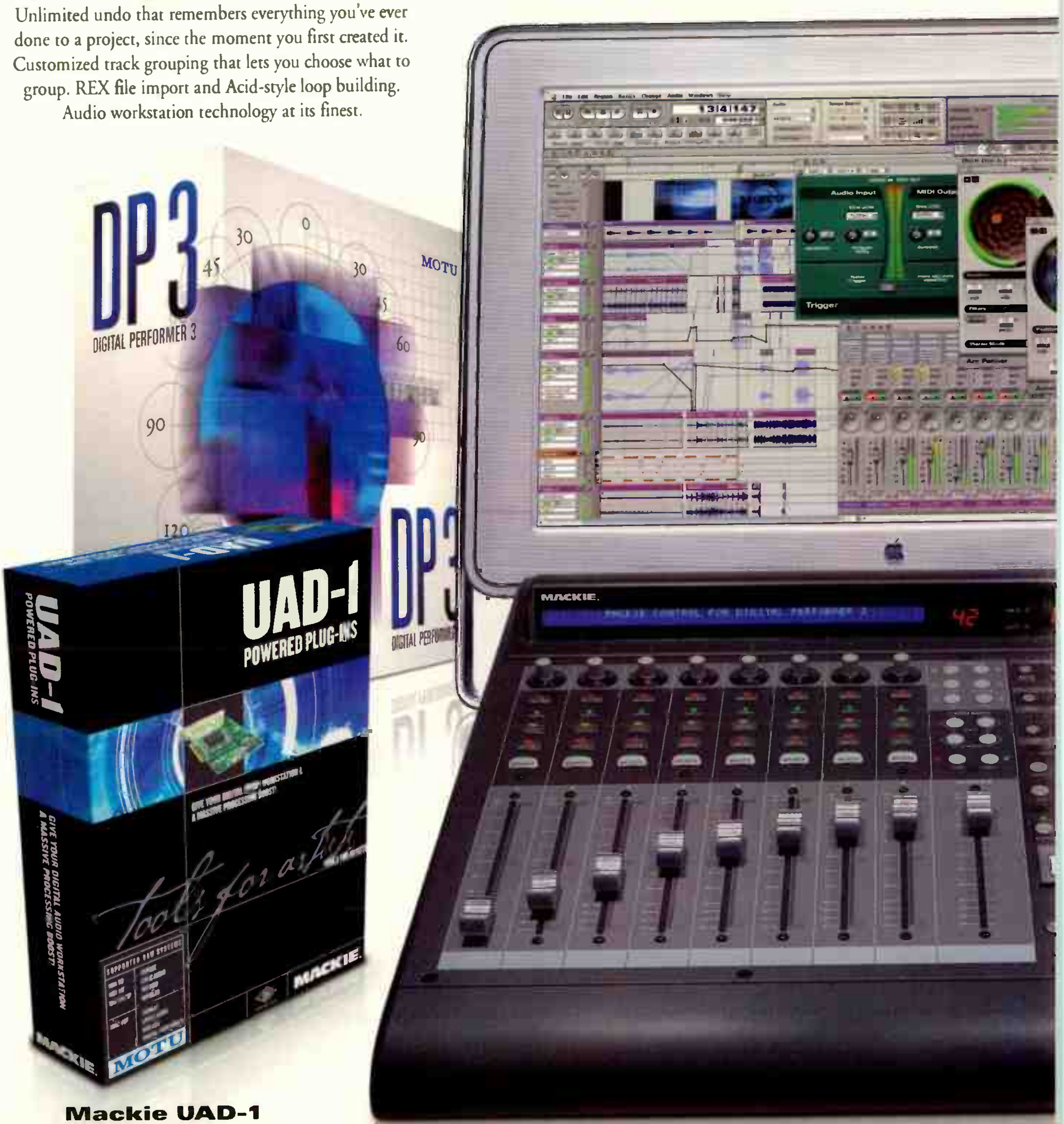
World Radio History

Digital Performer on the Power Mac G4, MOTU audio interfaces, Mackie Control, cutting-edge plug-ins and breakthrough virtual instruments deliver the complete MOTU studio experience.

MOTU Digital Performer 3.1

Unlimited undo that remembers everything you've ever done to a project, since the moment you first created it. Customized track grouping that lets you choose what to group. REX file import and Acid-style loop building. Audio workstation technology at its finest.



Mackie UAD-1

UAD-1 is a PCI card that allows you to run dozens of sophisticated effects plug-ins inside Digital Performer without bringing your Mac to its knees. What's the secret? A custom-built, monster DSP. It's like adding an extra $20,000 worth of effects gear to the dozens of native plug-ins included with DP.

Mackie Control for DP3

Designed in direct collaboration between Mackie and MOTU, the new Mackie Control automated control surface puts 9 touch-sensitive Penny & Giles automated faders under your fingers (8 plus a master), 8 motion-sensitive rotary encoders, and dozens of custom-programmed switches. Want more faders? Add 8-channel Control XT expanders. You'll feel like you are putting your hands on Digital Performer itself.

THE MOTU STUDIO

The New Power Mac G4

Dual-processor heaven for Digital Performer.
Don't make Digital Performer sing.
Make it scream.

Spectrasonics Atmosphere™

Introducing Atmosphere: a breakthrough native virtual plug-in instrument for Digital Performer from renowned developer Spectrasonics that integrates a massive 3.7GB arsenal of lush pads, ambient textures and powerhouse synths with a "powerfully simple" user interface for shaping and creating your own sounds with up to one million layer combinations. Features over 1,000 NEW cutting-edge sounds by acclaimed producer Eric Persing.

MOTU
ATMOSPHERE
SPECTRASONICS
24 I/O
2408mk3

MOTU 2408mk3 and 24I/O

MOTU's new powerhouse interfaces give you 96kHz analog and digital recording in a system that's expandable to 96 inputs and outputs. Connect all your synths, sound modules, drum machines and effects processors and mix it all from your computer desktop with absolutely zero host buffer latency. Looking for the latest breakthrough in native audio recording? Look no further.

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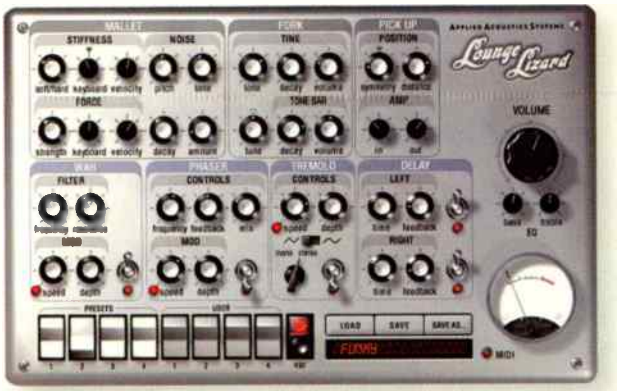
MORE GEAR FOR THE MOTU STUDIO

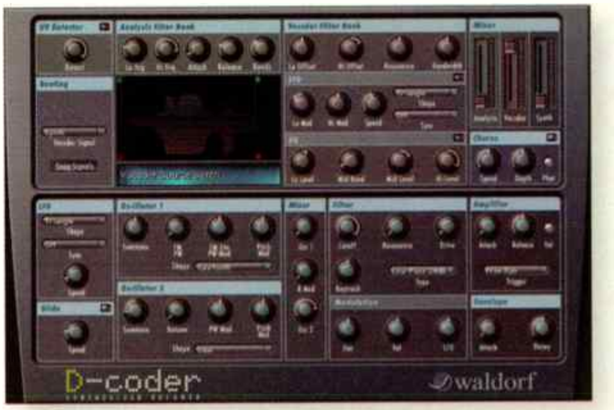
Applied Acoustics Lounge Lizard

Lounge Lizard is the very first physical modeling virtual instrument for Digital Performer. What does that mean? Incredible realism and warmth. Physical modeling reproduces the sound and feel of a real instrument in ways that synthesizers and samplers can't. Choose from many classic electric piano presets, or shape your own with powerful, yet intuitive controls. Lounge Lizard delivers the complete, authentic electric piano experience to your Digital Performer studio.



TC Works D-Coder

Produced by Waldorf, the legendary German synth company that brought you PPG Wave and Attack, D-Coder is a Vocoding synthesizer plug-in for TC PowerCore and Digital Performer. D-Coder goes way beyond classic vocoder concepts by providing 100 bands (instead of the usual 30 or so) and an integrated tone-generating synthesizer, allowing you to create vocoding effects with no external carrier signal. It's like having a Waldorf Q synth inside DP, but with no processor drain on your Mac, thanks to Powercore.



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The next generation Focusrite VoiceMaster Pro is the complete vocal channel featuring Class A mic pre, Vintage Harmonics processor, Voice-optimized EQ, Opto-compressor, Tube Sound circuit, 24 bit/96 kHz A-D option, revolutionary Latency Free Monitoring and much more. The award-winning Blue Baby Bottle is a handmade, Class A studio mic ideal for recording vocals, percussion, or any acoustic instruments. Add the Blue Pop/Shock kit and you have an oustanding bundle. $1548 retail value, now $999 for a limited time.

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Peak 3
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Summit Audio 2BA-221

The better your audio sounds going into your MOTU workstation, the better it sounds period. Introducing the extraordinary new 2BA-221 continuously variable impedance microphone preamp. Mix mic, line, and Hi-Z instrument inputs through the 2BA-221's hybrid vacuum tube output and/or its solid state output. Modular, expandable input design, swept high pass filter, insert jack, and internal power supply make the 2BA-221 a powerful tracking and mixing tool.

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2BA-221
MIC & LINE MODULE
ON
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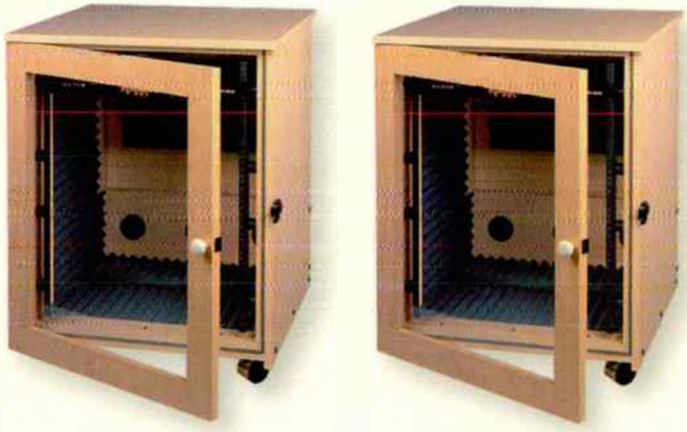
Glyph Trip2

Glyph Technologies, the industry leader in high-performance audio storage, brings you the ultimate in FireWire disk storage: Trip2. Early-warning SMART technology alerts you to potential drive problems before they happen. Slide a Glyph-engineered, vibration-resistant (and therefore ultra-quiet) drive cartridge into one of six expansion bays and feel the bullet proof reliability through your fingertips. Glyph FireWire is the perfect compliment to MOTU PCI on today's latest Power Macs because FireWire disk access and PCI audio streaming are handled on different busses, so you maximize the performance of your system.

Raxxess IsoRaxx

The only sound you should be hearing in your MOTU studio is the sound of your speakers. Simply install your computer, external hard drive or any other acoustically challenged equipment in your studio into the IsoRaxx. IsoRaxx has all of the features you need to keep your equipment safe and quiet, reducing fan and hard drive noise by an average of 21dB. IsoRaxx's electrostatic filter intake helps keep dust bunnies out of your hard drives, and the lock-and-key front door keeps your gear from growing legs. With IsoRaxx, you won't miss what you've been hearing.



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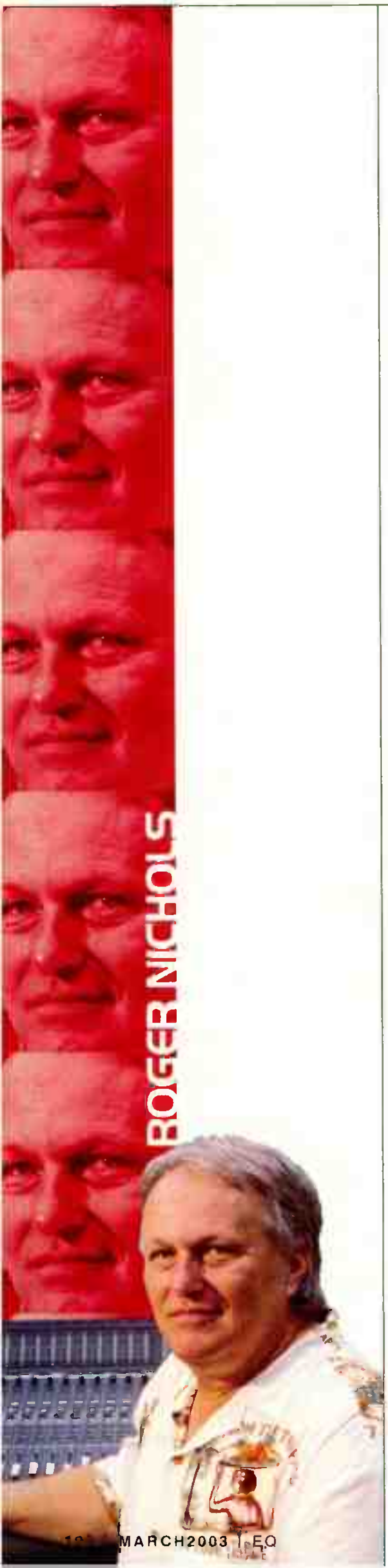
Digi 002 saves the day

How to #384



I wrote a review of Digidesign's new Digi 002 system that appears elsewhere in this issue. I like to review items that I can actually use on sessions that I'm working on. In this real-world environment it's much easier to find the strengths and weaknesses of a new product. Over the years I have purchased many software packages and audio gear that looked good in the reviews, and said everything I wanted to see on the box, but after a week or two of trying to interface the equipment, or put the software features to work, I found some of the claims to be exaggerations, at best.

As an example of my frustrations, let me recount a story. I used to use a page layout program called RagTime (finally available again). RagTime would allow you to have text at any angle across the page, even vertically. When the text was at an angle you could easily click on the text and edit it, change size, change font, and change style while the text was still at an angle. After RagTime became extinct I bought every single page layout program there was, all of them stating that they worked with vertical text. None of them could actually edit the text while the text was at an angle. You had to enter the text horizontally, rotate the text to view it at an angle, rotate the text back to horizontal, edit, and then rotate it back to the position you desired and view it again. In some programs you had to render the rotated text as a TIF object before you could view it, then delete it and start over if you wanted any changes. It was never as easy as looking at your 50% gray text at a 33º angle across the page, and changing all of the parameters to look the way you wanted it to look in a WYSIWYG (What You See Is What You Get) fashion. It took almost 15 years for other page layout programs to offer this feature.

The same happens with audio hardware. The new piece of gear does everything except the one thing that you need it to do, almost all of the time.

002 SAVES THE DAY

I worked on a project that was recorded at a studio that had a Pro Tools Mix3 system. One of the songs ran up against the 64-voice limit. The plans were to record live strings and horns on this song. We made a slave session that contained a two-track mix of the song so there was plenty of room left over for additional tracks. We recorded the strings and horns and then planned to make a sub-mix of those 24 tracks and import them back to the original song. Great idea!

Once we started working on the final mix of the song, it became clear that we wanted more control over the internal mix and positioning of the strings and horns. We needed the individual tracks, but with a 64-voice limit, and no Pro Tools HD system available, what were we to do?

Well, we brought in a Digi 002 system and opened up the slave session under Pro Tools LE running on a Powerbook. Since we needed the two Pro Tools systems to sync together, we went back to the TDM system and recorded the time code out of the USD box onto one of the Pro Tools audio tracks. We then imported that track into the slave session, resaved the session, and then opened the session on the Digi 002 system. We connected ADAT optical in and out of the Digi 002, fed from an ADAT Bridge connected to the TDM system. Following along so far? Good.

Since we weren't going to use the sub-mix tracks in the TDM system, we could free up enough voices for four stereo aux inputs. One stereo input for the string sub-mix, and one stereo aux input for the horn sub-mix fed from Digi 002 outs 1-2 and 3-4, respectively. We wanted to be able to control the reverb sends from individual tracks on the Digi 002 system, so we routed the string sends to physical outputs 5-6 and the horn sends to physical outputs 7-8. These channels made their way to the TDM system via the ADAT optical cables. In the TDM system, aux 5-6 and aux 7-8 were fed to the reverbs connected to the TDM system. I was using the TC Electronic System 6000 hardware reverb connected to hardware I/O on the TDM system. Now when I wanted more reverb on just the French Horn, I turned up the send on the French Horn track on the Digi 002 session, the signal traveled over the ADAT optical cable to the TDM system, through the TDM aux output to the 6000, and

▸ continued on page 108

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