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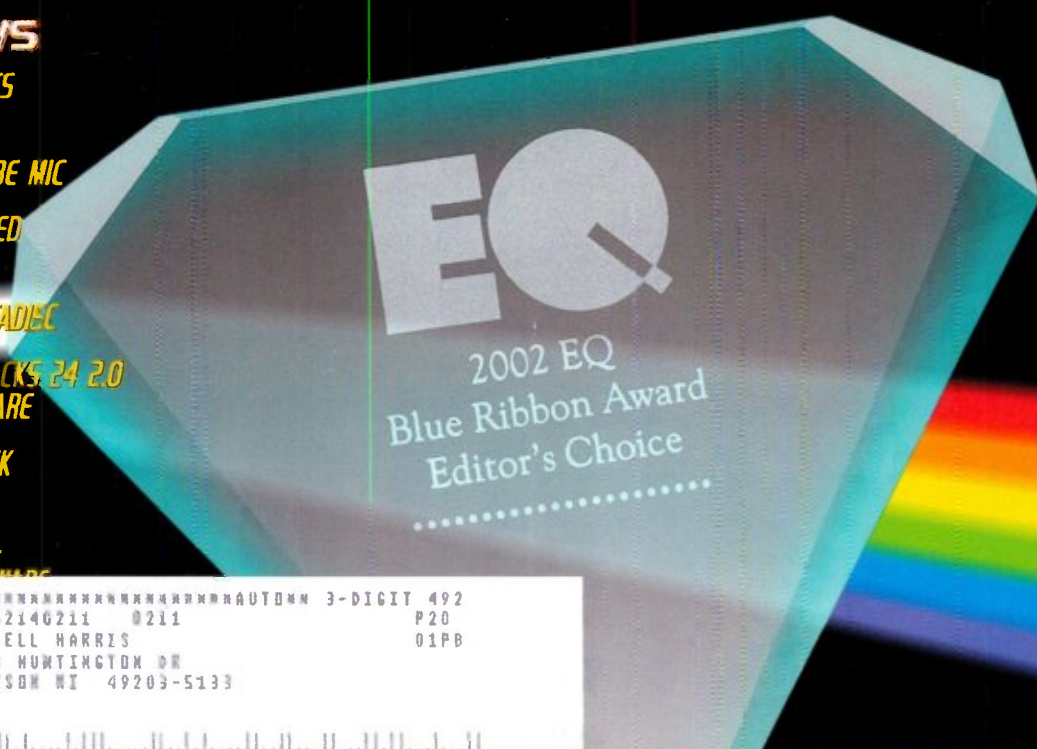
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EQ'S EDITORS PICK THE
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HAVE THE MOST IMPACT ON
THE FUTURE OF RECORDING

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 DARK OF SIDE OF THE MOON HOMAGE BY GREG GENNARO

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Top photo: Extasy Studios, North Hollywood, CA, courtesy of Genelec, Inc.

World Radio History

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The Wish List

I'm a pretty lucky guy. I get to live my life surrounded by gear. Since all of the equipment that comes to the magazine for review is routed through my office, there's always something cool showing up for me to check out. For a committed gear junkie like me, it's a heavenly situation. (Naturally there's a downside: I have to send all that neat stuff back, but that's a topic for another therapy session...er, editorial.)

Recently I returned from another heavenly gear junkie situation: Winter NAMM in Los Angeles. The number of new products introduced at this year's show was truly staggering. Don't believe me? Just flip the pages of this very issue over to our immense NAMM report, which launches on page 38. Although I ran into a few of the usual naysayers at the show ("There wasn't anything earthshattering"; "It was all 'evolutionary' not 'revolutionary'...blah, blah, blah), most of the attendees seemed pleased with the number and quality of new products.

But I'm always intrigued when someone tells me there's nothing "revolutionary" at a tradeshow. What exactly are they expecting? What would be considered revolutionary in today's world of high-powered, low-priced, amazing-quality hardware and software?

These questions make me wonder for myself exactly what I'd like to see manufacturers come out with — what product would completely knock me out? Actually, I have a list of answers to that question, but I'm not going to list them here. Why? Because I'm more curious about what you think. What piece of gear would truly change your life? What would make you stand up and shout, "Yes! This is exactly the new product I've been waiting for!"

So here's your chance to play product development manager: If you have a notion for a groundbreaking new product, drop me an email. The world is waiting to hear your ideas!

—Mitch Gallagher

mgallagher@musicplayer.com



CORRECTION

In the January issue we reported that Antares's Autotune 3 plug-in uses a full chip on a Pro Tools Mix card for each instance. This is only partially correct. While it is true that Autotune's Bass Mode uses a full chip, the other modes allow for two instances per chip. Our sincere apologies for any inconvenience this error might have caused.

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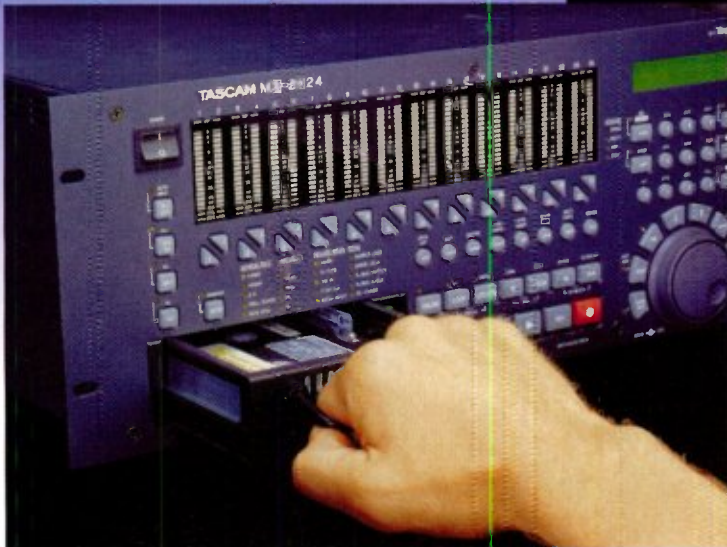
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Other reasons to get an MX-2424 for your Pro Tools rig? Since the MX-2424 records to SCSI drives, you can hot-swap them between systems without powering down your computer and recorder. You can record remote performances conveniently, leaving your computer in the studio. You can enjoy a familiar interface with the classic feel of a tape recorder. And perhaps most important, you can bet that the MX-2424 will satisfy your highest expectations in audio quality. If your editing/mixing system is based around Pro Tools or any other DAW, check out the ultimate companion piece – the MX-2424 – at your TASCAM dealer today.



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For all the details on the MX-2424 go to
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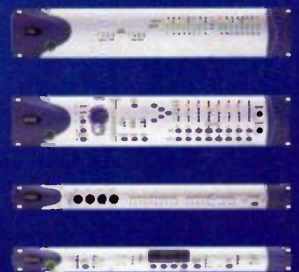
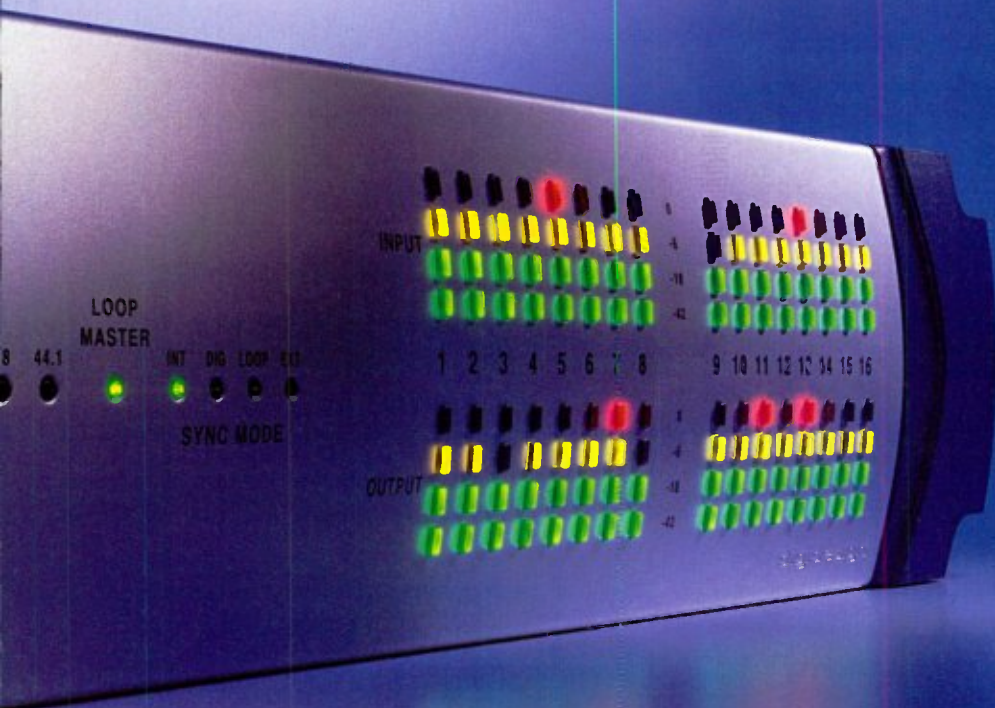
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By Lisa Roy

Edgar Meyer Acoustic Bass

"Probably 75% of the records I'm working on these days are recorded with acoustic bass, so I am constantly trying different mics and out-board gear. The only constant I have found is that nothing I do is as important as having a great player," humbly states two-time Grammy Nominee Engineer of the Year, Gary Paczosa. Barry Bales (Alison Krauss & Union Station, Dolly Parton), Viktor Krauss (Lyle Lovett), Byron House (Nickel Creek, Sam Bush), and Edgar Meyer are but a few who have entrusted Paczosa to find the perfect bass sound for their recordings. "Their playing style and the sound of their bass differs so much that what works with one can totally suck on the other," confides Paczosa. "In the end, I listen to the instrument in the room, get my ear down in front of the bass, and find the spot that kicks my ass. Then I try to make it larger than life. Simple."

SIGNAL PATH

"For this track, on Edgar's bass I used a Sony C-800G as well as a B&K 4006," explains Paczosa. "I tried the Brauner VM1 and the Royer R-121 ribbon mic, which are both great, but for arco [bowed] bass in this particular room,

I was going to have to EQ more than I was comfortable with, so I ended up with the Sony/B&K combination. On the B&K I have this ball-shaped adapter that slides over the capsule, which 'acoustically' makes the omni

capsule a little more directional. The Sony microphone has a pretty hyped top end, so it's great at picking up finger noise and rosin.

"The signal path on both microphones was the same: Mastering Lab preamp, GML EQ, and GML compressor. I love the Mastering Lab pre for just about everything, but especially on bass. The GML stuff is really invisible to me, doing exactly what I ask of it and nothing more. At the most, on this track with Edgar I boosted the low end about 3 dB at 40 Hz on the Sony and probably cut the B&K flat, with a much slower release on the compressor just to get a little more sustain out of the room. We recorded on the 24-bit [iZ Technology] RADAR, clocked by the Aardvark Aardsync II, and monitored on a hyped up Trident 80 Series console."

MIC POSITION

"This was a bit tough because most of the rest of the record was standard upright bass, whereas this track was all bowed, so the booth sounded totally different," shares Paczosa. "It was a pie-shaped room with a high ceiling, so I had volume, but too many early reflections. After deadening the glass with a packing blanket and putting foam in the narrow end of the room, we went about finding the best-sounding distance to place the mics. The Sony ended up about three feet from the bass and about 10 inches above the bridge. The B&K was more of a challenge because, in most cases, I use the omni to pick up a blend of room ambiance and good sub frequencies. This is usually achieved by placing it below the f-hole about two feet off the floor on the opposite side that I have the

DATE: December 21, 2000

STUDIO: Dark Horse Recording, "The Lodge"

LOCATION: Franklin, TN

ARTIST: Chris Thile

PROJECT: *Not All Who Wander Are Lost*

TRACK: Edgar Meyer playing upright bass on "Sinai To Canaan — Part 1"

PRODUCER: Chris Thile

ENGINEER: Gary Paczosa

ASSISTANT ENGINEER: Brian Boyd

Sony on. The room was amplifying too much and it was drowning out most of the good low-end information, so I moved the mic further away and just went for room tone, which ended up being about five feet away."

PROCESSING

"Most always, I choose microphones that I have to do the least amount of processing to," says Paczosa. "In the case of Edgar, his instrument and his fingers are beyond compare, so the less I do, the better. I mean, this guy is incredible, and I would be hard pressed to screw it up. Just listen to his instrument, and catch it.

"On the Sony I used the compressor minimally, just keeping the signal out of overs on the RADAR by using the GML in 'Soft Knee' mode, with a quick attack and release, just keeping the peaks out of trouble. As far as compression, I prefer to have all the dynamics I can right up until mix, because, in this type of acoustic setting, I don't want to get locked in until we figure out how we want the whole record to tone out. Most important, I try to always remember to move the mic as opposed to changing the EQ. I bet I move the mic five



to ten times before I lock in on the placement. It's also the only exercise I get."

TRACK NOTES

Paczosa concludes, "This project was so much fun because Chris's enthusiasm and energy is off the charts. I remember at one point during an Edgar

solo part that Chris was standing up on a swivel chair at the console, jumping up and down, screaming at the top of his lungs. His head must have been 12 feet in the air, and the swivel chair was moving all over the place...totally out of control, because he had no choice. What a gas!"

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Marcussen Mastering

Mastering masterpiece

STUDIO NAME: Marcussen Mastering

LOCATION: Hollywood, CA

KEY CREW: Stephen Marcussen, Stewart Whitmore, Louie Teran, Dave Collins, Eddie Wisztreich, April Simmons

CREDITS: See Web Link

CONSOLE: Custom-built, six-channel monitoring console

MONITORS: B&W Nautilus 802 [5], Velodyne subwoofers [3], Quedsted 108H [2]

AMPS: Aragon Palladium [5], McIntosh 240

PLAYBACK: Studer 820 two-track with Dave Collins tube replay amplifiers, Ampex ATR 102 two-track with Dave Collins-modified and stock replay amplifiers, Sony 7030 timecode DAT, CD XA7ES, SACD SCD777ES; Alesis Masterlink ML 9600, Panasonic DVD A-7

OUTBOARD GEAR: Prism MEA2 (EQ), AD2 [3], DA2 [3]; Weiss EQ1 Mark II EQ [3], Waves L1 limiter [3], TC Electronic Finalizer 96, dbx Quantum Mastering Processor, Little Labs Digital Audio Mastering Router, SSL G384 compressor, Davelizer EQ, Manley Vari-Mu limiter, db Technologies AD122-96 [3], DA924, MDA824

DAW EQUIPMENT/SOFTWARE: Sonic Solutions HD Version 1.7, USP Version 5.4, Viewsonic LCD monitors, Digidesign Pro Tools LE 5.1

STUDIO NOTES: "Before I even rented the space," explains Stephen Marcussen, "I brought in [studio designer] George Augspurger and told him my goals: I wanted a

control room that would be comfortable for myself as well as for my clients, and would accommodate 5.1 mastering. As far as mastering rooms go, it's a large control room — 20x30 feet — and it's constructed as a room within a room, with isolated walls and ceiling, and a floating floor."

EQUIPMENT NOTES: "My console really is a combination of processors that are either in or out of the audio signal path. I rely upon the fact that the playback chain in this room is completely nailed — solid and not adding color of any kind. You can always dirty up a chain to create an effect like adding grunge, but if it is a permanent fixture, then you can't get rid of it. In this room I can put a tape up, hear exactly what the recording is like, and assess where the work needs to be done, or just get the cleanest of transfers."

PRODUCTION NOTES: "We still see a slight favor towards analog source, with maybe 55% to 60% coming from tape. Given three sources for the same project (whether it's MasterLink, Pro Tools, or analog tape), I like to listen to each, ask the client their opinion, and deliver what they need. With high-end converters, a DAT can sound better than a half-inch tape where the alignment is off, or where Dolby noise reduction has been used with improper calibration. My suggestion is that if you're not on a tight budget, mix on a well-maintained, analog deck with good heads in a facility that has their act together. If the budget is tight and you need to print alternate mixes with the vocal levels up and down, then it makes sense to rent a high-end converter to mix through and bring in Pro Tools files or DATs." ■

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Casa del Norté

By Steve La Cerra

Lee Roy Parnell's powerhouse writing studio

STUDIO NAME: Casa del Norté
LOCATION: Nashville, TN
KEY CREW: Lee Roy Parnell (owner, producer), John Kunz, (chief-engineer, co-producer), Linda Albright (owner, EARS Audio)
MIXING CONSOLE: Mackie D8B v3.0 with UFX Plug-Ins, 32•8, VLZ1202
MONITORS: Tannoy PBM6.5, Mackie HR824; Headphones: Sony V6 [3], V600 [4]; AKG K240M [2], K141/2 [5]
AMPLIFIERS: McIntosh MC2300, MC30; Hafler TransNova P3000
RECORDERS: Otari RADAR II, Mackie HDR24/96, Alesis ADAT XT-20 [3] with BRC, MasterLink; Studer B67 2-track, Ampex 350 4-track, TASCAM CD-RW5000, Hoesi Sangyo ST400 StartREC CDR Duplicator/Editor
OUTBOARD: Manley Vari-MU, UREI LA-4, TubeTech CL-1B [2], SMC-2A; Teletronix LA-2A, GML 8900, 8200; AMEK/Neve 9098CL, Drawmer DL221, DS201; dbx 160VU [2], 166A, 160XT, 902 [2]; Night Technologies NTI EQ3D, Sontec MEP250, Aphex 109, Joe Meek SC-2, Peavey VCL-2 [2], Valley Audio 810 Kepex II [4], 811[2], 812, 815
EFFECTS: Lexicon 300, PCM70; AMS DMX1580S, EMT 248, Roland SRV330 [2], SDE330; Yamaha REV-5, Peavey Valverb [2],

TC Electronic 2290, D•Two; Demeter RV-1 Spring Reverb

MICROPHONES: AKG C12VR, C414EB; Neumann M 149, M 249, U 47 FET, KM 84 [2]; Microtech Gefell UM-92, UM-70S [2], M-300; Royer Labs R-121 [2], Rode NT2, ADK A51S [2], RCA 44BX, Shure KSM32 [4], SM7, SM57 [6], Beta 57 [2], Beta 58, Beta 98 [6], SM81 [5], Beta 52 [2]

MIC PREAMPS: Neve 1081 [2], Telefunken V72 [2], AMEK/Neve 9098, Ampex 350 [6], RCA BN-2A [8], GML 8304, Grace Design 201 [2], Sontec MPA-2, MB-1; NTI PreQ3, Joe Meek VC-1, VC-3; Peavey VMP-2, Demeter VTMP-1, Millennia Media HV-3C

KEYBOARDS: 1958 Hammond B-3 w/122 Leslie, Yamaha P-300 piano

COMPUTERS: Mac G4/450 MHz, PC

DAW: Digidesign Digi 001

SOFTWARE: Pro Tools LE, Sonic Foundry Acid

POWER CONDITIONING/BACKUP: Furman IT-1220, PL-Plus [4]

STUDIO NOTES: "My studio is basically a 'threefold space,'" says Lee Roy Parnell. "As my writing room, it's a quiet, sunny place where I can gather my thoughts and put them down on paper. Second, it gives me a basic canvas to delve into the character of the song — tempo, key, mood, instrumentation. Third, the real muscle of the gear and the room is put to use when we begin an album.

▶ continued on page 134

web link
 Visit the Lee Roy Parnell Web Site at www.leeroy.com.

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The up-and-coming vocalist
with a model career

Dana Glover



MR. BONZAI



EQ: What is your writing mode — at the piano, guitar, music first, lyrics first?

GLOVER: It's usually at the piano, but if I want to write something that's fast, it has to be away from the piano. And if I take it back to the piano, I'll find a way to slow it down. For me, the music and the lyrics come at the same time. I can't write the lyrics and then put melody to it — it's gotta be a song from the beginning.

How did you get this album rolling?

I met with several people with my songs, but, for one reason or another, the time wasn't right. And then it took a lot of time from the day that I got signed to get it to the point where I hooked up with Matthew Wilder and knew that it was right — the right time for him and the right time for me. I had met with a number of producers, and Matthew's name came up — but it didn't really come around until Csaba put a call in to me, because we had worked together in the past. He felt that the three of us would be a good team, and he was right.

Can you describe working with Matthew?

It's so much fun, but there were a couple of times where he shut me down because my voice didn't sound like it was ready. He was extremely encouraging, but he could be tough on me, as well. He knew when to let me go, especially with the background vocals — he trusted my sense of direction.

Do you do all the backgrounds on this album?

Yes, I do, but there is one song where we brought in a choir and they doubled what I had done to make it much fuller.

Which studios did you use?

We recorded at Capitol, Extasy, Henson, and Record Plant. A lot of the details were taken care of at Matthew's studio, including the vocals and most of the guitar.

Do you have a favorite way of recording vocals?

I like it to be very dark in the studio; I like being in my own spot. I found out through the production of this album — and Csaba was surprised, too — that I sing better



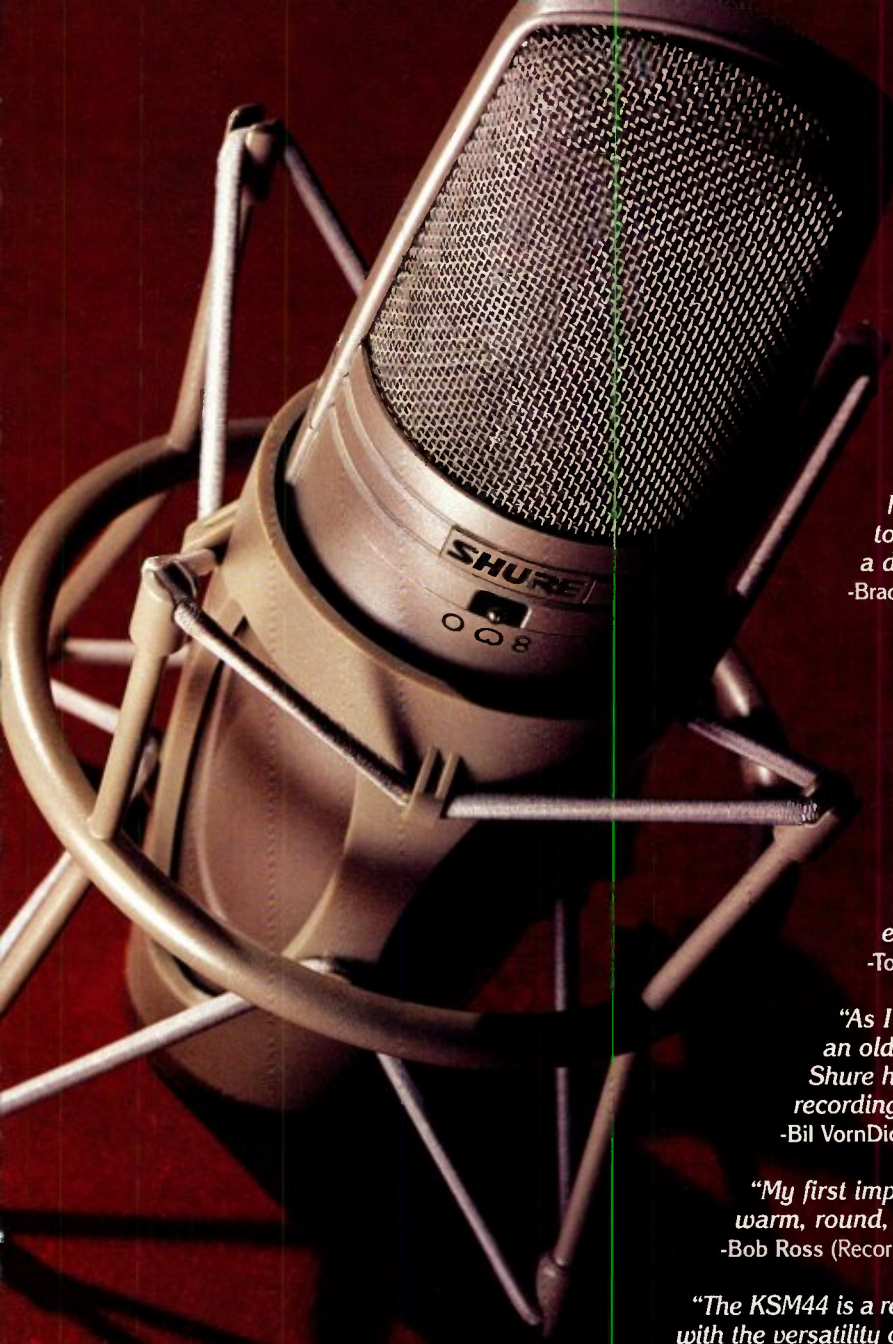
Csaba Petocz, Dana Glover, and Matthew Wilder

- **SUSPECT:** Dana Glover
- **ANCESTRY:** European, Native American
- **OCCUPATION:** Singer/songwriter, pianist, saxophonist
- **BIRTHPLACE:** North Carolina
- **RESIDENCE:** Los Angeles, CA
- **HEIGHT:** 5 ft. 11 inches
- **VEHICLE:** Lexus
- **DIET:** Salads, chocolate, at least two cups of coffee a day
- **IDENTIFYING MARKS:** Mole on forehead
- **RECENT CREDITS:** "It Is You (I Have Loved)" from *Shrek*. Glover's new DreamWorks album, *Testimony*, was produced by Matthew Wilder, engineered by Csaba Petocz, mixed by Mike Shipley, and executive produced by Robbie Robertson.
- **TECHNICAL NOTES:** Glover's album was recorded directly to Pro Tools at Capitol, Extasy, Henson, Record Plant, and at Matthew Wilder's studio in L.A. For vocals, engineer Petocz primarily used an Audio-Technica AT4060, also Neumann U 67's and Shure SM7's, into Martec preamps, to Neve EQs, into Urei LA-3A's. Piano was miked with Neumann M 149's through Mastering Lab preamps into a GML EQ and then to Neve 33609 compressors.
- **LOCATION OF PHOTOS:** Extasy Recording

when I hear some of the reverb. I don't push as much, and I can let my vocals breathe. Csaba told me that I sang much harder when it was bone dry, but that I let it float when I heard some reverb.

What did you learn from Robbie Robertson?

I witnessed a man who is as cool as a cucumber, totally mysterious, and someone who really cares about the results. Because he is an artist himself, he was understanding and completely respectful. He has great taste, and he knows when to lay back and when to push it a little more. He was both "hands-off" and somehow "hands-on."



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

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-Brad Wood (Smashing Pumpkins, Liz Phair, Better Than Ezra, ...)

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-Bob Ross (Recording Magazine)

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-Steve Albini (Nirvana, Page and Plant, PJ Harvey, ...)

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-Chuck Ainlay (Trisha Yearwood, Mark Knopfler, George Strait, ...)

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Who were your musical heroes when you were a young girl?

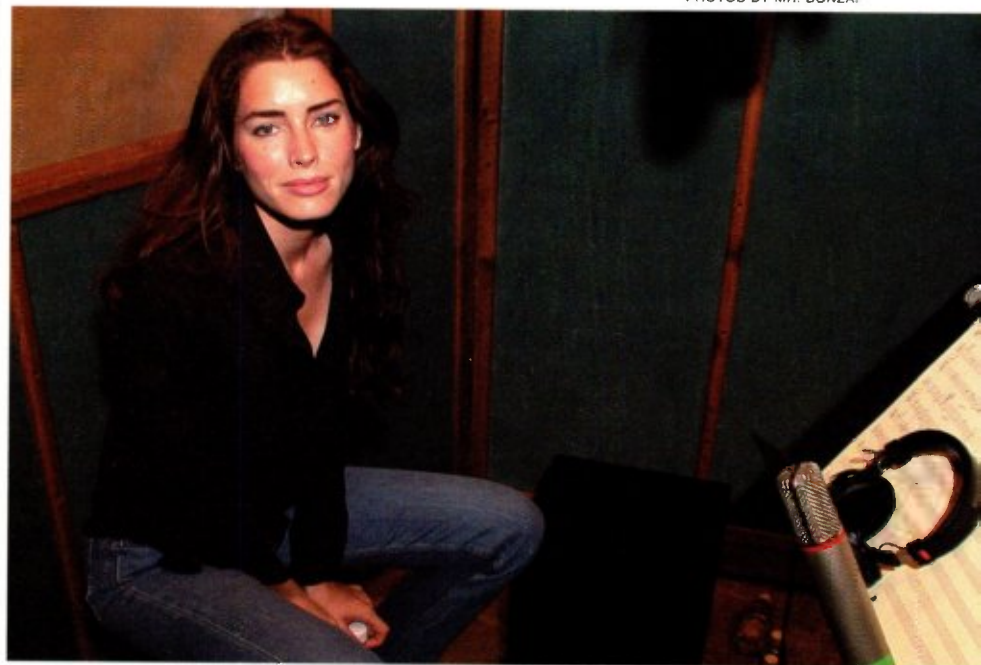
I remember hearing Brian McKnight's "One Last Cry" and I just about died. One of my best friends introduced me to Aretha Franklin's Greatest Hits — "Dr. Feelgood," "Rock Steady," "Spanish Harlem" — those songs really went deep for me. Whitney Houston blew my mind, and the first time I heard Mariah Carey's "Vision of Love," I was just blown away.

Who do you respect and admire today?

I admire the people who are able to make it. Train's "Drops of Jupiter" is an example of great production, and hearing that helped me to get my point across with this album. We actually used the same string genius, Paul Buckmaster, for my album.

Is there anyone in the world you would like to work with?

Stevie Wonder, Aretha, Quincy....

Do you have any interesting**business tips?**

I am still learning about the business, but my managers tell me to cut back on the mochas and lattes, because they

add up every day. For me, no matter how big the check is — and I learned this from modeling — it will go. You just can't sit back and feel that things are

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Who is the most amazing artist you've worked with?

His name is Israel — a gospel singer. He's young, black, plays the keys, and sings like an angel. I have never seen anyone so limitless.

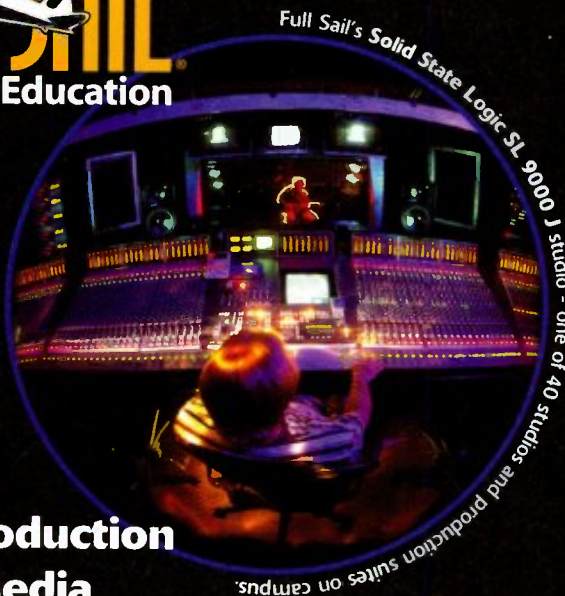
What makes a great producer?

I can only speak for myself, but it has to be somebody who is in love with



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what I do. It's someone with respect, one who cares in trying to bring out the best — and shape you without trying to change you.

Have you ever witnessed a miracle?

Yes, I have. When I was doing some modeling, I was scheduled to take a plane home from New York. I called my mom and said I was taking an earlier flight, and I didn't know why. I kept thinking, this is not me and I don't know why I'm doing this. When I got home, we were watching the news and the plane I was supposed to take crashed on the runway.

Any advice for getting a start in the music business?

Work really hard on what you are best at, and believe in the relationships that you have. ■



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How to fix audio files recorded
at the wrong sample rate

Converting Session Sample Rates

by Mitch Gallagher

I was minding my own business at the recent Winter NAMM show when a desperate-looking gentleman frantically approached me. (Okay, he wasn't *that* desperate or frantic, but I'm trying to create some drama here....)

"You've got to help me, I'm totally stuck!" When I queried him as to the problem, he told me, "I just received some digital tapes recorded by [*name of semi-famous engineer withheld*] that I'm supposed to import into my computer so that we can edit and mix the sessions for [*name of semi-famous recording artist withheld*]'s upcoming CD. The problem is that [*semi-famous engineer*] accidentally recorded the tapes at the wrong sample rate, so they're screwed up when I try to transfer them into the computer digitally. It's too late to re-record the tracks, and I'm totally stumped. How do I set up the clocks to make it work right?"

I've been asked this same question — more or less — many times. Unfortunately, once digital audio has been recorded at a given sample rate, changing the word clock or sample rate settings on the system won't help things — if you change the sample rate from the original setting, the pitch and timbre of the audio playback will also change.

Fortunately, our desperate NAMM attendee isn't completely out of luck. Let's take a look at how we can get the incoming audio's sample rate to match up with that of the computer. It comes down to this: If you want to remain completely in the digital domain for the transfer, then you only have one choice: sample rate conversion. Sample rate conversion takes audio that was recorded at one sample rate, and changes it so that it plays back at another rate without changing the audio's length or pitch. When the sample rate being converted is an even multiple of the rate it will end up at, such

as when converting 96 kHz to 48 kHz, sample rate conversion is fairly straightforward and easy, and doesn't impact audio quality overly much. But when the two sample rates aren't multiples, such as when trying to change 48 kHz to 44.1 kHz or 96 kHz to 44.1 kHz, sample rate conversion can have decidedly negative audible effects on the result-

**IF YOU WANT TO
REMAIN COMPLETELY
IN THE DIGITAL
DOMAIN FOR THE
TRANSFER, THEN
YOU ONLY HAVE ONE
CHOICE: SAMPLE
RATE CONVERSION.**

ing sound. (The story goes that this is the original reason for DAT recorders sampling at 48k and CDs playing at 44.1k; to prevent easy digital copies of CDs from being made....) That's the bad news. The good news is that sample rate conversion algorithms have gotten much better in recent years. In some cases, they're extremely good, depending on the source material that's being processed. There are several ways in which digital audio can be sample rate converted:

- You may be able to beg, buy, or rent a stand-alone sample rate converter or other hardware box that has sample rate conversion capabilities.

- Some computer-based digital audio interfaces can sample rate convert "on-the-fly" as signals are passed through them.

- You can use a computer application or plug-in to sample rate convert the audio after it's on the computer's hard drive. Most digital audio sequencers can sample rate convert audio files, as can most digital audio editors. There are also real-time and non-real-time plug-ins that can perform this function.

It may take some time, but the best thing to do is to try all of the sample rate converters that you have access to, whether hardware or software, and see which one sounds best. I've found that sample rate conversion results can vary depending on the source material you're working on; try as many as you can and let your ears decide. Hint: Some sample rate conversion processes are "destructive" — they forever alter the original digital audio file — so make a copy of your audio file first and process the copy just in case things don't work as well as you'd like.

Ultimately, though, the best solution to this problem may be the "brute force" approach: Get the best digital-to-analog and analog-to-digital converters you can lay your hands on and do the transfer in the analog domain. Many times the sonic difference between the additional D/A and A/D conversion is much less audible than that of performing conversion from one sample rate to another. Once again, only your ears can decide.

Of course, the *real* best solution is to never put yourself in this position at all. Check and double-check all sample rate and clock settings when recording, doing transfers, and playing back. The little bit of extra time being careful takes is well worth it! ■

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Get the most out of
Steinberg's software sampler

Essential Halion Tips

By Craig Anderton

Steinberg's Halion is gaining a lot of fans — not only does it have extensive editing options, but the ability to import Akai, SoundFont, and Giga files, as well as stream large samples from a hard drive, are major plusses. Here are a few tips to make your Halion experience go as smoothly as possible.

- Before editing any parameters, always check the status of the All/Selected option. With *All* selected, any edits affect *all* samples. *Selected* affects only selected samples. It's a drag to think you're editing, for example, the filter settings on one sample, only to find out you've edited the filter settings on all samples.

- Another crucial parameter to check while editing is the Relative/Absolute option. *Relative* adds an offset to existing parameters, whereas *Absolute* forces all values of the parameter you're adjusting to the current value.

- Steinberg isn't kidding when they recommend 512 MB of RAM, because, with samples that stream from the hard drive, Halion stores *all* the attack transients for *all* the program samples in RAM. Hey, you were meaning to upgrade anyway.

- Insufficient RAM is evidenced not only sonically by clicks and dropouts, but also by the Disk "LED" glowing red. This can happen even when doing an offline export to an audio track. To reduce the stress on your computer, go to the KeyZone page, play your sequence, and observe which notes aren't used. Delete all samples associated with these notes, and Halion won't need to store those attacks.

- Halion currently accepts only mono REX files. You'll need to split stereo files

into two mono files and import each one individually. But there's another workaround: Export your RX2 file in SoundFont (SF2) format from ReCycle 2.0, then import the SF2 file into Halion.

- If you use Halion under a VST-DXi wrapper, it seems there's no way to call up presets. But even when running Halion under VST, you're cautioned against using the standard VST open program options, and instead advised to use the small File box located within Halion. Unfortunately, that doesn't show up under VST-DX adapter, but no worries. Go to Halion's Options menu, and, under Import Options, choose Import Audio Files. Browse to where the preset is, then click on Open.

- Halion's manual notes that you can assign each channel to its own audio output (1+2, 3+4, 5+6, 7+8, or the four mono outputs, 9–12). But it's not really clear that individual samples can likewise go to any outputs; do this in the Env/Amp menu. These settings override the channel page's main output assignment. This is particularly handy when you have a "split" instrument, such as guitar power chords on the bottom and lead sounds on the top. Assign each split to

a separate out so each can have its own effects — *e.g.*, synchronized delay on the lead and chorusing on the chords.

- The envelopes default to 0 ms attack and decay, which can lead to clicks if your samples are trimmed improperly or have DC offset, or you set a start point further into the sample that lands on a non-zero crossing. For quick anticlick insurance, move the Envelope Zoom slider all the way to the right. Hold down the Shift key, then click on the box labeled two (which sets the rate/level for the initial attack) and adjust the time to 1 or 2 ms. Next, use the Slide Envelope slider to scoot to the release parameter, and set a short release time, such as 7 ms or so. ■



Before doing any editing, check the status of the All/Selected and Absolute/Relative options (circled in yellow for clarity).

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Guitar Feedback “Modeling”

by Craig Anderton

I'm currently doing a sample CD called *Techno Guitars*, and wanted some guitar feedback sounds. But how do you translate that to a keyboard sampler? Here are some useful techniques.

SEPARATION

There are four guitar feedback elements:

- Attack
- Sustain/decay prior to the onset of feedback
- Initial body resonance feedback
- Body feedback + harmonic feedback (that “whine” that appears at the end of a sustained chord)

The problem with sampling these is that different notes go into feedback at different times, and the character of the feedback is different. I felt a keyboard player would want a bit more note-to-note consistency, so I decided to sample each element individually, then mix them together into a single note using Wavelab's montage feature (sort of a multitrack digital audio editor).

THE SETUP

Of course, I had to mic an amp. I set up Wavelab to record, and hit a power chord. After getting a good attack, I would let the note decay without feeding back. Then, I'd bring the guitar in toward the amp and touch the headstock to the amp. Doing this created noise and thunks until the guitar was firmly pressed against the amp, but, as we'll see, the montage makes it easy to cut out the sample's bad parts.

Once the guitar went into body feedback, I'd let it sustain for a while. Then, to get the harmonic feedback, I drove one of the chord's strings with an E-Bow. Again, there was discontinuity while switching on the E-Bow and waiting for it to feed back, but that's not an issue. After about 10 seconds of sustained E-Bow harmonics, I went out of record.

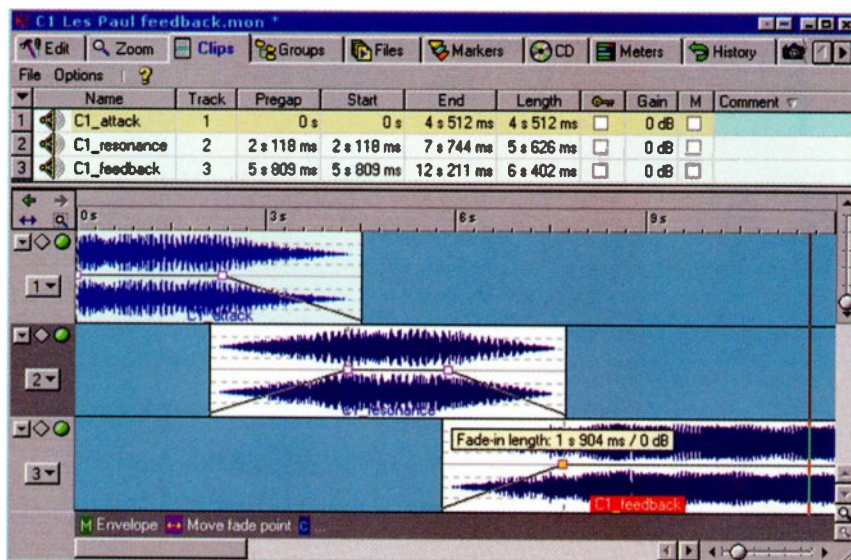
CUTTING UP

The next step was bringing the sample into Wavelab. My goal was about a 10–12-second sample for each note, with looping on the final harmonic feedback. Each raw sample was usually around two or three minutes long, so it was chopping time.

I isolated the best attack along with its natural decay (about four seconds), cut it, and copied it to a new file. I then

THE COUP DE GRÂCE

I also wanted to provide some control over the feedback sound, so I cheated: within the sampler, I layered a sine wave tuned a couple of octaves, or an octave or two and a fifth, above the fundamental. (The optimum choice depends on the note, and I choose different notes for different chords, just so that the sounds wouldn't have too much “sameness.”) The sine wave was modulated by three sources:



Steinberg Wavelab's Montage multitrack editing feature makes it easy to arrange and crossfade the different parts of the sample.

chopped out the best six or so seconds of the body feedback and pasted that into a second file. Then I cut about four seconds of harmonic feedback and pasted that into yet another file.

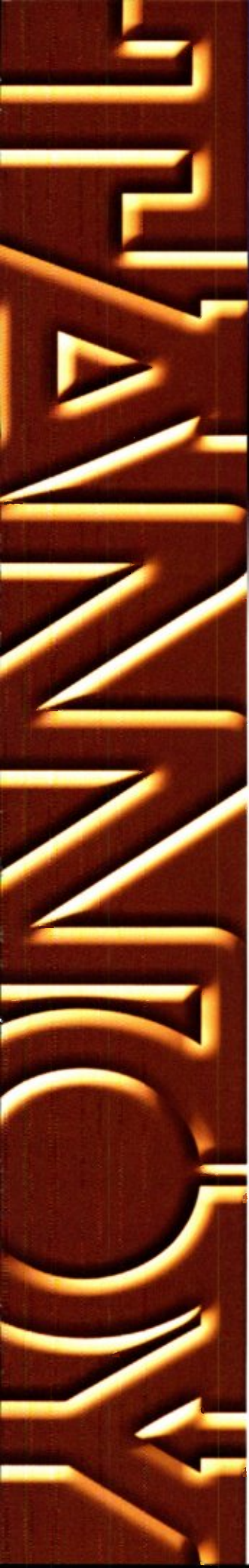
Finally, I dragged all these into the montage tracks. From here, it was easy to add crossfades among the various sections and create a single, unified note. Because a guitar's sound is so rich, crossfaded sections sounded just like part of the sound's natural evolution. Clicking on Apply in the Master Section turned them into a single file that could then be crossfade-looped — mission accomplished.

- An amplitude envelope with a really loooooong attack, so that even if the player gets into the looped section, there will still be something evolving and changing.

- Low amplitude vibrato at “finger vibrato” speed.

- Modulation wheel controlling amplitude, so the player can bring in the sine wave “feedback” at any time.

Granted, no keyboard sampler will replace a guitar...but you can still have a lot of fun trying, and even come up with effects that you can't get with a “real” guitar. ■



SUPERTWEETER ST100



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TANNOY

And the Winner is...

BY MITCH CALLAGHAN & CRAIG ANDERTON



EQ

2002 EQ
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Editor's Choice

THE 11TH ANNUAL EQ BLUE RIBBON AWARDS

Sure, there are plenty of awards ceremonies out there that tell you what was hip in the past year, whether your thing is movies, music, TV, or audio gear. But you expect more from *EQ*...so each year, we stick out our collective necks, look over the latest gear from AES (and, this year, NAMM), and give awards to what we think is going to be gear that everyone else will be giving awards to next year.

The criteria for the awards are simple: they're not only for products that generated a big buzz at the show, but for products that look like they'll have staying power. Factors in determining the winners include how many people came up to us and said, "Hey, you gotta see this!", how many freelance reviewers were salivating to get their hands on a particular piece of gear, whether the company has a track record of fulfilling promises made at shows, and whether we thought there was either a significant technological or price breakthrough.

Manufacturers are particularly proud to receive Blue Ribbon Awards because it shows that all the hard work they put into a product introduction not only got noticed, but gave them the audio industry's equivalent of a "Best in Show" award. Readers depend on the awards to give them a heads-up on what's going to make waves in the year ahead. So let's celebrate the winners, and hand out some ribbons.



DAW

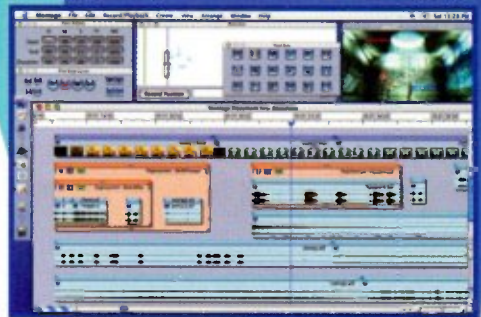
Digidesign Pro ToolsHD comprises a complete hardware redesign bringing the industry-standard digital audio workstation into the high-resolution realm. The new line of hardware includes DSP cards, interfaces, an eight-channel remote-controllable mic preamp, a synchronizer, and a multi-port MIDI interface. www.digidesign.com

SOFTWARE (TIE)

The latest and greatest version of *MOTU Digital Performer 3.1* offers unlimited timeline-style undo, REX file support, more loop production tools, and FireWire video playback, among many other enhancements. www.motu.com

Arboretum Systems Montage represents the first "track-less" music/video production software. It's also designed from the ground up to run on Mac OS X. You've got to see it in action to believe how easy and intuitive it is to use.

www.arboretum.com



PLUG-INS (THREE-WAY TIE)

Steinberg's Warp is a VST-based guitar amp modeler based on Hughes and Kettner's groundbreaking DSP algorithms. www.steinberg.net

Universal Audio's Nigel is a guitar amp and effects modeler that runs on the company's recently released UAD-1 DSP card. www.uaudio.com

IK Multimedia's Amplitube for RTAS, and soon for HTDM and VST, features numerous guitar amp and effects models. www.ikmultimedia.com

RECORDING CONSOLES

Addressing the growing need for a higher end digital console, *Yamaha's DM2000* offers tons of DSP, high-resolution audio, and surround mixing support, plus versatile digital interfacing. www.yamaha.com





COMPUTER AUDIO INTERFACES (TIE)

With eight mic preamps, great metering, ADAT I/O and sync, and high-resolution support, the FireWire-based *MOTU 896* leads the pack in new computer-based audio interfaces. www.motu.com

One of the new breed of USB-based computer audio interfaces, *Apogee's Mini-Me* combines mic preamps with the company's highly regarded A/D converters for a truly compact, portable digital audio interfacing system. www.apogeedigital.com



STUDIO MONITOR

The *Earthworks Sigma 6.2* studio reference monitors are intended to provide time-coherent flat-response performance to beyond 40 kHz using custom-selected components and a unique design. www.earthworksaudio.com



RECORDER (TIE)

TASCAM's PocketStudio 5 multitrack digital recorder is a highly portable replacement for the venerable PortaStudio that records to Compact Flash cards. It includes effects and mixdown to MP3, and can operate off batteries. www.tascam.com

The *Digitech GNX3 Guitar Workstation* combines a floor-mounted modeled guitar amp modeler with a drum machine, effects, and an eight-track digital recorder. www.digitech.com



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World Radio History





STUDIO MICROPHONE

The *Royer Active Ribbon* microphones solve several drawbacks associated with traditional ribbon mics, such as sensitivity to impedance and low output, by including active electronics in the mics themselves. www.royerlabs.com



STUDIO ACOUSTICS

Primacoustic's *Razorblade Quadratic Diffusor* offers high-end control over reflections and standing waves from 350 to 10,000 Hz price at an affordable price. www.primacoustic.com

STUDIO SUBWOOFER

Genelec's *7000 Series* active subwoofers comprise four models aimed at stereo or multichannel applications. They range in size from eight inches/70 watts to dual 12-inch/500 watts. www.genelec.com



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World Radio History

SOFT SYNTH/SAMPLER

Native Instruments Kontakt for Mac and Windows is a modular software sampler that offers time-stretch capability with formant control, tons of synthesis-style power, and support for all major plug-in and I/O formats. www.native-instruments.com



MICROPHONE PREAMP (TIE)

Taking a decidedly hi-fi approach to microphone amplification, the *Sequerra 1070-A* is designed to mount right to the mic stand, minimizing the distance mic-level signals must run. www.sequerra.com

Designed in association with Mercenary Audio, *Great River's MP-2NV* mic preamp is based on the classic circuitry in the Neve 1073 module, but takes the performance to an even higher level using custom transformers. www.greatriverelectronics.com

CHANNEL STRIP (TIE)

Intended for all-in-one tracking applications, the *Pendulum Audio Quartet* is an all-tube design comprising a mic pre-amp/DI, opto-compressor, three-band EQ, and de-esser. www.pendulumaudio.com

The *Focusrite ISA220 Session Pack* offers similar performance to the ISA-430, but at a much lower price. The single-channel unit features a mic pre, four-band EQ, compressor, de-esser, and three-band limiter. www.focusrite.com



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10 TECH TRENDS/PRODUCTS THAT WILL CHANGE YOUR WORLD

- 1. LINE 6 GUITAR PORT.** It's a "plug-and-play" guitar/computer interface with modeling software...fair enough, but it uses kernel-level DSP processing to minimize latency, and features a "music minus one" conditional practice tracks from the Internet.
- 2. DIGIDESIGN PRO TOOLS HD.** The steps toward high-definition audio have been tentative, so it's significant that Digi has jumped into 24/96 and 24/192 with a sweeping, ground-up redesign of the Pro Tools system.
- 3. STEINBERG VST LINK.** Think of it as distributed processing for the project studio: now you can link up multiple computers to share audio and MIDI data, distributing the processing load over several machines.
- 4. UNIVERSAL SERIAL BUS (USB).** It's not a product, but this spec represents the simplest way to get data in and out of computers. Expect USB dongles to become standard in the world of hardware copy protection.
- 5. MARANTZ STAND-ALONE CD-R.** Stand-alone CD-Rs have moved out of the studio and into the live performance/field recording environment, and it's about time.
- 6. OS X.** Propellerhead Software, Ableton, Arturia, Bitheadz, BIAS, IK Multimedia, and many others announced products with OS X compatibility.
- 7. THE NEURON SYNTHESIZER.** Describing this sucker isn't easy. It's the first synth with integral 5.1 surround panning and processing, but it also uses a different type of engine based on resynthesis: it breaks sounds down into component parts, then converts them into parameters that can be manipulated.
- 8. SOUNDS AS PLUG-INS.** Ilio/Spectrasonics and Big Fish Audio have resolved the issues surrounding different sample formats (Akai, E-mu, Roland, WAV, etc.) by creating plug-ins that exist to play back sounds bundled with the plug-in.
- 9. KEYBOARDS AS STUDIOS.** The workstation concept has matured, and now many models seem more like an all-in-one studio with a keyboard attached than what used to pass for a synthesizer.
- 10. PRE-CONFIGURED MUSICAL COMPUTERS.** East Coast Music Mall, Wave Distribution, Carillon, MacExperts "Ultimate Recording Systems" line...they all promise to take the hassle out of creating an audio-oriented computer by doing the work for you. Are they worth the extra bucks? All I can say is the concept works — especially if you need support. —Craig Anderton



STUDIO ACCESSORY

The *Little Labs IBP* (in-between phase) analog phase-alignment tool allows engineers to accurately correct phase problems that the mixing console's polarity switch will not.

www.littlelabs.com

SYNTHS/MIDI (TIE)

Blurring the line between DAW, synth, and sampler, *Korg's Triton Studio* offers all the functionality needed to take a musical production all the way through to burning an audio CD.

www.korg.com

The *Hartmann Neuron* synthesizer uses resynthesis to break a sound down into its component parts, which can be manipulated and stored. The user interface offers three joysticks. Sampling, digital I/O, and surround sound are also included.

www.hartmann-music.com



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LIVE SOUND CONSOLE

The *Midas Legend 3000* is a semi-modular live production console designed for mixing front-of-house, monitors, or both simultaneously; each channel offers separate faders and EQ for monitors and FOH. www.midasconsoles.com

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The *Peavey Feedback Ferret* offers easy, intuitive, affordable control over feedback using 16 notch filters and a special "panic" filter. www.peavey.com



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World Radio History





W I N T E R
N A M M
S P E C T A C U L A R

Located next to Disney's California Experience, the **2002 WINTER NAMM** show in Anaheim had equal parts Tomorrowland ("the product will ship in May"), Frontierland ("uses vintage tubes from the days of the Wild West"), Adventureland ("run as fast as you can to see 4,320,554 products in just four days!"), and, of course, Fantasyland ("this product will change the world as much as the invention of the wheel"). Those who said there wasn't anything new clearly didn't look hard enough, for example....

BY CRAIG ANDERSON & MITCH GALLAGHER



KORG TRITON STUDIO

BY CRAIG ANDERTON

The keyboard "workstation" has progressed from synthesizers with integral MIDI sequencers to devices capable of doing hard disk recording, but few keyboards blur the line between musical instrument and "studio-in-a-box" as much as Korg's Triton Studio.

Some enhancements are due to evolving technology. For example, Triton Studio's faster processor makes the touchscreen virtually instantaneous. Similarly, the 5 GB internal hard drive and the optional internal CD-RW drive for backing up, creating audio CDs, or importing files are testimony to the falling cost of technology. Not all improvements are electronic — the 88-key version has a weighted action that varies as you move up the keyboard, like a real piano.

The sound ROM includes the original 32 MB of Triton sounds, but adds a 16 MB stereo velocity-switched grand piano. The amount of user memory is huge: 1,536 program locations and 1,536 combination locations. There are also 144 locations for drum kits, 256 GM2 sounds, and nine GM2 drum kits in ROM.

Triton Studio accepts up to seven EXB-PCM expansion boards, each providing an additional 16 MB of sample ROM. Adding a six-voice MOSS synthesis engine (EXB-MOSS) provides 13 additional forms of DSP modeling synthesis. Overall polyphony has increased to up to 160 voices.

Oscillators can be processed by multiple filter types and two MIDI-syncable LFOs, each with 21 waveforms. The modulation system can route 42 mod sources to any of 55 destinations.

Sampling is 16-bit at 48 kHz (mono or stereo); the 16 MB onboard sampling RAM is expandable to

96 MB. Samples can be written to hard drive for transfer to a computer for editing or CD burning. (Samples can also be edited onboard.) Time stretching and "sample slicing" (allows speeding up and slowing down rhythmic loops without changing the timbre) are available. Best of all, Korg's "Open Sampling System" allows sampling from within the program, combination, or sequencing modes.

Triton Studio can "resample" what it's playing. For example, an arpeggiated figure (there are dual polyphonic arpeggiators) could be re-sampled and turned into a loop or you could resample multiple harmony parts into a single track. Triton Studio also makes a great "loop development system," as you can construct complex loops within the machine, save to hard drive, then burn to CD. As a bonus, Triton Studio can capture the output of a final sequenced masterpiece and burn it to an audio CD.

In addition to loading WAV files, Triton Studio recognizes AIFF and Akai S1000/3000 format samples. It can "rip" cuts from audio CDs inserted in internal or external drives.

There are 102 digital effects, with "slots" for two master and five stereo insert effects. Many effects can sync to MIDI clock or the internal sequencer. The effects can also process external sounds, allowing Triton Studio to serve as a MIDI-controlled effects processor.

I/O includes stereo out, four individual outs, and stereo 48/96 kHz, S/PDIF digital I/O. Optional digital I/O cards include ADAT output and mLAN audio/MIDI I/O.

The 16-track MIDI sequencer holds up to 200,000 notes and 200 songs, provides real-time or step-time entry, and can save sequences as Standard MIDI Files. Sixteen user and 16 preset "templates" let you create "starting points" for songs. Sequenced patterns can be assigned to individual keys, so you can play back "grooves" or segments on-the-fly. ■

KORG TRITON STUDIO

- **WHAT IS IT?** Expandable keyboard workstation
- **WHO NEEDS IT?** Players who want to do entire productions within a single instrument.
- **WHY IS IT A BIG DEAL?** Triton Studio crosses over into "all-in-one" studio territory.
- **SHIPPING:** Second quarter, 2002
- **PRICE:** Triton Studio 61, \$3,400; 76-key version, \$3,800; 88-key version, \$4,200. EXB-MOSS board \$600, PCM Expansion Boards (EXB-PCM) \$240 each, ADAT output (EXB-DI) \$200, mLAN I/O (EXB-mLAN) \$750, CD-R/W drive (CDRW-1x8) \$400.
- **CONTACT:** www.korg.com





SPECTRASONICS VIRTUAL INSTRUMENTS

BY CRAIG ANDERTON

The trend in virtual instruments is to stuff more and more sounds into the package — consider the 600 MB of drum samples in Native Instruments' Battery, the huge refill that comes with Propellerheads' Reason, Big Fish's sample-laden virtual instruments, or IK Multimedia's SampleTank. Now Spectrasonics has introduced the first three members of a series of specialized plug-in instruments devoted to specific sound families.

However, these are a far cry from sample playback-only plug-ins; think "wavetable synthesizer" with a honkin' huge selection of waves (all new, not repackaged from other sample libraries), and you're getting closer to what these plug-ins are all about. The concept isn't to dial up the "preset *du jour*," but to shape the extensive library of raw materials into something unique through a familiar, easily edited, synthesizer-type interface.

Spectrasonics makes a good case for basing their approach to sample distribution on a universal virtual instrument engine. The instruments are compatible with VST Mac/PC, Pro Tools RTAS, and MOTU's MAS. The issue of whether a virtual instrument is compatible with a particular sample library format is moot, because the sounds — around 3 GB worth for each library — are the instruments.

The first releases are Atmosphere, a pad module; Stylus, a groove-oriented instrument based on loops and samples (with "groove control" tempo/pitch-change technology), and Trilogy, a bass module. Because of this specialization, the instrument interfaces can be optimized to work with a particular type of sound — for example, the Stylus interface is quite different from the Atmosphere/Trilogy interfaces.

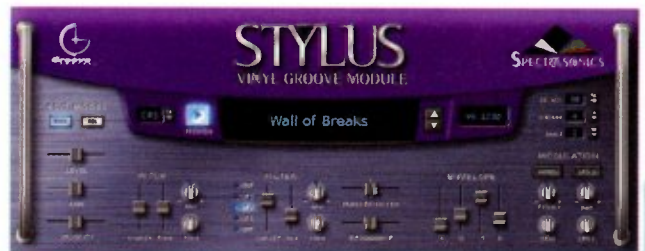
Trilogy has 1,000 electric, acoustic, and synth basses. Each has dual, independently tweakable

layers, and these can be mixed and matched among the various instruments (e.g., synth and acoustic bass). Some samples have up to eight velocity-switched articulations, and there's also Minimog-style legato triggering. The synth section isn't an afterthought: there's multimode resonant filters for each layer as well as master filters, three envelope generators (pitch, filter, amplitude) per layer, matrix modulation routing with four LFOs, and a built-in auditioning system.

The Atmosphere instrument is similar, except that it has over 1,000 multisampled pads. Layering is particularly appropriate here, because the number of possible pad variations exceeds a million — I should think you'd find what you need somewhere in there.

Stylus is oriented toward grooves. There are over 700 breakbeat remix loops, 1,000 turntablist/DJ effects, percussion grooves (with congas, bongos, djembes, shakers, tambourines, etc., all of which can be mixed in with the other loops), and several thousand drum samples. You can also use individual samples to construct your own grooves. Because the loops all use the "groove control" method of time/pitch-stretching (similar to the results obtained with ReCycle, but capable of doing swing or straight "feels"), loops are useable from 50 to 180 BPM.

► continued on page 117



SPECTRASONICS VIRTUAL INST.

- **WHAT IS IT?** Virtual instrument plug-ins
- **WHO NEEDS IT?** Players, composers, producers
- **WHY IS IT A BIG DEAL?** Combines sample library and sample playback into one software package
- **SHIPPING:** Second quarter, 2002
- **PRICE:** Atmosphere, \$399; Stylus, \$299; Trilogy, \$399
- **CONTACT:** Spectrasonics, dist. by Ilio Entertainments, www.spectrasonics.net or www.ilio.com

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WHARFEDALE PRO LOUDSPEAKERS

BY STEVE LA CERRA

With a well-established history of manufacturing high-quality audiophile loudspeakers, International Audio Group (IAG) is now turning its attention toward the pro-audio market. At the NAMM show, IAG Professional announced several new Wharfedale Pro series of speakers for a variety of applications.

The LiX Series is Wharfedale Pro's flagship line of loudspeakers. Intended for touring PA and commercial installation, the LiX Series includes 10 different models. LiX cabinets are constructed from premium-grade plywood and feature drive units able to withstand operation at high temperatures. The full-range cabinets are trapezoidal and include a 25-mm compression driver with a 50-mm titanium diaphragm for power handling as high as 1,200 watts (program) in the LiX215FR. The LiX-15SB, LiX-215SB, LiX-18SB, and LiX-218SB subwoofers incorporate high-pass filter networks with output sockets to facilitate connection with any of the full-range models.

Unique to the LiX-C Series is a three-slit radial phase plug for extended high-frequency response. The 50-mm titanium diaphragm utilized in the HF driver is protected by Wharfedale's Pro-Tech circuitry, which triggers a reduction in power to the driver and progressively converts excess power to heat. When the overload condition is removed, the system returns to normal operation without interruption.

Wharfedale Pro's EVP-S Series includes full-range cabinets that employ Wharfedale's proprietary WP-M44 compression driver, which features a 44-mm voice coil driver on a one-inch-exit compression horn. As in the LiX-C models, the WP-M44 driver is protected from overload by Pro-Tech. EVP-S loudspeakers feature low-resonance, trapezoidal enclosures for easy array; industrial carpet exterior for durability;

built-in carrying handles; and protective steel grilles.

The VS Series provides lightweight, strong enclosure design at a high performance-to-price ratio. The high-frequency driver for VS cabinets is a twin-drive transducer mounted on an Elliptical Waveguide for accurate reproduction even at high output levels. Available models include the VS-10, VS-12, VS-12M (wedge), and VS-15 two-way full-range systems. The VS-153 is a three-way system incorporating a 6.5-inch midrange driver with a power capacity of 720 watts peak. Two VS subwoofers are available: the VS-15SB (single-15) and VS-18SB (single-18). All VS cabinets feature interlocking corners for safe stacking.

Wharfedale Pro's Twin-12 Series loudspeakers are based on a 12-inch coaxial, full-range driver. The Twin-12 cabinet may be mounted on a stand or placed on the floor for side fill or wedge applications. Specifically designed for nearfield applications, the Twin-12's coaxial driver is intended to produce phase-coherent audio at the listening position.

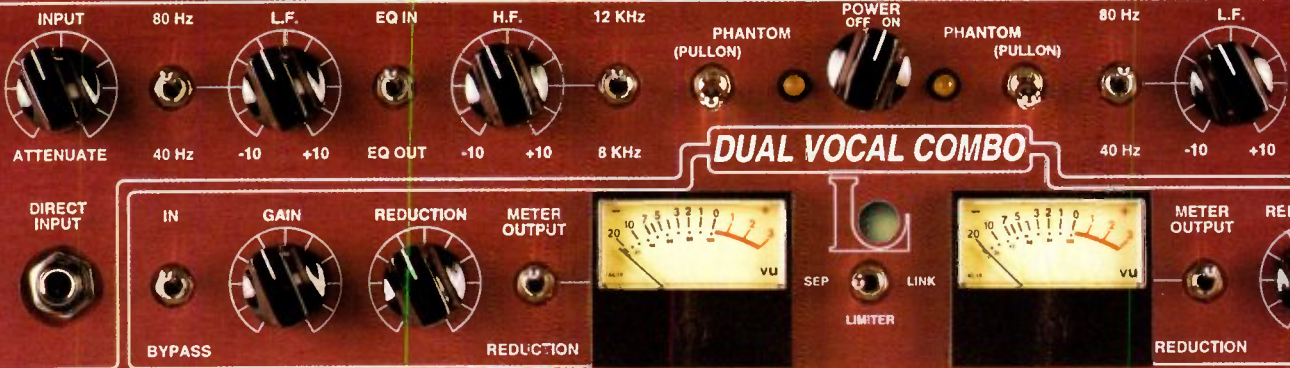
Comprising the LA-15 and the LA-15SB, the LA Series cabinets are constructed of high-density polyurethane for reduced weight and durability. Based upon a two-way 15-inch design, LA-15's may be used horizontally as floor wedges, or locked together to form arrays. The LA-15's high-frequency horn can be rotated for 60- x 40- or 40- x 60-degree coverage simply by removing four screws and rotating the unit 90 degrees. The LA-15SB features an internal high-pass filter with output connector for use with the LA-15, or a system may be biamped using an external active crossover. ■

WHARFEDALE PRO LOUDSPEAKERS

- **WHAT IS IT?** Several new lines of loudspeakers with varying price and application points.
- **WHO NEEDS IT?** Clubs with in-house PA, touring sound companies, rehearsal rooms.
- **WHY IS IT A BIG DEAL?** These loudspeakers represent the first entries from Wharfedale to the pro audio market, with attractive price/performance ratios and no compromise in technical quality.
- **SHIPPING:** Now
- **PRICE:** Starting at \$109.99
- **CONTACT:** www.IAGAmerica.com



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STEINBERG VST SYSTEM LINK

BY MITCH GALLAGHER

Most of us are well aware that you can never have too much computer power available when you're running native audio applications or software synths and samplers, or when using DSP and plug-ins to process audio. The problem is that, as computers have increased in horsepower, the demands placed on them by native applications have increased at a similar or, in some cases, faster rate. Anyone who's tried to create a complete music production inside a computer knows that even today's most powerful machines can easily get bogged down with even a small production if plug-ins and software synths and samplers are being used.

To address this problem, Steinberg has created VST System Link, a networking protocol for hooking computers together and distributing the native audio processing load across the connected CPUs. Any number of computers — Mac, PC, or a combination of both platforms — can be connected using a simple digital audio cable hooked up to any ASIO-compliant digital I/O-capable audio interface card installed in each computer. Any digital format, such as ADAT optical, S/PDIF, AES/EBU, or TDIF will work. A single bit of the digital audio stream is used to carry transport and synchronization data; the sync is sample accurate. Optionally, MIDI information can also be carried through the VST System Link for remote control/automation purposes or for accessing virtual synths and/or samplers on each computer — hundreds of MIDI channels can be carried with sample accuracy over a single VST System Link connection.

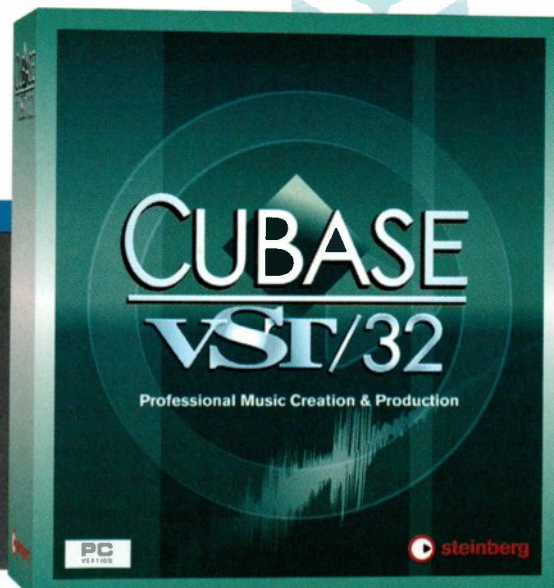
The protocol is cross-platform and cross-application compatible, although currently only Cubase VST and Nuendo support it. No announcements have been made regarding third-party implementation of VST System Link.

Essentially, VST System Link allows multiple computers to be connected in parallel and to be synched up with sample accuracy. Let's say you're working on scoring a short industrial film, and you have five Macs and PCs connected via VST System Link. One machine might be running MIDI tracks and as many audio tracks and plug-ins as it can comfortably accommodate. A second machine might be running VST synthesizers and samplers, all being played by the MIDI tracks on the first computer. Maybe a third is running a few more tracks and plug-ins, along with the digital video you're using as a scoring reference. The fourth computer is being used to run a couple of extremely processor-intensive reverb plug-ins. The fifth computer is serving as a mixer, combining and routing the audio from all the other machines. All of the computers have ADAT-optical format digital audio interfaces connected that carry the VST System Link signal and allow digital audio signals from the various machines to be routed back and forth.

Owner's of "obsolete" computers will find that VST System Link is valuable for extending the useful life of their machines. In fact, some users may find it practical to take advantage of the much more cost-effective last-generation computers. Using VST System Link, these lower-powered machines can be dedicated to specific task such as running a particular software synth or sampler or plug-in. An even lower-powered machine could be dedicated to running the MIDI tracks that drive synths and samplers, reserving newer computers for heavier audio processing tasks. ■

STEINBERG VST SYSTEM LINK

- **WHAT IS IT?** Distributed computer processing for Steinberg Cubase VST and Nuendo
- **WHO NEEDS IT?** Anyone demanding the most from native audio recording applications, plug-ins, and software synths and samplers. Anyone who has aging computers that they want to continue using for audio production.
- **WHY IS IT A BIG DEAL?** Allows increased performance of Steinberg's Cubase VST and Nuendo
- **SHIPPING:** Q1, 2002
- **PRICE:** Included in Cubase VST and Nuendo
- **CONTACT:** www.steinberg.net



TASCAM DM-24: The Affordable Luxury Console Is Here



Luxury usually comes with a hefty price tag. Not so with the new TASCAM DM-24 32-Channel 8-Bus Digital Mixing Console.

The DM-24's features are usually reserved for super high-end mixers. With 24-bit/up to 96kHz digital audio, the DM-24 blows away the standards in sonic quality for affordable consoles. With its internal automation, you'll get more power at your fingertips than you would from those huge consoles in commercial facilities. With some of the finest spatial and modeling processing from TC Works™ and Antares™, you can create fully polished productions without ever going to the rack. With incredibly flexible routing, fully parametric EQ, machine control capabilities, touch-sensitive motorized faders, and lots of audio interfaces, you can integrate the DM-24 into any studio environment.

Whether you're working with standalone hard disk recorders, DAW systems, MDMs or analog tape, the DM-24 is optimized to be the very best choice in consoles designed for 24-track recording. Ready to get everything you ever wanted (and more) in a digital console? Get the DM-24 today at your authorized TASCAM dealer.



Two DM-24s can link together with optional Cascade modules to create a seamlessly integrated 64-channel super console. For larger studios operating on a budget, it's a no-compromise affordable solution for high-end digital mixing.



The DM-24's rear panel includes AES/EBU digital I/O, S/PDIF digital I/O, MIDI In, Out and Thru jacks, ADAT Optical input and output, external footswitch connector, time code input, GPI port, word sync in, out/thru, DTRS remote port, RS-422 9-pin control port, 24-channel TDIF I/O and more. Shown here with standard interfaces. Not luxurious enough? Customize your DM-24 with two expansion ports for extra analog, TDIF, ADAT or AES/EBU modules.

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www.tascam.com

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Winter NAMM PRODUCT BRIEFS

A DESIGNS: The **MP-2** (\$1,499) is a stereo tube microphone preamp offering Jensen input transformers and custom output transformers. Front-panel control is provided over gain, polarity, impedance, and phantom power.

www.adesignsaudio.com

AARDVARK: In addition to the **Direct Mix USB3** gaining ASIO driver support, new Windows XP drivers were announced for the **Direct Pro** series of computer interfaces, including the **Q10**, **Pro 2496**, **LX6**, and **Aark 24**. The **Q10** is also being updated for 96 kHz sample rates.

www.aardvark-pro.com

ABLETON: **Live 1.1** (\$299.95) is now OS X compatible. Download the free update or a demo version at www.ableton.com.

ADAM: The **P11-A** (\$1,895/pr.) and the larger **P22-A** (\$2,495/pr.) powered monitors both feature the same tweeter used in higher-priced ADAM monitors, and incorporate moderate low-end equalization to extend the bass response... The **Sub-P** powered subwoofer (\$1,695) incorporates a 200W RMS power amp, variable low-pass filter, and adjustable high-pass filter to limit low frequencies fed to satellites.

www.mccave.com

AKAI: The **MPC4000 music production center** (\$3,999) offers up to six real-time controllers, 24/96 resolution, USB computer interface, host USB port for ASCII keyboard or storage (there's also built-in SCSI), ak.Sys compatibility, 64-note polyphony (32 at 96 kHz), 16 MB memory expandable to 512 MB, RAM or streaming hard drive playback, built-in 20 GB EIDE hard drive, additional drive bay, 192 six-pole digital dynamic filters with up to three simultaneous filters per voice, and "Q-Link" knobs that generate MIDI controller data that can be recorded by the onboard sequencer. Options: **IB-4D** (\$249) stereo digital I/O with sample rate converter, **IB-48P** (\$399) with eight balanced analog outs, and **IB-4ADT** (\$399) two-in/eight-out ADAT digital I/O board... The **HV1 DuoBuddy** (\$349) senses incoming signal pitch and adds a vocal harmony based on one of nine preset or nine user harmony styles... The **Z4** (\$1,799) and **Z8** (\$2,299) samplers provide up to eight real-time controllers, resolution up to 24/96, and ak.Sys compatibility. Features include Q-Link knobs for real-time modulation control, capacity for 512 MB SDRAM, four-channel effects processor, 192 filters/26 resonant filter types/up to three simultaneous filters per voice, internal 60 GB IDE hard drive, and input sample rate converter. The **Z8** has a removable remote panel, with the eight real-time Q-Link knobs, for remote sampler control... The **MPC Pad Controller** (\$349) is a

USB-compatible controller that uses the same pads and arrangement as on the MPC series of groove boxes. Use them to program software drum synths or rhythm boxes... A line of VST plug-ins (\$149 each) includes the **Deca Buddy** harmony synthesizer for adding up to 9 harmony voices to an original vocal, **Pitch Right** real-time pitch corrector, **Rotator** rotary cabinet simulator, **Quad Comp** four-band compressor/expander, and **D.C. Vocoder** (50-band vocoder with built-in synth). www.akaipro.com

AKG: The supercompact **WMS 40 Microtools** series of wireless components is designed to work with the **WMS 40 SR** receiver. The **MP 40 Micropen** is a pocket-sized transmitter; its integrated C407 lavalier mic can be detached to optimize placement. The **SO 40 Snapon** transmitter converts any dynamic mic into a UHF wireless mic. The **GB 40 Guitarbug** uses a unique FlexJack swivel plug to match all guitar/bass inputs and provides extended frequency response... The **K 240** (\$179) and **K 141** (\$155) headphones operate at lower impedances than their predecessors and are the first to use AKG's Varimotion XXL diaphragm technology, which increases sensitivity, detail, definition, dynamic range, and resolution. www.akgusa.com

ALESIS: The **EC-2** 96 kHz A/D/A converter board upgrade for the HD24 24-track hard disk recorder allows recording/playing back 12 channels of digital audio at 88.2/96 kHz, as well as 24 channels of audio at 44.1/48 kHz... Upgrades to the **QS6** and **QS8** synths, the **QS6.2** and **QS8.2**, offer a redesigned look, 24-bit D/A converters, and 64-voice polyphony... The **1U AI-4** digital audio interface converts eight channels of AES/EBU to ADAT lightpipe, as well as eight channels of ADAT lightpipe to AES/EBU format. There's BNC word clock in and separate clocking for each format conversion... **PicoVerb** (\$99) is a tiny (and we mean tiny!) reverb with 24-bit/48 kHz stereo performance, 16 presets (halls, rooms, plates, chorus, flange, delay, rotary), and unbalanced 1/4-inch ins and outs... The **ModFX** line performance effects boxes digitally processes analog stereo signals. Link ports (in and out) located on either side of each box allow passing digital audio, word clock, and power between ModFX devices. The line includes **Fidelity X** (simulates tape, vinyl, radio, megaphone, telephone, etc.), **Vertigo** rotating speaker simulator, **Ampliton** (tremolo with

autopan), **Spectron** (adds bass and treble harmonics), **Bitrman** (compression, distortion, dual phasing, and ring/frequency modulation), **Korus** chorus, **Phlnjr** (flanger with beat-synchronized modulation sources), **Formantz** filter modeling box, **Lymitre** (two-band limiter), **Metavox** (beat-synchronizable vocoder), **Faze** (phase shifter), **Philtre** (resonant filter with beat-synched modulation), **Nastify** distortion box, and **Smashup** with five different compression models. www.alesis.com

ALLEN & HEATH: The **ML3000** is a 15-bus live sound console with eight VCA automation groups and the LCR plus panning system. The master section contains an "engineer's toolbox" with intercom, oscillator, pink noise generator, and headphone and wedge monitor controls. Twenty-four-, 32-, and 40-channel versions are available. www.allen-heath.com

APHEX: The **207** (\$649) is a two-channel tube mic pre and instrument DI with mic level limiter. www.aphex.com

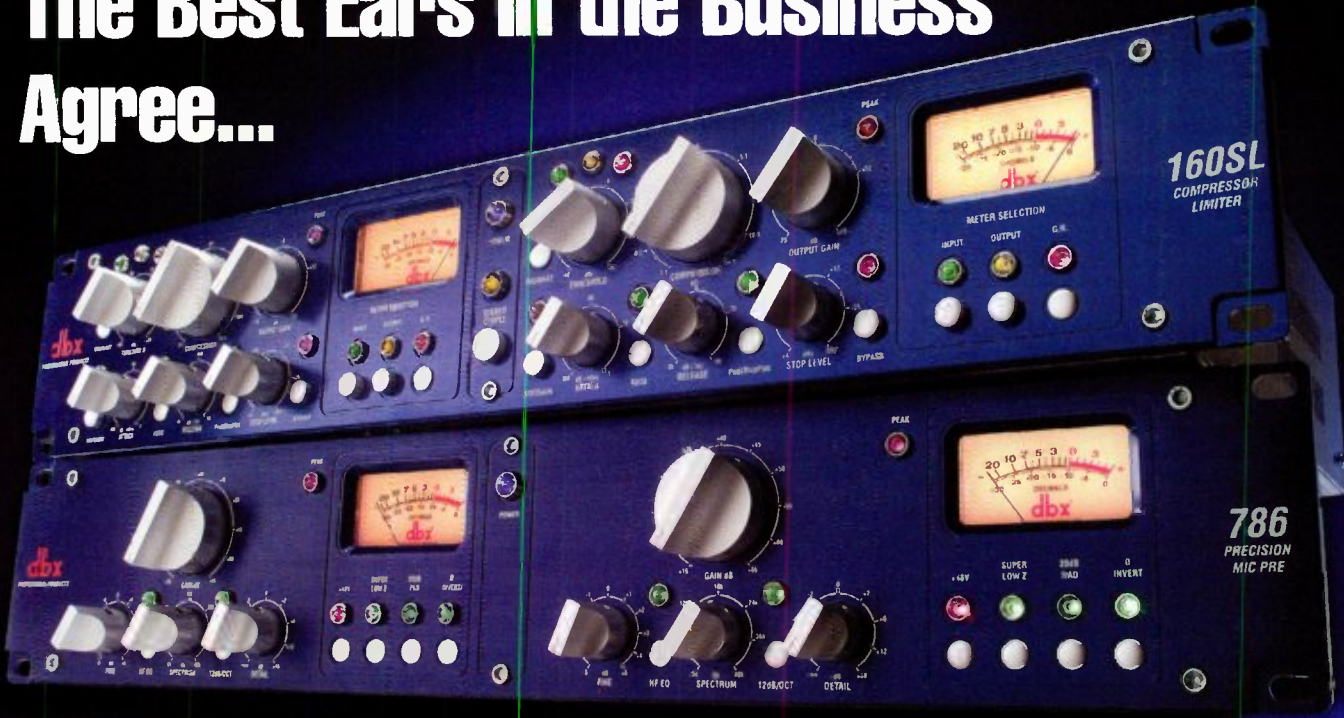
APOGEE: **Mini-Me** is a compact, portable USB, S/PDIF, and AES/EBU format computer interface featuring two channels of mic/instrument pre-amp, 24/96 support, headphone output, Soft Limit, UV22, Push-It compression, and direct monitoring for latency-free recording. The **IEEE1394 AMBus card** allows Trak2, AD-8000, and future AMBus-equipped systems to connect directly to FireWire-equipped computers. ASIO drivers are offered, as is mLAN and driver-less core audio compatibility with Mac OS X. www.apogeedigital.com

APPLIED ACOUSTICS SYSTEMS: The **Lounge Lizard EP-1** (\$149), a Windows/Mac plug-in/stand-alone electric piano based on physical



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Composer **W.G. Snuffy Walden** produces scores for network hits *The West Wing*, *Once and Again*, *Drew Carey*
"Using the dbx 786 and 160SL as a pair, we've been able to use minimal eq. Just using the dbx 786 mic pre gives a really open and warm sound which is what we thrive on here."



Producer/Engineering team **Michael Beinhorn and Frank Filipetti** are currently working on the forthcoming *Kom* CD.
"We're using the dbx 160SL on our vocals. It sounds amazing. We tried other compressors but none of them did even remotely what the 160SL did. It just details things so nicely."



Producer/Songwriters, **Desmond Child & Randy Cantor's** projects include CDs for LeAnn Rimes, Bon Jovi, Ricky Martin, & Alejandra Guzman
"The dbx 786 is the best sounding mic pre we have heard in years. Combining the 786 with the dbx 160SL makes the MIDI sounds and vocals very warm, bright, clear and organic."



Engineer **Elliot Scheiner** is currently working on the next Steely Dan CD, and the DTS 5.1 Remix of Queen "Night At the Opera"
"The 160SL is such a sweet sounding limiter. It is so smooth - you can't hear it working. That's what's remarkable about it."

www.dbxblueseries.com

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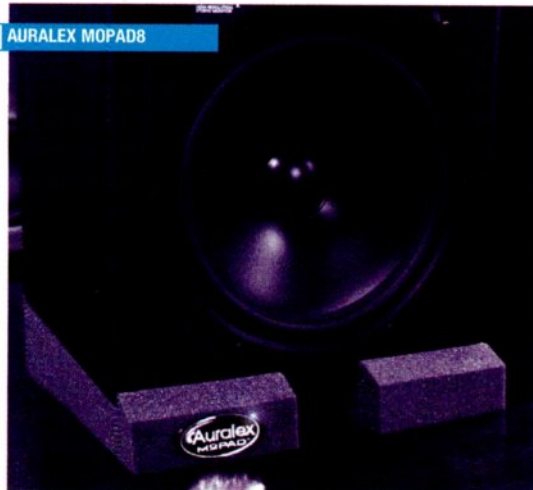
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WINTER NAMM PRODUCT BRIEFS

modeling, is compatible with VST, DXi, Direct Connect, and MAS, and works with ASIO, EASI, DirectX, MME, and WDM drivers... **Tassman V3.0**, a physical modeling-based software modular synth (stand-alone/plug-in), features an updated streaming file player for playing WAV



files direct from hard disk and up to 96 kHz sampling rate. Compatibility is identical to the EP-1. www.applied-acoustics.com

ART: The **Tube MP Studio V3** mic preamp (\$149) can select among multiple preamp settings for guitars (electric and acoustic), keyboards, bass guitars, drums, vocals, etc. It includes an output limiter, phase reverse, +48V phantom power, and analog VU meter. www.artproaudio.com

ARTURIA: **Shadow** (downloadable to registered Storm users) is a pads/chords-oriented soft synth. It features eight-note polyphony, multi-mode filter, 64 patterns, and 128 presets, and is also playable as a VST instrument... **Storm**, the virtual studio program, is now available in a Mac OS X-compatible version. www.arturia.com

AUDIO-TECHNICA: The **Artist Elite Series** of microphones consists of four handheld microphones. The **AE5400** cardioid condenser mic (\$579) features a large-diaphragm element that is designed to handle high SPLs without sacrificing high-frequency performance. The AE5400 also has a switchable 80 Hz high-pass filter, 10 dB pad, multi-level windscreen design, and linear off-axis response... The **AE3300** cardioid condenser mic (\$439) is similar, but features a well-tempered cardioid polar pattern optimized for rejection qualities... The **AE6100** hypercardioid dynamic mic (\$289) features a polar pattern optimized for on-axis response and maximum feedback rejection, while the **AE4100** cardioid dynamic mic (\$289) provides focused vocal pickup and an aggressive sound quality to keep the vocals up front in the mix. All mics have anti-shock engineering for low handling noise and include the

AT8470 Quiet-Flex stand clamp. www.audio-technica.com

AUDIX: Designed for use in a variety of applications, including drums, percussion, guitar cabinets, cymbals, speech, vocals, and acoustic instruments, the **Micro-D series** condenser mics are available with three different specialized clips and two different capsules. www.audixusa.com

AURALEX: **MoPads** are foam isolation risers that are designed to decouple studio monitors from their environment. The monitors may be tilted at 4, 8, 0, -4, and -8 degrees. MoPads can also be used to isolate delicate electronic equipment. www.auralex.com

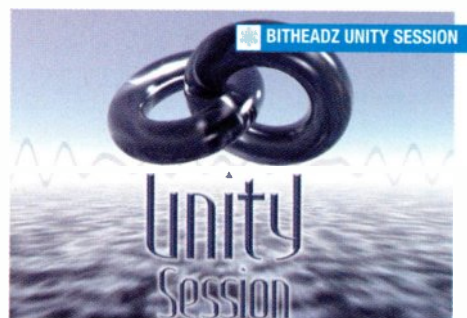
BEHRINGER: The **DDX3216** (\$1,999) automated 32-channel, 16-bus digital console has eight aux sends, 12 mic pres, internal digital patchbay for routing, four

effects processors (accessible from all 32 channels), channel processors (four-band parametric EQ, compressor, gate, etc.), and two expansion slots that accept optional digital interfaces, including the **ADT1616** 16-channel ADAT interface (\$319), **TDF1616** 16-channel TDIF interface (\$319), and the **AES808** eight-channel AES/EBU interface with 19-inch connector box (\$349)... The **Europower PMX2000**, with 10-channels and a 2 x 250W power amp with integral limiting, has a built-in stereo effects unit, six mono channels, three stereo channels, and one channel configured for tape/CD/MD players. The master section sports two 9-band graphic EQs... The **V-AMP2** updates the V-AMP virtual guitar amp with twice as many amp models and better performance. Update original V-AMPs with an EPROM change. www.behringer.com

BIAS: **Peak 3** (\$499) and **Peak LE 3** (\$99) are now OS 8.5- to OS X-compatible. Peak 3 ships with the **BIAS Freq** four-band parametric EQ and offers sample rate conversion, on-board MP3 encoding, and dithering algorithms from Power... **Vbox SE**, a VST multieffects control environment, is also OS X-compatible and bundled with the program... **SuperFreq** (\$79, download only, or \$49 upgrade from Freq), a 10-band parametric graphic or eight-band parabolic EQ, is a VST plug-in for OS 9 or X... **Vbox 1.1** (\$99), a graphic signal router for VST plug-ins that allows serial and parallel configurations, is available for Windows (98SE/2000/XP) as well as Mac OS X. Vbox also works as a stand-alone program that can process and save audio files... **Deck 3.5** provides OS X and OMF file support, and ships with more than 25 free VST plug-ins. www.bias-inc.com

BIG FISH AUDIO: **London Orchestra Percussion** (\$399.95; Akai S1000/Giga and VST/RTAS/MAS virtual instrument plug-in) contains 2.5 GB of orchestra percussion, sampled in an orchestra hall... **John Cage Prepared Piano** (\$199.95; Akai S1000/Giga), made in conjunction with the John Cage Foundation, accurately reproduces the prepared piano sounds used in many of Cage's landmark compositions... **Celtic Instruments** (\$299.95; Akai S1000/Giga) features highland pipes, uilleann pipes, bodhran, fiddle, etc... Several VST/RTAS/MAS virtual instrument plug-ins are now available, all for \$99.95: **PlugSound Vol. 1 Keyboards** (pianos, harpsichords, organs, electric pianos, etc.), **Vol. 2 Fretted Instruments** (acoustic and electric guitar, bass, double bass, in a variety of musical styles), **Vol. 3 Drums** (acoustic and electronic drum sets with extensive velocity-switching), **Vol. 4 Hip Hop Toolkit** (drum kits, basses, leads, effects, breakbeats, etc.), **Vol. 5 Synth Collection** (from vintage synths to recent virtual instruments), and **Vol. 6, Global PlugSound** (GM sound module). www.bigfishaudio.com

BITHEADZ: **Unity 3.0 Session** (\$649; Mac OS 9 or X) combines the Unity DS-1 and Retro AS-1 virtual instruments to provide sampling, synthesis, physical modeling, and real-time audio manipulation. The program can play back samples from RAM, stream larger samples from disk, and import multiple sample formats (Gigasampler, SD II, SampleCell II, Akai, Unity DS-1, Retro AS-1, Phrazier, CD Audio, AIFF, WAV,



DLS, SoundFonts, and Roland). Unity 3.0 is compatible with VST, MAS, RTAS, and DirectConnect... **Unity DS-1** (\$449) and **Retro AS-1** (\$259) have been upgraded to version 3.0. www.bitheadz.com

CAD: The **GXL2200** and **GXL2400** are the first two mics to be released under CAD's new **Global Audio brand**. Both are large-diaphragm cardioid condenser mics... The **D60LF** is a large diaphragm dynamic mic aimed at kick drum applications... The **C61EF** is an extended-frequency condenser mic for instrument applications... The **C66VM** is a handheld condenser mic offering wide bandwidth and exceptional sensitivity and SPL handling, as well as low noise and handling noise... The **D189** is a dynamic

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World Radio History

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WINTER NAMM PRODUCT BRIEFS

supercardioid mic for use by musicians and vocalists... The **Big Stand** is a boom stand adjustable from 74-110 inches tall with a 48-92-inch boom. www.cadmics.com

CAKEWALK: SONAR v1.3 offers a crossfade envelope library, audio scaling for quick zoom in/out on digital audio waveforms, extract timing from audio to create tempo maps, and a scissors tool for real-time clip cutting... **Eight loop libraries** with "acidized"/SONAR-compatible files are now available through Cakewalk distributors. www.cakewalk.com

CARILLON AUDIO SYSTEMS: The **AC1 PC**, designed for music and audio, features an all-metal case, front-mounting Neutrik patching, and bays for a range of inexpensive (\$99) control panels (assignable MIDI knobs, "tape transport" buttons, jog-shuttle edit controller, etc.). The line consists of 23 systems, including VST and Sonar Foundation Systems from \$1,599, up to dedicated Nuendo and Pro Tools workstations. www.carillonusa.com

CREAMWARE: PowerSampler II (\$665) uses the same card as the original, but the software provides independent control over pitch, tempo, and formant information. Other features include 96 kHz sampling and 32 stereo voice polyphony

(expandable)... Several new plug-ins are available for the CreamWare DSP platform.

OptiMaster (\$228) is a dynamics processor for mastering with normalizer, multiband expander, multiband compressor, and multiband limiter... **PSY Q** (\$180) is a psychoacoustic processor with equalization, stereo expander, bass compressor, and soft clipper... **Vocodizer** (\$136) is a 22-band vocoder. An internal synthesizer or external sound provides the carrier... **v3.1** software (Mac/PC) for all CreamWare DSP systems provides several new functions including improved system control, XTC mode (where SCOPE studio tools can be used like VST plug-ins), and a collection of 15 DSP effects that include **MasterVerb** and several studio tools. www.creamware.com

CREST: The **LQ-12P** powered speaker is a trapezoidally shaped, bi-amplified system in an injection-molded enclosure. It features a 12-inch cast frame woofer, two-inch compression driver coupled to a four-inch throat horn, water-resistant treated cone, and dust cap. It's equipped with one combo female 1/4-inch/XLR jack and one male XLR jack, each providing balanced operation. www.crestaudio.com

CYCLING '74: Pluggo 3.0 (Mac only, \$199), with over 80 real-time audio effects, now offers sup-

port for Digidesign's RTAS format as well as VST and MAS. There are also 19 "essential instruments," including analog modeled drum synths, additive synths, theremins, sample-based devices, FM synthesis, and more. www.cycling74.com

DSOUND: The **TL Audio VL1+** (\$299) plug-in for DirectX and Mac/PC VST is a simulation of the hardware TL Audio VL1 tube interface unit. Each of the eight channels has unity gain and modeled tube warmth characteristics. A Saturation parameter adds additional tube richness. www.dsound1.com

DBX: The **120a** subharmonic synthesizer (\$299.95) models a bass note an octave below the original audio's bass using two separate bands of bass synthesis... The **ProVocal** (\$449.95) mic pre offers 24-bit effects/signal processing, 44.1/48k S/PDIF digital outs, 24-bit reverb, compressor, de-esser, and mic modeling... The **Mini-Pre** vacuum tube microphone preamp (\$149.95) combines many of the characteristics of the high-end dbx preamps into an extremely compact, portable, and affordable package... Each of the four channels of the **442 DriveRack** unit for the DriveRack system has an assignable input EQ that can switch from graphic EQ to nine-band parametric EQ. In addition, 10

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www.dbxpro.com

DIGIDESIGN: Pro ToolsIHD offers sample rates up to 192 kHz and a newly engineered audio path. The **192 I/O** is a 24-bit audio interface with eight channels of 24-bit analog I/O, card option bay for analog or digital I/O expansion (up to 50 ins and outs), 16 channels of high-definition I/O, 44.1 to 192 kHz sample rates, expansion port for an additional 192 I/O or 96 I/O, and a legacy peripheral port for older interfaces (48 kHz or lower sample rates)...**96 I/O** is a scaled-down version of 192 I/O with sample rates up to 96 kHz, eight channels of 24-bit analog I/O, eight channels of ADAT optical I/O, AES/EBU and S/PDIF I/O pairs, expansion port for connecting another 96 I/O, and legacy peripheral port...**SYNC I/O** is the system master sync device with low-jitter clock design, lock to time-code or bi-phase signals, word clock I/O up to 192 kHz, support for standard pull-up/pull-down film/video rates, two 9-pin ports for dual device control with MachineControl (requires serial adapter)...**PRE** is a remote-controllable eight-channel mic pre with switchable soft clip limiter, insert points (along with phase reverse, high-pass filter, and 48V phantom power) on all channels, and MIDI I/O for remote operation...**MIDI I/O** is a multi-port MIDI interface with 10 I/O

ports (160 channels), support for four MIDI I/Os, time-stamping for optimum timing accuracy, OMS/WDM compatibility, and USB-powered connection...HD expansion options include **Process Cards** to boost I/O capacity and DSP power (up to seven cards max) and **192 I/O expansion cards** that add eight channels at a time of analog ins, analog outs, or digital I/O...Three configurations are currently available: **Pro ToolsIHD1** (core card supporting up to 32 channels of I/O, 96 simultaneous audio tracks, and DSP), **Pro ToolsIHD2** (adds an HD Process card for double the DSP power of HD1), and **Pro ToolsIHD3** (supports up to 96 channels of I/O and 128 simultaneous audio tracks)...**Mbox** (\$495) is a compact, two-channel, 24-bit USB audio peripheral for portable recording. It includes Pro Tools 5.2 LE software (with DigiStudio support for remote collaboration); Mbox sessions can migrate to any Pro Tools platform. I/O includes two 1/4-inch TRS/XLR analog ins (featuring Focusrite mic pres and 48V phantom power), 24-bit stereo S/PDIF digital, and two 1/4-inch analog outs...The 36 GB and 73 GB **Ultra160/LVD DigiDrives** (\$990 and \$1,550, respectively) provide higher sustained data transfer rates than their predecessors and run at 10,000 RPM. www.digidesign.com

DIGITECH: The **GNX3** guitar workstation combines an eight-track digital recorder, drum machine, and a floor-based multieffects processor with delay looper and phrase train-

er. Hardware features include guitar and XLR mic ins, analog and S/PDIF digital outs, MIDI, and integral expression pedal. The recorder offers up to six track-minutes of recording time (expandable via SmartMedia cards). The GNX3 also includes GenEdit editor/librarian Mac/PC software...The **BP200** bass processor features 12 bass amp models, expression pedal, several stomp box and speaker models, and provides up to 11 simultaneous effects...A line of single-effect pedals includes the **Synth Wah** envelope filter, **Main Squeeze** compressor (featuring dbx over-easy compression technology), **DigiReverb** reverb pedal, **DigiDelay** with tap tempo, three distortion boxes (**Metal Master**, **Hot Rod**, and **Overdrive**), **Multi-Chorus** (up to 16 voices), **HyperPhase** phaser, and **TurboFlanger**. www.digitech.com

EDIROL: The **Super Quartet** DXi/VST plug-in synth for piano, bass, guitar, and drums features 24/96 resolution, 32-bit floating point DSP, 60 preset instruments and two preset drum sets, 128-note polyphony, and 16-part multitimbral operation...**DV-7** is a stand-alone digital video/audio editing system that captures, edits, and outputs videos in the same native-DV format used in digital video cameras. It can also record analog audio and video in DV format for folding additional elements into a project. www.edirol.com

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ELECTRO-VOICE: The Force i Series consists of the Force i (two-way, 46 lb. full-range system with 15-inch woofer, 1.25-inch titanium compression driver, and trapezoidal enclosure), the Force i Sub (18-inch with built-in input filter), and the Force i Monitor (12-inch woofer, 28 lbs., compression driver horn, and built-in stand mount)...The RE-1 UHF wireless mic diversity system (\$1,490) includes auto channel select and 950 possible channel frequencies. The body-pack transmitter is made of cast magnesium; the HT-1000 wireless handheld transmitter accommodates the EV N/DYM 767 dynamic mic element or RE510 condenser element. A wireless guitar version is also available...The SxA250 (\$1,098, \$100 for the SxAkit suspension kit) is a 15-inch two-way self-contained sound system with mixable mic and line ins, two-band EQ, line out, and separate 350W LF amp and 150W HF amp. www.electrovoice.com

EMAGIC: The final spec for Logic Audio Platinum 5.0 (\$949, \$149 upgrade for v4.X owners) includes a new automation version with 32-bit fader values, over 50 plug-ins (including several mastering plug-ins), three analog-style synthesizers, support for up to 32 audio instruments, scrubbing, dithering, 24/96 operation, REX 2.0 support, and Logic Control controller (\$1,299) integration. www.emagic.de

E-MU: Proteus 2500 (\$1,349) is a 128-voice tone module with 16-track sequencer that can exchange SMFs with computer sequencers via USB. It also includes 30 knobs and buttons for hands-on tweaking, a 32 MB sound set expandable to 128 MB, six analog outs, dual effects processor, and 16 simultaneous/syncable arpeggiators...Proteus 1000 (\$795) boasts 64-voice polyphony, 32 MB internal sound ROM, 32 MB expansion slot, dual stereo effects, four real-time control knobs, 16-part multitimbrality, and the ability to author your own EPROMs using the E4 Ultra samplers...Proteus S/F (\$249) is a PC-compatible, 64-voice hardware synth on a PCI card (with audio and MIDI connections) with Proteus waveforms and Sound Font expandability...Orbit-3 (\$1,395) features a 64 MB sound set, 128-voice polyphony, 12 assignable real-time controls, rhythmic pattern generator/arpeggiator, six analog outs and S/PDIF, dual stereo effects processor, two additional ROM expansion slots, 32 MIDI channels, and playback of flash ROMs authored on E4 Ultra samplers...Emulator Soft is stand-alone/VST-compatible software-based sampler for PCs. It can also be used with hardware E4's as part of a larger system (e.g., edit/catalog E4 samples and presets, and browse drives and flash memory)...The Ensoniq Halo keyboard (\$1,295) features 61 keys, 64-voice polyphony, 32 MB of ROM expandable to 128 MB, four real-time control knobs that can adjust 12 parameters, and SuperBeats mode for interactive groove creation...The PK-6 Proteus Keys (\$1,295), a low-cost keyboard based on the Proteus sounds, features a 32 MB sound set

(expandable to 128 MB), 64 voices, 16 real-time controls, stereo effects, four analog outs, and 16 programmable arpeggiators...The XK-6 Xtreme Keys is based on the Xtreme Lead rack module...The MK-6 is also similar to the PK-6, but based on the Mo'Phatt sound module.

www.emu.com

ESI: WaMi Rack 192L (\$499) is a 1U, four-in/eight-out device (featuring 24/96 kHz A/D converters) that connects to your computer via PCI card. Features include four XLR mic pre ins with phantom power, MIDI interface, optical/coaxial S/PDIF connectors, and surround support...GigaPort AG (USB to eight-channel analog interface) and GigaPort DG (USB to ADAT digital interface) each list for \$199, are Mac/Windows compatible, and support ASIO 2.0 as well as GSIF...Waveterminal U24 (Mac/Windows, \$299) is a 24-bit USB audio interface with onboard sample rate conversion. It features two unbalanced analog ins/outs, S/PDIF coaxial and optical I/O, and an internal digital mixer for input monitoring...Supporting sample rates from 32 to 96 kHz with 24-bit resolution, Audioterminal 010 (\$399) is a PCI-based digital interface that supports ADAT optical, TASCAM TDIF, Roland R-Bus, and S/PDIF interfaces. Other features include one-in/one-out MIDI interface for MTC/MMC sync, and word clock I/O...The Vivistar line of DVD recorders includes the RS-111 internal and RS-121 external DVD-R recorders and authoring, general, and professional DVD-R media. www.esi-pro.com

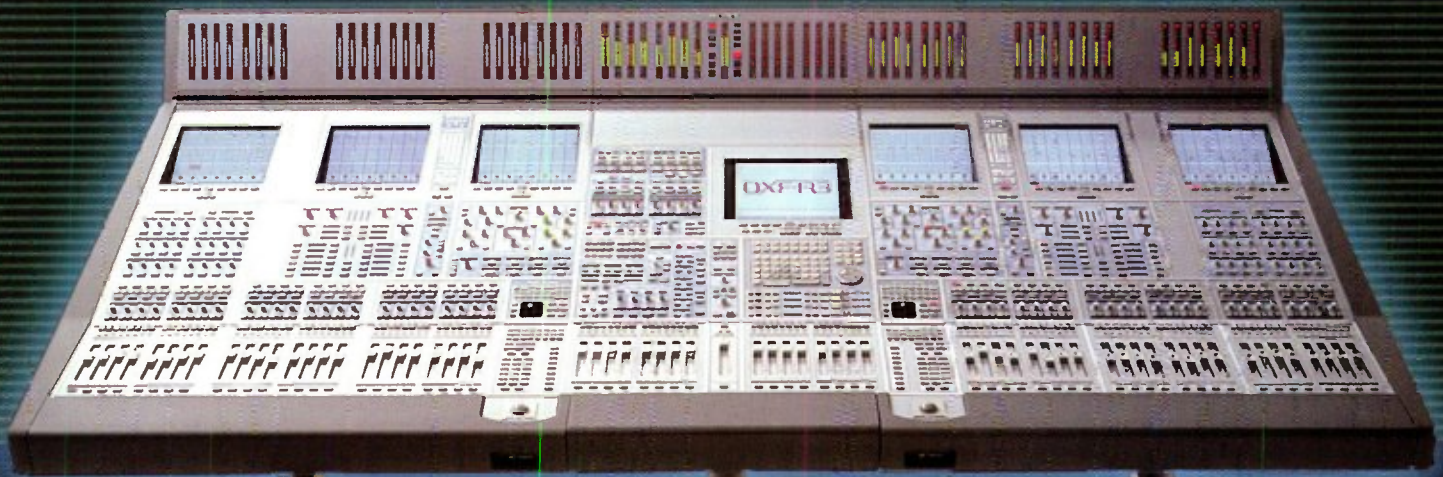
EVENT: The EMP8 eight-channel microphone preamp comprises precision low-noise pres, analog input trims, line in/direct out, phantom power, phase invert, 24-bit conversion, and eight-channel optical digital output. www.eventelectronics.com

FENDER: The Passport Deluxe 150 and Passport Deluxe 250 are intended for applications ranging from board room to music performance. Ergonomically designed to be small enough to fit in a car, each can be set up by one person in less than five minutes. Each includes a powered mixer, speakers, microphones, and all necessary cables. The 150 offers four-input mixer with 75 watts per channel, while the 250 has six inputs and 125 watts per channel. www.fender.com

FOCUSRITE: The ISA 220 Session Pack (\$2,295) is a 2U, single channel analog processor that features a transformer-coupled mic pre, line/instrument ins, four-band EQ, compressor (pre- or post-EQ), de-esser (uses EQ and phase cancellation), and three-band limiter. An optional 24-bit/96 kHz digital output (\$525; AES/EBU, S/PDIF and TOSLINK) offers 44.1 to 96 kHz operation, 16-, 20-, and 24-bit resolution, and can lock to external word clock or SuperClock...Each channel of the Platinum OctoPre eight-channel mic pre features a compressor/limiter circuit that



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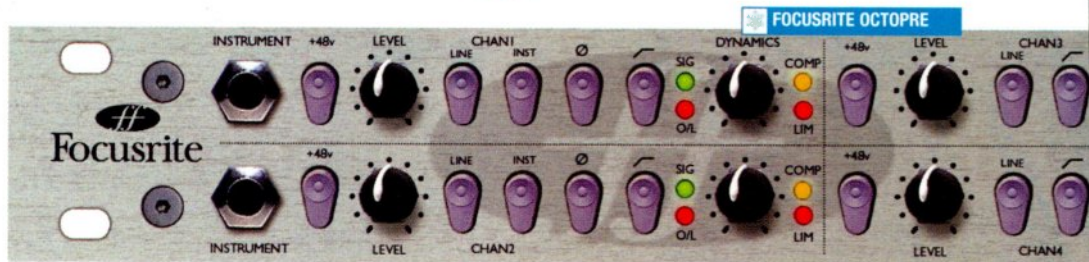
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morphs into a brick wall limiter. Outs can be either eight balanced analog outs or an optional A/D (with eight AES/EBU, S/PDIF and ADAT lightpipe digital outs that all operate up to 24-bit/96 kHz and can run simultaneously). www.focusrite.com



FOSTEX: The **VF80** (\$699), an all-in-one eight-channel multitrack recorder, includes effects, 20 GB internal hard drive, two guitar ins, two XLR ins with phantom power, waveform display, digital mixer, mastering effects (EQ, compression, and reverb), and optional CD-R/RW drive (\$499)...The **T50RP** stereo headphones (\$199) imprint the voice coil directly on the diaphragm to improve phase integrity. Also, an anti-vibration material prevents resonance peaks...The **M88RP** and **M11RP** are special editions of the classic Printed Ribbon Microphones. Each is hand-built and will be available in limited quantities...The **Terratec DMX 6fire 24/96** is a six-channel, 5.1 surround sound card with 24/96 resolution that can drive six speakers. www.fostex.com

FRONTIER DESIGN: **APACHE** (\$699) is a 1U, 12-in/12-out patchbay that supports ADAT and TOSLINK lightpipe signals. It features one button access for each in and out, memory for 12 different presets (recallable via MIDI or panel buttons), and a "scanning" display mode that continuously updates input-to-output routing. Multiple APACHEs can be cascaded. www.frontierdesign.com

EXPANSION: **Audio FX Collection Series One V2** (under \$250) updates the original Series One with more functions and new code...**FX Collection Series Two** (for VST, RTAS, DX/DXi/DX8, and MAS; under \$250) offers six plug-ins: **Dyna Convolver** (morphing filter processor), **Snippet Resynth** (pseudo-granular synthesis), **Streamsampler** (live capture/playback sampling plug-in), **Helicopter** (multi-band modulation processor), **Hyper Channel** (trigger processor characteristics from a MIDI keyboard), and **FuzzX** (multiband distortion/lo-fi). www.fxexpansion.com

GARY GARRITAN: **Garritan Orchestral Strings** for the Gigasampler format is a 16 CD-ROM sample library, recorded in 24-bit format, with a wide variety of articulation, bowings, special effects, and more for violin ensembles, violin sections, violas, cellos, double-bass, and full string orchestra. Very well done. www.garritan.com

GENELEC: The **7000 Series** active subwoofers consists of four models. Designed for stereo or multichannel applications, the **7071A** (two 12-inch drivers/500W amp) complements Genelec's 1032A, S30D, or 1037B active monitors. The **7070A** (12-inch driver/250W amp) is optimized for Genelec 1030A and 1031A active monitors

(stereo or surround). The **7060A** (10-inch driver/120W amp) complements the Genelec 1029A active monitors for surround. The **7050A** (8-inch driver/70W amp) is designed for Genelec's 1029A and 2029A/B Series active monitors in a stereo application...The **D18A** Active Balancer converts eight unbalanced RCA line signals to balanced XLR line signals...The **S30D** three-way enclosure features an eight-inch woofer, four-inch mid frequency cone driver, ribbon tweeter with response extending to 50 kHz, AES/EBU digital ins, and analog XLR ins. www.genelec.com

GLYPH: The **M Project Plus** and **M Project Dual FHS** are FireWire-based hard drive systems. The **M Project Plus** is a 1U rackmountable single-drive system offered in 40, 80, and 120 GB capacities. The **M Project Dual FHS** is a 1U rack-mount system containing two hot-swappable removable drive bays. www.glyphtech.com

HARTMANN: The **Neuron** synthesizer (\$4,990) is a resynthesis/analysis-based machine that identifies a sound's various qualities and translates them into individual parameter sets, which can then be manipulated and stored. The user interface sports three joystick-like controllers and several rotary encoder wheels, while 13 alphanumeric displays provide instant visual feedback. You can also sample and analyze your own sounds through analog stereo ins, S/PDIF digital ins, or the integrated USB port. **Neuron** also provides 5.1 surround and processing capabilities. www.hartmann-music.com

HHB: The **HBB DA30DC**, **DA60DC**, and **DA113DC** DTRS tapes are officially approved by TASCAM...HHB is the USA distributor of the **M3 TubeTracker** 8 x 2 mixer from British tube specialists TL Audio; features include tube mic pres, four-band EQ with sweepable mids, and an optional stereo digital out that supports up to 24-bit/96 kHz digital audio. www.hhbusa.com

IK MULTIMEDIA: The **AmpliTube** (\$399) guitar amp plug-in for RTAS (HDTM and VST are forthcoming) features models of seven preamps, five EQs, four power amps, nine cabinets, and condenser/dynamic mics, along with high/mid/low EQ, tremolo, and spring reverb. There are also five stomp box effects and three post effects (three-band parametric EQ, stereo reverb, stereo delay)...The **T-Racks** mastering system (EQ, compressor, multiband limiter, soft-clipping output stage, and metering) is available as an RTAS/VST plug-in...**SampleTank**, recently

supported by 15 additional sound modules, is now Pro Tools-compatible in addition to MAS and VST...**GrooveMaker 2.5** is OS X-compatible and features MP3 exporting. www.ikmultimedia.com

IZ TECHNOLOGY: **RADAR v3.10** software can export tracks to Mac or PC workstations, includes ethernet for backup and file transfer, 192 kHz board set (three DB-25 connectors), and a new ADAT card option (24 channels of digital I/O, six lightpipe connectors). www.izcorp.com

Ilio: New sample CDs include **Keys to the City** (synth and keyboard grooves), **Stark Raving Beats** (with drum loops and individual drum elements), **World Traveler** (ethnic samples), **Classical Choirs** (multi-disc set of Miroslav Vitous choir samples), **Memphis Horns** (multi-disc set of phrase-based brass samples), **Skippy's Noizbox** (drum grooves with individual drum elements), and the multi-CD boxed set, **Sonic Traveler**, sort of an "Ilio's Greatest Hits" package. Prices start at \$99 for audio-only single CDs...**Spectrasonics** series of Mac/PC, VST/RTAS/MAS compatible-virtual instruments (distributed by Ilio) consists of the **Atmosphere** pad module (\$399), **Stylus**, a groove-oriented library of loops and samples (\$299; with "groove control" tempo/pitch-change technology), and the **Trilogy** (\$399) bass module. Each instrument has around 3 GB of samples; **Atmosphere** and **Trilogy** have synth-type interfaces, while **Stylus** is designed more for looping — you can even adjust individual elements within each loop. www.ilio.com

JBL: The initial **SoundFactor** line-up of SR speakers consists of the **SF15** (15-inch two-way front-of-house speaker with 1,000W peak power capacity), **SF25** (dual 15-inch two-way model), and the **SF12M** (12-inch two-way stage monitor). All **SoundFactor** speakers feature high-frequency driver protection, carpet-covered 3/4-inch MDF construction, and metal handles...**JBL's VERTEC Line Array System Evaluation Program** gives potential system owners an opportunity to try out a VERTEC system in a venue of their choice. www.jblpro.com

KORG: Among many enhancements, the **KARMA v2 Operating System** can load newly developed GEs (KARMA "patterns") via floppy disk or MIDI sysex, and can return to, or lock in, a KARMA-generated phrase even after a new one has been randomly generated. Also, **KARMA MW**

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Mac/Windows software (\$75 to existing KARMA owners, free to purchasers in the USA after 1/1/02) accesses all internal parameters of existing GEs as well as makes new ones. Finally, Korg is re-voicing several EXB-PCM expansion boards to add KARMA functionality... The **Triton Studio** (61-key version, \$3,400; 76-key version, \$3,800; 88-key version, \$4,200) is the top-of-the-line Triton that incorporates hard disk recording, optional CD-R/RW burning, 1,536 program/1,536 combi locations, slots for seven EXB-PCM expansion boards, expandable sampling/resampling memory, four individual analog outs, S/PDIF out, 102 digital effects, 200,000 note sequencer, and playlist function... The 61-key **Triton Le 61** (\$1,600) and 76-key **Triton Le 76** (\$1,800) feature 62-voice polyphony, 32 MB ROM set, two master effects, one stereo insert effect, 200,000 note sequencer, dual polyphonic arpeggiators, and sequenced patterns can be triggered from individual keyboard notes. The user-installable **EXB-SMPL** (\$260; 16 MB standard, expandable to 64 MB) adds a SCSI port and sampling capabilities, including waveform editing that supports AIFF, WAV, Akai S1000/3000, and Korg formats... The **Concert Grand Piano** PCM expansion board (\$240) for Triton or KARMA keyboards provides 16 MB of stereo piano samples. www.korg.com

LEXICON: The **MPX 110** two-channel processor features dual stereo effects including pitchshift, tempo-controlled delays (tap tempo or MIDI clock), modulation, and reverb, with independent processing on each input and simultaneous analog/digital (S/PDIF) outs... **MPX 500 v2** software (upgrade kit includes v2 ROM; \$119.95) adds a dedicated stereo compressor, 250 presets (including a new bank named Compressor), and expanded user bank. www.lexicon.com

LINE 6: The **Guitar Port** is a "plug and play" guitar/computer interface with modeling software, but also folds in a "music minus one" concept where you put a CD with backing tracks into your computer and play along. For \$7.99 a month, you can download additional practice tracks from the Internet. www.line6.com

LYNX: Based on the LynxTwo, the **L22** (\$749) computer audio interface offers 192 kHz sample rates, 24-bit resolution, AES/EBU or S/PDIF I/O with sample rate convert on input, external clock sync, and drivers for Windows 98/ME/NT/2000/XP and Mac OS... The **LS-ADAT** (\$195) is an optical module for the LynxTwo or L22. It can provide 16-channel I/O at 48 kHz, eight channels at 96k, or four channels at 192k... The **LS-AES** provides eight channels of 96 kHz or four channels of 192 kHz I/O in AES/EBU or S/PDIF formats for the LynxTwo or L22 digital audio cards. www.lynxstudio.com

MACKIE: The **DFX•6** (\$379) and **DFX•12** (\$479)

mixers are designed specifically for solo or small performing groups. Both include a mic/line and stereo line ins, 60 mm faders, digital effects processor, five-band stereo program equalizers, vocal eliminator switch, headphone out, and two-band channel strip shelving EQ... The **HR624** (\$649) is a 6.7-inch, two-way active powered monitor. Essentially a smaller version of the HR824, the 624 features the same HF transducer, dual FR Series power amplifiers (100W woofer, 40W tweeter), and is THX PM3 certified... The **HRS120** active subwoofer (\$1,499),



with a 400W FR

Series amplifier, complements Mackie's HR824 or HR624 nearfield monitors... The **Mixscape Recording System** for Windows is a hardware/software package (with standard multimedia drivers for Windows 95/98/NT/2000 and VST-compatible ASIO drivers) that combines the Mixscape eight-Pack Moving-Fader Controller, Mixtreme PCI card, Mixscape I/O Audio Interface box, and Emagic Logic Audio LE software... **Final Mix** (\$399) is a stereo mastering plug-in for the D8B mixer with multi-band compression and six-band (pre- and post-dynamics) parametric EQs... The **DSR-1** D8B plug-in (\$299) is a three-band dynamics processor that reduces sibilance and popping sounds... The **SDR24/96** 24-bit/24-channel nonlinear hard disk recorder (\$2,499) can do 24 simultaneous channels at 24-bit/48 kHz or 12 channels at 24-bit/96 kHz. An internal IDE hard drive stores up to 90 minutes of 24-track recording, while an on-board drive bay accommodates the Mackie Media disks and project drives used by the MDR24/96 and HDR24/96. I/O includes 24 analog channels via six DB-25 ports, ADAT optical, MIDI for MMC and MTC, SMPTE, word clock, and USB port for exporting WAV files to computers. The SDR24/96 is compatible with the new Mackie **MicroRemote** controller (\$99) and the existing **Remote24**... The **UAD-1** DSP card and **Powered**

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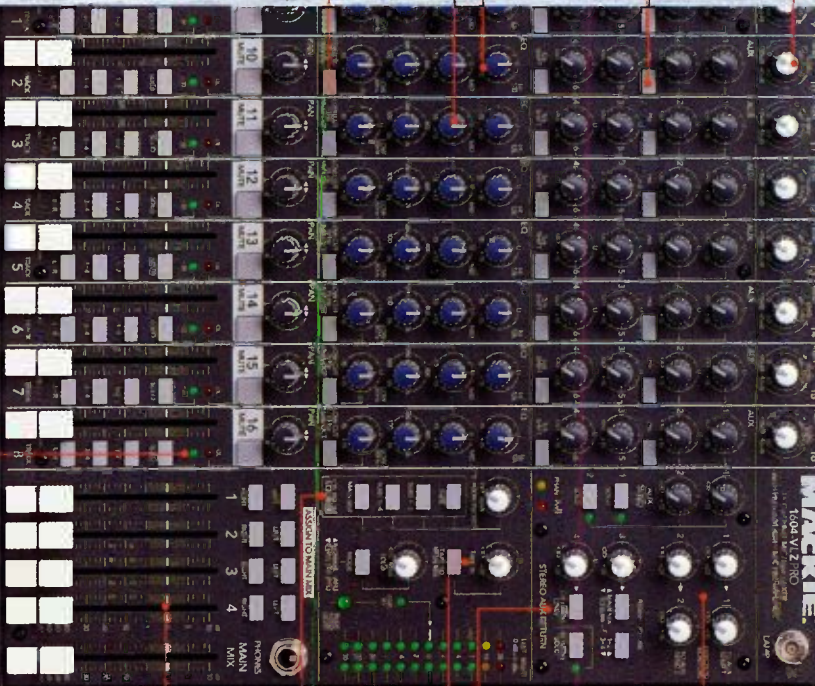
Suh-weet-sounding 3-band EQ on every channel. Swept mid EQ has ultrawide 100Hz-8000Hz range.

Sealed rotary controls resist dirt, smoke and miscellaneous spooge.

Sharp cutoff filters cut stage rumble, mic stand clunks and P-pops without sacrificing bass.

Easy level setting. Maximize headroom and minimize noise quickly via Channel solo and Trim control. Up to 60dB of gain for boosting timid vocalists. -10dB "virtual pad" for toning down drummers.

Six aux sends per channel (four available at any one time). Two auxes are pre/post switchable.



Ultra-sensitive signal present LED on every channel lets you monitor inputs at a glance. OL LEDs, too.

Dust and smoke-resistant logarithmic-taper 60mm faders for accurate control and long wear.

Inside: VLZ® design minimizes thermal noise at key points in the circuitry. Negative gain mix amp architecture prevents overload when feeding all channels with hot inputs.

Control Room/Phones source matrix lets you create monitor mixes or remote feeds with any combination of the main mix, Subs 1 & 2, Subs 3 & 4 and tape inputs routed to separate bal./unbal. stereo outputs.

Separate Tape to Main Mix switch with independent level control.

Route Aux Return 3 to main mix, Subs 1 & 2 or Subs 3 & 4. Route Aux Return 4 to main mix or Control Room/Phones matrix only.

EFX to Monitor lets performers on stage hear a different level of effects than is in the main PA mix.

On the back: sixteen premium XDR™ mic preamps. Incredible 130dB dynamic headroom, ruler-flat frequency response, lower E.I.N. noise specs at working 0dB to +30dB gain levels and the best Radio Frequency Interference protection of any compact mixer on the market today.

1604-VLZ PRO

16 total chs. • 4-bus configuration • 16 XDR™ premium mic preamps • 16 mono mic/line channels • 3-band EQ with swept mid, 75Hz low cut filters and inserts on all chs. • 6 aux sends per ch. • 4 stereo aux returns with EFX to Monitor and bus routing options • Control Room/Phones source matrix • 60mm log-taper faders • 3-way rotatable I/O pod for rack or table use

1642-VLZ PRO

16 total chs. • 4-bus w/double-bussed outputs • 10 XDR™ mic preamps • 6 mono mic/line level channels • 2 hybrid mono mic and mono/stereo line level channels • 2 mono/stereo line level chs. • 3-band EQ w/swept mid on mono channels & 4-band EQ on stereo channels • 75Hz low cut filters on mono chs. • 4 aux sends per ch. • 4 stereo aux returns with EFX to Monitor • Ctrl Rm./Phones matrix w/level controls • 60mm log-taper faders

1402-VLZ PRO

14 total channels • 6 XDR™ premium mic preamps • 6 mono mic/line level chs. • 4 mono/stereo line level chs. • Extra ALT 3-4 stereo bus • 3-band EQ • 75Hz low cut filters on mono chs. • 2 aux sends per ch. • 2 master stereo aux returns with EFX to Monitor • Ctrl Rm./Phones source matrix • 60mm log-taper faders • Switchable AFL/PFL

1202-VLZ PRO

12 total channels • 4 XDR™ premium mic preamps • 4 mono mic/line level chs. • 4 mono/stereo line level chs. • Extra ALT 3-4 stereo bus • 3-band equalization • 75Hz low cut filters on mono chs. • 2 aux sends per ch. • 2 master stereo aux returns with EFX to Monitor • Ctrl Rm./Phones source matrix • Rotary gain controls • Built-in power supply



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WINTER NAMM PRODUCT BRIEFS

Plug-Ins Pro, distributed by Mackie, now support Mac as well as Windows computers... The **Pultec EQP-1A** program equalizer and the **Nigel** guitar processor are both free to registered UAD-1 users. The EQP-1A re-creates the original Pultec Program EQ, including the separate boost and attenuation controls; Nigel delivers effects such as gate/compressor; phaser, mod filter, tremolo, attack delay, modulated delays, and an echo delay. Nigel can also split into individual plug-ins. www.mackie.com

MARANTZ: The **CDR-300** (\$849) stand-alone CD recorder for portable/field recording includes XLR balanced mic pres with phantom power, 1/4-inch stereo line ins, DC voltage input for field recording, CD-RW compatibility, and IR remote control... The **PSD-300** (\$1,099) has the same features (except for phantom power and DC in), but incorporates an additional CD-R/RW player. The CD player can also change keys in half steps, change tempo without changing key, and cancel lead vocals. www.superscope-marantz-pro.com

MARTINSOUND: The **ManagerMAX Surround 5.1 Bass Management** system provides bass management capabilities for control room monitoring systems. The unit allows redirection of low frequency audio away from monitors to a subwoofer. High-pass filters are provided for each of

the monitors, and low-pass filters are provided for the redirected bass information and LFE output. www.martinsound.com

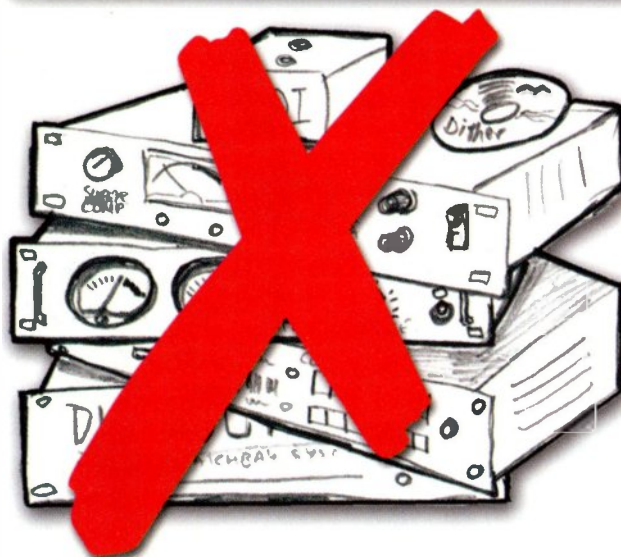
METRIC HALO: A VST version of the popular **ChannelStrip** plug-in will be offered in addition to the current TDM and MAS versions. www.mhlab.com

MIDIMAN: **MidAir Wireless MIDI** uses a frequency-hopping spread spectrum system in the 2.4 GHz license-free band, with simultaneous operation of up to four systems, and can be battery or AC-powered... **Axiom A/D** is a two-channel 24-bit A/D with selectable sample rates up to 96k, dither, and word clock I/O that includes SuperClock. Inputs are both balanced XLR and unbalanced on 1/4-inch TRS, while outs are AES/EBU and coax/optical S/PDIF... **TAMPA** microphone preamp is a single-channel mic/instrument preamp, with a dual servo optical compressor and discrete Class-A circuitry. Outs include mono S/PDIF with sample rates up to 96 kHz... The **StudioPhile SP-8B** nearfield is a powered, bi-amped nearfield monitor with an eight-inch woofer and one-inch silk dome HF driver... The **SP-8S** subwoofer includes a 100W internal amp, balanced XLR and balanced/unbalanced TRS ins, and balanced outs. A variable low-pass filter complements a variable high-pass filter with bypass switch for bass management...

Delta Lightpipe 16 provides dual ADAT lightpipe channels to a PCI card, with ADAT sync in... **USB MIDISport Uno** is a portable, hot-swappable 1x1 MIDI interface powered from your computer's USB port. Drivers support Windows 98SE and higher, as well as Mac OS 9 and X... Midiman/M-Audio will be distributing a new line of Groove Tubes microphones, designed by Aspen Pittman, including the classic Groove Tubes MD1, GT44 tube instrument mic, GT33 FET instrument mic, GT55 FET single-pattern vocal mic, GT57 FET multiple-pattern vocal mic, GT66 tube single-pattern vocal mic, and GT67 tube multiple-pattern vocal mic. www.midiman.com

MOTU: **Digital Performer 3.1** includes several new features: audio loop importing features with "Acid-style" loop building, crossfade editing directly in the Sequence Editor window, automatic audio conversion to project sample rate/bit resolution/tempo, support for Digidesign's DigiTranslator 2.0 and Pro Tools 5.1.3 OMF import/export, new waveform display options, Drum Editor drum kit presets, and title bar play enable buttons. Tempo data is now stored in the source audio file so that automatic time-stretching occurs in any DP project. Version 3.1 also includes all enhancements announced at AES, such as FireWire video playback and REX file import. www.motu.com

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NATIVE INSTRUMENTS: Kontakt is a Mac/Windows software sampler with time-stretching (length, pitch, and formant), resynthesis, 14 different filter types, tempo-synched step sequencers/LFOs/envelopes, effects, 3 GB of license-free samples, up to 256 stereo voices and 16-part multitimbrality, and loop editor that supports up to eight loop points. It supports VST, DXi, DirectConnect, MAS, ASIO, DirectSound, SoundManager, and MME, and accepts WAV, AIFF, Akai S-1000/S-3000, Battery, LM4, Reaktor Map, and Sound Font 2 formats... The **Absynth** software synthesizer (\$289), previously Mac-only, is now available for Windows... The **Sound Line** series of CD-ROMs adds sounds and presets to NI products. **FM7 Sounds Vol. 1** (\$49.90) includes 256 FM7 presets; **Studio Drums** (\$99) for Battery offers 680 MB of acoustic drum kit samples, and **Synthetic Drums** (\$99) is similar but features electronic/synthetic drum sounds.
www.native-instruments.com

NEUTRIK: The **Speakon NL4FX** series connectors can handle the current load from 1,000W amps. Electrical contact is made only after the NL4FX is completely inserted and locked; the one-piece internal chuck accepts cables with outer diameters of six to 14 mm (0.24 to 0.55-inch). A right-angle version, NL4FRX will also be available.
www.neutrikusa.com

NOREN PRODUCTS: The **AcoustiLock** series of enclosures provides acoustic isolation for noisy devices, such as computers with multiple fans. Several models are available, which all attenuate noise by at least 32 dB.
www.norenproducts.com

PEAVEY: The **Feedback Ferret** (\$369.99) provides feedback reduction using 16 notch filters that notch no more than is necessary to reduce feedback. Additional "panic filter" controls ensure against runaway feedback... The **PVM 300** series of drum mics includes the **PVM 321** kick drum mic, **PVM 325** snare mic, and the **PVM 328** tom mic. Also available: the **PVM DMS-5** drum mic system that includes one PVM 321, one PVM 324, and three PVM 328's. Each mic features a dynamic, super cardioid polar pattern... The **XR696F** powered mixer produces 600W music program per side into four ohms, and features effects, "feedback ferret" technology to eliminate feedback, an amp for monitors and main speakers, and nine-band graphic EQ... The **RQ 2326** is a two-bus mixer with 24 XLR ins, channel EQ with sweepable mid, and two stereo returns with separate volume for the monitor sends and pan.
www.peavey.com

PG MUSIC: **Band-In-A-Box v11** adds 50 new features including a MIDI chord wizard that reads MIDI files and interprets the chords, along with high-speed rendering of songs to hard disk as WAV files. www.pgmusic.com

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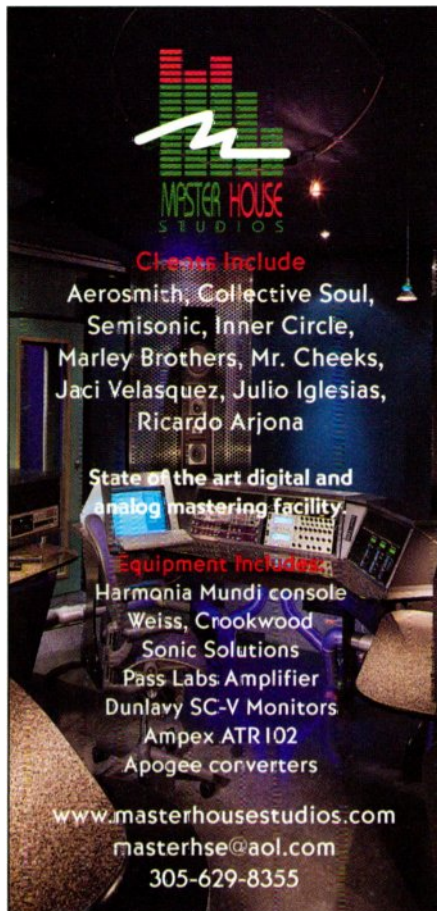
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PHONIC: The PAA1 Personal Audio Assistant is a palm-size audio test unit with real-time spectrum analyzer, sound pressure level meter, line signal strength measurements, cable tester, phase checker, 160 x 160 backlit graphic display, and RS232 port for uploading measurement data. www.phonic.com

PRESONUS: Designed as a turnkey PC recording interface that expands into a 48-in/48-out recording system, the mLAN compatible Firestation features mic, line, and instrument ins, S/PDIF I/Os, and line outs, in addition to three mLAN ports... Another mLAN product, the Firestation Lightpipe, provides ADAT optical interfacing and MIDI interfacing to existing mLAN systems... The Digimax LT (\$999.95) features the same eight-channel mic/line, dual-servo gain stage preamplifier as the original DigiMax, but also adds front-panel phantom power buttons and insert points for every channel. www.presonus.com

PRIMACOUSTIC: Freeport is an absorbent acoustical panel that creates a functional acoustic workspace in minutes for temporary acoustic treatment. Freeport features high-density acoustical foam for maximum absorbency. A PVC frame extends the length and width of the panel to avoid "droop" over time; height is adjustable from 5-6 feet... The RazorBlade Quadratic Diffuser is designed to control reflections and reduce standing waves by scattering acoustic energy, and operates over a frequency range of 350 Hz to 10 kHz. www.primacoustic.com

PROPELLERHEAD SOFTWARE: Mac OS X versions are being released of Reason, ReCycle, and ReBirth. Latency is below 1 ms (dependent on sample rate). www.propellerheads.se

PSP AUDIOWARE: The PSP 42 plug-in (Mac/PC VST), based on the Lexicon PCM-42, provides delay effects from tape machine-like delay with high-frequency absorption, variable tape speed, and tape compression to complex feedback delay... The PSP 84 plug-in (Mac/PC VST) combines the functions from the PSP 42 with independent channel settings, adjustable filters and saturation algorithms, and an output spring reverb... Two new free plug-ins are the PSP VintageMeter (Mac/PC VST) that combines VU and PPM metering for mono or stereo tracks, and the PSP PianoVerb, which gives reverb-like effects based on 12 vibrating piano string operators. www.pspaudioware.com

Q UP ARTS: Several new sounds libraries are available, including Producers Composite (sort of a Q Up Arts "greatest hits" package), Voices of the Aztecs (recorded in Mexico from archaeological artifacts), Increased Velocity (futuristic loops and ambience recorded in Dolby Stereo Surround 4-2-4), Voices of Native America Vol. 2 (from Douglas Spotted Eagle), Bun E in a Box

(loops and hits from Bun E. Carlos of Cheap Trick, produced by Steve Albini), and Kodish Drum 'n' Bass (drum 'n' bass with real drums). Audio versions cost \$99; versions optimized for various samplers range from \$199 to \$299. WAV, AIFF, and "acidized" files are available for some versions... Several packages are available that include MIDI files, AIFF, WAV, Sound, and Font II formats: UK Garidge & 2-Step Grooves (\$59) offers over 200 loops and 10 separate drum kits; On the Rhodes (\$59) serves up grooves, licks, and chords from the Fender Rhodes electric piano; Trance & Epic House (\$59) features bass lines, pads, beats, and fills at 160 BPM. www.quparts.com

RADIAL ENGINEERING: Designed to accommodate the output of today's powerful active instruments, the J48 active direct box handles a wider dynamic range with greater headroom and reduced harmonic, intermodulation, and phase distortion. It features a 15 dB pad, a stereo-to-mono merge function, ground lift, polarity reverse, and an 80 Hz high-pass filter. www.radialeng.com

RANE: The MLM 42 mic mixer (\$449) features four mic pres with level controls, 15V phantom power, and three-band tone controls. Other features include post-mix effects loop with wet/dry pan control and RCA/TRS/XLR outs (mic or line level). www.rane.com

RODE: The NT4 is a stereo condenser microphone featuring two cardioid capsules mounted in a 90-degree XY placement. The NT5 is a small diaphragm cardioid condenser mic designed specifically for instrument recording. Both mics are supplied with case, stand mount, windscreen, and cable. www.rodemicrophones.com

ROGER LINN DESIGN: The AdrenaLinn guitar/bass processor (\$395) provides "groove filter" effects that are synchronizable to external MIDI clocks or the internal drum machine (which can also be routed through the filtering effects). Features include looping filter sequences, beat-synched modulation, envelope-followed filter and flanger effects, and amp modeling. www.rogerlinndesign.com



RODE NT5

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"The mic sounds closer to our C 451 EB + CK 1 microphones than anything else I have heard. I would both specify and purchase this microphone. Nice mic."

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Dave Cline, Seventeen Grand

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World Radio History

Winter NAMM PRODUCT BRIEFS

ROLAND: The battery/AC-powered **AX-7** MIDI controller keyboard (\$495) is a strap-on, 45-note, velocity-sensitive remote keyboard. Controllers include expression bar, D-Beam, and pitch; the keyboard can split into independent upper and lower parts...The **BR-1180** digital recording studio (\$895; \$1,245 for the BR-1180CD with internal CD-RW drive, also available as an option for the BR-1180) offers 10 playback tracks, 80 virtual tracks, a stereo master track, built-in rhythm track, 20 GB internal hard drive, and mic, line, and dedicated guitar ins. There are a wealth of effects, including mastering tools...A demo CD of Discrete Drums'

Series One Pro Set titled **Discrete Drums — VS/CDX-1 Collection** (consisting of multitracked drum parts) will be packaged with all Roland VS-2480CD, CDX-1, and VS-1824CD workstations. A separate demo disc entitled **Discrete Drums — BR-1180 Collection** will accompany the BR-1180...The **GT-6B** bass effects processor (\$495) offers modeled bass amps, compression, overdrive/distortion, wah and touch wah, octave, delay, and more. It also features XLR and digital outs for recording, built-in expression and control pedals, and sound-on-sound looping for creating loops on the fly...The **MMP-2** mic modeling preamp (\$695) is a two-channel desktop mic

pre with 24-bit/96 kHz A/D conversion, analog and digital outs, COSM mic modeling, four bands of parametric EQ, modeled tube compression, an enhancer, a de-esser, and control software for a Mac/PC. The USB port can download new effect plug-ins to the MMP-2B, or connect to any Mac or PC for editing...The **PW-10 V-Wah** pedal (\$195) not only gives wah sounds, but includes onboard overdrive/booster effects, user memory and noise-free infrared pedal detection...The four-part multitimbral **SH-32** synthesizer (\$595) offers up to 32 voices, knobs and sliders for real-time control, analog-style drums from the TR-808/909, arpeggiator, two independent effects processors, pulse width modulation, and hard sync for its two oscillators...The **SRX-05 Supreme Dance Wave Expansion Board** (\$395), designed for XV-family synths, the RD-700, and Fantom workstation, contains 64 MB of sounds...The **V-Bass** (\$1,345 with pickup), a floor-based processing/modeling system based on the user-installable **GK-2B** divided pickup for four-, five-, or six-string bass, models a variety of basses — classic electric, upright acoustic, fretless, synth, etc. — as well as tube/solid state bass amps and polyphonic bass effects. Onboard expression and control pedals provide real-time control...The **VS-1824CD** 24-bit digital studio workstation (\$2,495) offers 288 virtual tracks, 28-channel automated digital mixing, onboard effects, built-in CD-R/RW drive for data backup and audio CD creation, 10 GB hard drive, and stereo effects processor. An optional VS8F-2 effects expansion board brings the total effects count to four stereo or eight mono effects...The **VS-2480CD** 24-track digital studio workstation (\$4,695) offers 24-track, 24-bit digital recording with 64-channel automated mixing and motorized faders, built-in effects processing, onboard CD burning, connections for an optional ASCII keyboard and external VGA monitor, 80 GB internal hard drive, and VS-2480 v2.0 software that introduces drag-and-drop track editing (including waveform-based editing)...The single rack space **XV-5050** 64-voice synthesizer module (\$995) includes all patches from the XV-5080, sounds from the Fantom workstation, and new sounds designed for the 5050. It can accommodate up to two SRX-Series Wave expansion boards, and includes a USB port for MIDI communication with Mac (OMS or OS X) or Windows (ME/98/98SE/2000). Three onboard processors offer a variety of effects.

www.rolandus.com

ROLLS: The **PM350** personal monitor mixer (\$100) mixes a balanced XLR mic signal with a 1/4-inch unbalanced instrument-level signal and 1/4-inch TRS stereo or mono monitor signal for "personal monitoring" via headphones...The **REQ313** constant Q graphic equalizer (\$300) is a 2U, 31-band EQ with XLR and 1/4-inch balanced along with RCA unbalanced I/O...The **RP252** compressor/limiter/gate (\$275) is a 1U, stereo unit. I/O is 1/4-inch TRS and XLR balanced, along



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SAMSON: The **C series** of outboard processors — **C-Valve** mic/instrument pre, **C-Com 16** stereo compressor/limiter, **C-Com Opti** optical compressor, **C-Control** control room matrix controller, and **C-Que** four-channel headphone amplifier — are designed to provide compact analog-style processing for today's digital studio. The units are designed to stack and interconnect easily to function as a true system... The **CO1** large-diaphragm condenser mic (\$149.95) is designed for vocal, acoustic instrument, and drum overhead applications... The **Expedition Express** is a portable self-contained PA system comprising a four-channel mixer, powered two-way speakers, mics, cables, storage bag, and slip cover... The **S-Direct** is an active direct box offering guitar/speaker level operation, switchable phantom power, and a gold-plated XLR output. www.samsontech.com

SERATO: **Scratch** (\$250) is an MAS-format plugin that allows DJ-style scratching on any audio file on the user's hard drive using a standard turntable as a controller. A special vinyl control record is placed on the turntable, and the software tracks the motion of the record and simulates the effect of that movement on the digital audio. A stand-alone version is planned. www.serato.com

SHURE: The **Performance Gear Mic** series consists of six models (\$63–\$245) designed for vocals and various instruments, packaged with cables and mounting accessories. The **PG48**, created for speech and karaoke, has a cardioid pick-up pattern; for more demanding vocal applications, the **PG58** offers a more tailored frequency response and tighter cardioid pattern. The dynamic **PG57** is designed for guitar amps, brass, or saxophone, while the **PG81** condenser mic is optimized for acoustic instruments and overheads. The **PG52** and **PG56**, with integral swivel mounts, are dynamic models built for drums. Drum mic kits with prepackaged selections are available for \$521 and \$928. www.shure.com

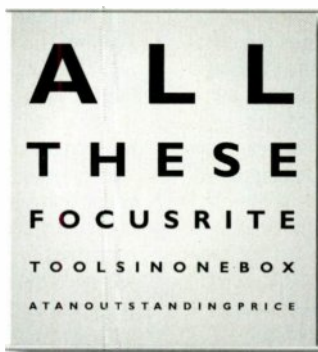
SOUNDCRAFT: The **328XD** digital mixing console (\$5,999.95), an update of the 328, now offers a gate and compressor/limiter on every channel, two Lexicon effects processors, total status recall at power-up, and improved connectivity (e.g., optical as well as coaxial S/PDIF). Word clock termination is available, and the console may be synchronized to embedded ADAT word clock as well as numerous clock sources... The **MH4** live performance mixer permits easy configuration for front-of-house, stage monitor, or mixed FOH/monitor duties (prices: 24 mono+4 stereo channels \$23,995, 32 mono+4 stereo channels \$28,495, 40 mono+4 stereo channels \$32,995, 48 mono+4 stereo channels \$37,295). The **MH4**

features 20 aux busses, eight VCA and eight mute groups with snapshot automation, LCR panning and outs, and an integral 20x8 matrix in monitor mode, each input also has a passive mic split feed to connect to a FOH console. The **MH4** is modular, with frame sizes of 24, 32, 40, and 48 ins — all with four stereo ins as standard. Additional stereo input modules may be added by removing mono modules. www.soundcraft.com

STA: The **DSP2000 C-Port** 10-in/10-out interface (eight channels audio, two channels digital S/PDIF coax/optical or AES/EBU) supports Windows 98/ME/2K/NT4 and offers 24/96 operation, ASIO/ASIO2/GSIF compatibility, dual stereo XLR mic pres with phantom power, digital I/O,

headphone amp, and one-in/two-out MIDI interface (32 output channels). It also includes Logic SoundTrack 24 software... The **SRC-V1** digital patchbay routes up to six AES/EBU and S/PDIF digital streams and also features real-time sample rate conversion, word clock out, and AES/EBU to/from S/PDIF conversion... The **DSP24 ADAT** offers one optical ADAT I/O, 24/96 S/PDIF I/O, analog out for monitoring, word clock I/O, and one-in one-out MIDI. www.staudio.com

STEINBERG: The **LM4 MkII** VST virtual drum machine (\$149.99) comes with a 1 GB+ sound library with 50 drum kits and sounds. Within Cubase VST and Nuendo, the LM4 MkII offers three stereo and six mono outs. The LM4 MkII



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Winter NAMM PRODUCT BRIEFS

is also available in an **XXL Pack** version (\$199), containing three additional CD ROMs with an additional 1 GB of 70 drum kits...The **Midex 3** USB MIDI interface for Mac/Windows 98SE/ME/2000/XP (\$149.99) has one MIDI in and three MIDI outs. It uses Steinberg's Linear Time Base technology for sub-millisecond timing accuracy, but can also run in standard mode. Multiple Midex 3's can be used simultaneously...The **Nuendo DD8** converter (\$1,150), a 1U rack device that provides conversion among ADAT, TDIF, and AES/EBU digital signals, also offers sample rate conversion, digital patchbay, and eight channels of AES/EBU I/O. Switchable 24-bit sample rate converters (SRC) allow clock unlinking of all AES/EBU ins. As ADAT optical and TDIF are usually restricted to 48 kHz, a double speed mode allows two channels to transmit one channel's data; the sample split algorithm is compatible with S/MUX and Double Wide. AES/EBU to ADAT/TDIF and ADAT/TDIF to AES/EBU both work independently...Steinberg is partnering with **PrimeSounds** to offer their online sample archive at www.steinberg.net/primsounds. Over 18,000 samples are already available for download...The **Grand VST** (\$299.99, PC/Mac) is a virtual piano with no looping or audio compression. Other features include programmable velocity curves, four different sound characters, a choice between well-tempered and concert grand scale tunings, and ambience control...**VST System Link**, a distributed processing network for music/audio, connects Mac and/or Windows computers with sample-accurate precision using a digital audio cable. For example, you could dedicate one computer to audio tracks and another to plug-ins. VST System Link is available exclusively in Cubase VST and Nuendo...**Warp** (\$299.99) is a VST plug-in that offers three classic guitar amp models (Jazz Chorus clean sound, '60s-vintage plexi tops, and rectifier) that can be matched with any of three speaker cabinets. With an ASIO interface, it allows real-time performance with negligible latency...**WaveLab 4.0** (\$549.99) audio editing software includes ASIO and WDM driver support, new plug-ins including Apogee's UV22 HR dithering processor, data/mixed-mode CD burning, CD label editor for printing custom CD labels/covers, pitch detection/correction, and more. www.steinberg.net

STK: The nine affordably priced models in the **Quality Mix** series of powered mixers range in power from 150 to 300 watts per channel. Various models offer four, six, eight, or 11 input channels, spring or digital reverb, and mono or stereo amplification...The **D1000** passive direct box (\$44.95) can handle unbalanced mic-, line-, or speaker-level signals. It includes a low-pass filter and a ground lift switch. www.redwoodmusic.com

SYNCHRO ARTS: **VocAlign Project** (\$299) an

entry-level version of the VocAlign automatic audio alignment software, integrates smoothly with MOTU's Digital Performer 3. www.synchroarts.com

SYNTHESIS TECHNOLOGY: Several new modules are available for their modular synth systems: **MOTM-480 Resonant VCF** (\$319), **MOTM-830 Dual Mode Mixer** (\$229), **MOTM-310 μ VCO** (\$279), **MOTM-390 μ LFO** (\$149), **MOTM-490 μ VCF** 24 dB/octave LFP (\$179), **MOTM-890 μ Mixer** (\$149), **MOTM-850 Pedal Interface** (\$169), and **MOTM-380 Quad LFO** (\$149). These are also available in kit form. www.synthtech.com

SYNTRILLIUM SOFTWARE: XP-compatible **Cool Edit Pro 2.0** offers real-time effects and track EQ (40 DSP effects are included), disc-at-once CD burning, MIDI and video playback support, MTC master generation, loop-based music composition, and a compressed loop file format...The **Red Rover** remote is a compact, hands-on USB device with multitrack transport controls that control Cool Edit Pro's on-screen displays, and can access all 128 tracks of audio...**Audio Editing With Cool Edit** (\$20) is a 160-page paperback that explains how to get the most out of the program, including mastering techniques and troubleshooting...A **loop library** in high-sample rate MP3 format will be available for owners of Cool Edit Pro 2.0 from the Syntrium Web site. www.syntrillium.com

TANNOY: The **Ellipse** monitors are three-way time-aligned active monitors utilizing dual-concentric and SuperTweeter drive units. Eight-inch and 10-inch versions are available, both offering high-frequency response up to 40 kHz. The unique oval cabinets are inherently stiff, and are non-resonant acoustically and mechanically. www.tannoy.com

TASCAM: The **Pocketstudio 5** (\$599) portable multitrack digital recorder records to Compact Flash cards, has 100 internal effects, mixes down to and plays back MP3 files, can run on batteries, and features an internal MIDI synthesizer to play back sequences (or any Standard MIDI File, including the 100 onboard SMFs) along with the four audio tracks. A USB port allows computer interfacing...Combining a hardware interface with computer functionality and USB, the **Mac/Windows US-224** DAW controller (\$375), a simplified version of the US-428, requires no additional interface card, and allows control over any number of software faders via four hardware faders. The control

surface also handles transport and control functions for sequencers and DAWs. The US-224 supports two ins/outs of 16- or 24-bit audio at 44.1 or 48 kHz, has two balanced XLR and two unbalanced line/mic/hi-Z ins (as well as S/PDIF digital I/O), and can run in US-428 emulation mode to use US-428 software...The rackmount **CD-D1x4** professional CD duplicator (\$2,499) features a CD-ROM drive (master) coupled with four CD-RW drives (slave). Two CD-D1x4 duplicators can link to copy up to eight CDs in a single pass...**GigaStudio 160/GigaStudio 96 v2.5** software provides Windows 2000/XP compatibility. Download the free update at www.nemesysmusic.com...The budget-oriented **GigaStudio 32** offers 32 voices of polyphony and 16 MIDI channels...**MX-2424 v3.0** software (download from www.mx2424.com) for the MX-2424 hard disk recorder features the MX-View sample level waveform editing interface for Mac/Windows, as well as a Mix Mode that allows recording up to 24 tracks via its inputs while simultaneously playing back up to 24 tracks...**US-428 v3.0** software (download from www.tascam.com) offers greater compatibility with Windows ME/2000 and control of selected virtual synthesizers, as well as GigaStudio sampling software, and a chromatic tuner. Also, the US-428 now includes Steinberg's Cubasis VST audio software for both PC and Mac...The **788 Digital Portastudio v2.0** update offers WAV file import/export, larger hard drive capabilities, and can burn multiple audio CDs off a single session. www.tascam.com

TC ELECTRONIC: **System 6000 v 2.5** adds numerous enhancements such as George Massenburg's MDW HiRes EQ, a precision limiter, and a de-esser, as well as improved automation and external control...**Icon Editor** software is now available for Macs running OS 9. www.tcelectronic.com

TC WORKS: The **Waldorf D-Coder** vocoder VST-compatible plug-in is now available for the TC Electronic PowerCore hardware DSP platform. Its integral synthesizer obviates the need for an external carrier...**PowerCore v1.5** allows virtual instruments, and Access expects to announce compatible products.



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Winter NAMM PRODUCT BRIEFS

Emagic has also announced that some of Logic's CPU-intensive plug-ins will be PowerCore-compatible... **Spark FXMachine** (Mac/PC; \$199), a virtual multieffects processor and synth generator, comes with 21 effects and synthesis plug-ins (including a modular virtual synth with step sequencer). FXMachine itself serves as a VST plug-in that can route other VST plug-ins in series or parallel, in a matrix with up to 10x10 effects slots... **SparkLE v2.1**, a real-time audio editing application (\$49, download only), supports Mac OS X as well as OS 9. It also includes a plug-in bundle, a master window with high-resolution metering, and four slots for real-time plug-in processing. SparkLE is compatible with VST plug-ins and handles sample rates up to 192 kHz.
www.tcworks.de

TONeworks: The **Pandora PX4** personal multieffect processor (\$250) incorporates 124 effects with tube/vintage amp and speaker cabinet models, 40 PCM rhythm and bass patterns, a wide variety of effects, phrase trainer that records up to 30 seconds, and knob-based user interface. Up to seven kinds of effects can be used simultaneously, and an aux in allows playing along with external music sources.
www.korg.com



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www.ultimaterecordingsystems.com

UNIVERSAL AUDIO: The **2108** mic/instrument preamp (\$1,695) features a hi-z instrument in as well as a balanced mic in and transformer coupled I/O, and uses discrete, solid state Class A

circuitry based on the 1176LN's amp section.
www.uaudio.com

WAVE DISTRIBUTION: The Chandler Ltd line of Classic Reissue Signal Processing equipment is now distributed by Wave Distribution, including the Neve-inspired 1073-style EQ/pre-amp production series model, the **1073EX** (\$1,999), and the **tg12413** limiter/compressor (\$4,500), inspired by the custom EMI/Abbey Road recording and mastering consoles. Also

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WINTER NAMM PRODUCT BRIEFS

available: the **tg12428** preamp from the same rare series of console (\$1,799).
www.wavedistribution.com

WAVE MECHANICS: Designed to bring the world of vintage analog gear to Pro Tools, the **Sound Toys** collection of plug-ins includes **Tremulator** tremolo, **PhaseMistress** phase shifter, **EchoBoy** echo and delay, **FilterFreak** resonant filter, **Crystallizer** synth texture processor, **PanMan** autopanner, **DeCapitator** lo-fi processor, **NoiseBoy** analog/vinyl noise simulator, and **FlangeThing** flanger. Sound Toys will be available for both Mac and Windows Pro Tools in

TDM, RTAS, and AudioSuite formats.
www.wavemechanics.com

WAVES: The **Master Bundle**, available in TDM (\$1,800) and RTAS, AudioSuite, VST, MAS, and DirectX for Windows/Mac (\$900), includes new mastering tools such as the Linear Phase Equalizer and the Linear Phase Multiband, which provides dynamics control for five frequency ranges. The native versions have separate optimizations for AltiVec, P3/5, and Athlon microprocessors... The **Platinum Bundle**, available in TDM (\$4,200) and RTAS, AudioSuite, VST, MAS, and DirectX for

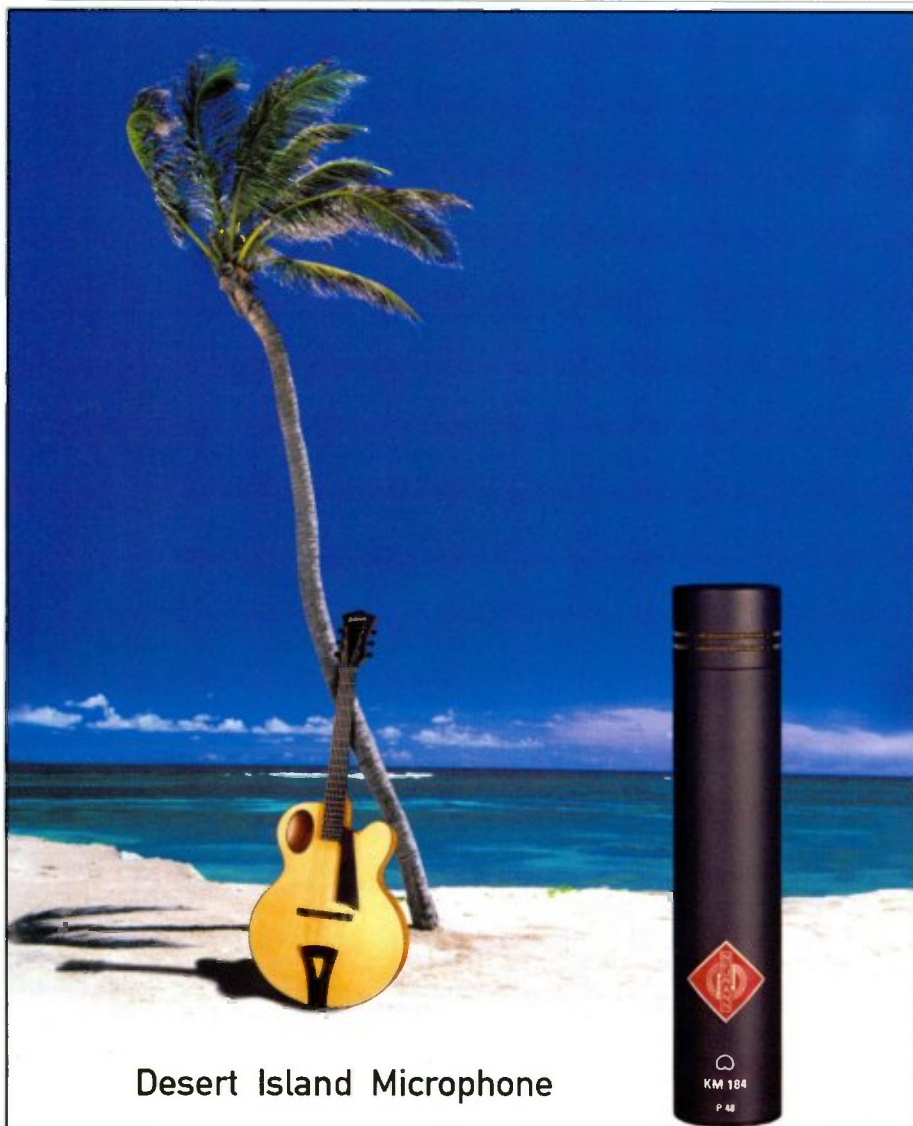
Windows/Mac (\$2,100), contains 25 signal processing tools, including all processors in the Waves Gold bundle, along with the three new processors from the Masters bundle and three from the Renaissance bundle.
www.waves.com

WHARFEDALE PRO: Unveiling no fewer than six lines of sound reinforcement loudspeakers as well as signal processors, mixers, power amplifiers, and a complete line of systems contractor products, newcomer Wharfedale Pro made a big splash at the show. The **VS** (\$99.99–259.99), **EVP** (\$159.99–\$449.99), **LIX-C** (\$329.99–469.99), **LIX** (\$409.99–1,189.99), **Twinn** (\$509.99–559.99), and **LA** (\$339.99–359.99) lines of speakers are intended to bring a new level of sound quality at affordable prices. The various lines comprise different driver configurations and models, cabinet sizes, cabinet construction, and applications. www.IAGAmerica.com

YAMAHA: The **S08** programmable synthesizer (\$1,495) features an 88-key balanced hammer design, 64-note polyphony, XG and GM2 compatibility, onboard effects, and a SmartMedia card slot to allow adding new sounds as well as provide direct playback of SMF sequence files. The S08 is compatible with USB-equipped PCs (Windows 98 or higher), and an application CD-ROM contains Voice Editor, Sequencer, and Card Filer software... **UD Stomp** (\$649) is a high-end modulation/delay processor with eight bands of individual delay (up to 700 ms of delay available in series, and up to 5.5 seconds in parallel). The UD Stomp allows real-time parameter control, with four built-in footswitches and control knobs; other features include an expression pedal input and 44.1 kHz S/PDIF digital out... Updated mixers in the **EMX** powered mixer line include both six- and eight-channel models. Internal amplifiers now deliver 200–400W, and tailor the response curve to match Yamaha Club Series speakers. All models are housed in high-impact, rack-mountable molded enclosures... The **EMX5000-12** powered mixer (\$999.95) features eight mono and two stereo ins, three-band channel EQ with mid sweep, two pre/post selectable monitor sends, two effect sends, one mono and two stereo outs, dual 500W amps, and dual 32-bit digital signal processors. Mono input channels feature balanced XLR-type mic ins with switchable +48V phantom power, line-level phone jack ins, and inserts on channels 1–8. The **EMX5000-20** (\$1,299.95) has similar specs, but features 16 mono and two stereo channels... Providing eight channels of I/O, the **MY8-mLAN** card (\$599) for the AW4416 or 01V includes mLAN patchbay software for audio/MIDI signal routing on computer-based systems, eliminating the need for extra PCI cards or interface hardware.

www.yamaha.com

► continued on page 132



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6TH ANNUAL

The John Lennon

SONGWRITING CONTEST



Categories

- Rock World
- Gospel/Inspirational
- Hip-Hop Children's
- Electronic Pop Folk
- Rhythm & Blues Jazz
- Country Latin

Awards and Prizes

- Grand Prize Winners in Each Category
- \$20,000 for "Song of the Year" courtesy of Maxell
- \$60,000 in EMI Music Publishing Contracts
- \$60,000 in Yamaha Project Studio Equipment
- Over \$200,000 in Cash Awards and Prizes
- A Total of 120 Winners!

Sponsored by:



To **ENTER** your original song(s) fill out this application and...just imagine

NAME _____

ADDRESS _____

APT. _____

CITY _____ STATE _____ ZIP _____

PHONE () _____ AGE _____

EMAIL _____

SONG TITLE _____

CHECK ONE: LYRICS INCLUDED INSTRUMENTAL COMPOSITION

CIRCLE ONE (IF PAYING BY CREDIT CARD): VISA MASTERCARD

CARD # _____

EXP _____ SIGNATURE _____

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

Each entry must consist of:

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

Entries must be postmarked no later than September 28, 2002.

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.

Make your check or money order for \$30.00 per song payable to: **John Lennon Songwriting Contest**

Check one category only

- rock world gospel/inspirational children's
- electronic pop folk r&b
- jazz country latin hip-hop

www.jlsc.com

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. Songs may have multiple co-writers, but please designate one name only on the application. Contestant may submit as many songs in as many categories as he/she wishes, but each entry requires a separate cassette, 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, and a \$99.95 TonosPRO Membership. 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 and a \$29.95 TonosPRO Membership. Seventy-two (72) Runners-up will receive \$100 from Guitar Center Stores.
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. Winners will be determined by January 15, 2003, after which each entrant will receive a list of winners in the mail. CDs, Cassettes and lyrics will not be returned.

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 _____

SONY

A supplement to United Entertainment Media

WINTER 2002
ISSUE #14

SoundByte

THE SONY

MAGAZINE

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Bickford

Third Eye Blind
Korn

POP
SENSATION

JESSICA SIMPSON

Uses Sony 800G Microphone and
Oxford Console on Latest Hit Album



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World Radio History

Third Eye Blind Sets Sights on S777

Third Eye Blind producer/partner/engineer Jason Carmer first encountered Sony's DRE-S777 digital reverb at a mix session for 'Eye Conqueror,' a song the group penned for 'A Knights Tale.' "I was impressed by the sound Micheal Brauer was producing with it," Carmer says. "When vocalist/songwriter/producer Steven Jenkins, Bass player Arion Salazar, Drummer Brad Hardgraaves and I decided to build a studio, the S777 was one of the first pieces of gear we wanted in our house rack."

Carmer, whose credits include producing Run-DMC, Merle Haggard, Paleface and Mark Eitzel reports that, since being located in SF's cool downtown South Park district, the studio, which they've named Morning Wood, is somewhat 'space challenged.' "Our live room is on the cozy side and rather neutral," he says. "I've been using two room mics to create a 'distance' sound, running it through the S777 then taking the output and mixing it into every mic on the drum kit to simulate a live room. I've experimented with a number of the reverb spaces in the

software series, but lean towards Ocean Way Studio B. Bill Putnam built some terrific rooms, and that's one of his best."

Currently working on the new Third Eye Blind (pictured right) CD, Carmer plans to use S777 sampling software to create new aural spaces for the group. "I know the unit can be used in live performances, and I may talk with our FOH mixer Joel Lonky to see if he'd like to buy his own to take it on the road with the band. I've worked with lots of digital reverbs, and they've all got plusses and minuses," Carmer concludes, "but the S777 is the first to truly sound like a natural space."



Sony DMX-R100 Wins TEC Award for Small Format Console



Winners: From left to right, Sony Professional Audio is represented on stage by Clayton Blick, Paul Foschino, Karl Kussmaul and Bob Tamburri, who accepted the 2001 TEC Award for Small Format Console, awarded to the Sony DMX-R100 digital console at the 17th Annual Technology Excellence & Creativity (TEC) Awards. The 2001 ceremony was held at New York City's Marriot Marquis on Saturday, December 1, during the Audio Engineering Society (AES) tradeshow.

Filipetti Records Korn With DMX-R100 Console

Award-winning engineer Frank Filipetti (seated) chose a Sony DMX-R100 digital console to record vocals for the upcoming Korn album.

"I do a lot of digital work, and I wanted the best quality and flexibility I could find in a small-format console capable of recording in 24-bit/96kHz," comments Filipetti, who rented the R100 from New York-based rental company Dreamhire. "The R100 fit the bill. The sound quality is exceptional, the work surface is intuitive and easy-to-use, and the board is stable and reliable – we haven't experienced any crashes or lost data. Korn's producer Michael Beinhorn (standing) and I are very pleased with the console's performance."



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DRE-S777 & The Producers

Make Broadway Multichannel History

"I've never heard a reverb that was quite as exciting as this one," states Alan Silverman, mastering engineer of the cast recordings for the smash Tony Award-winning Broadway hit *The Producers*. Working closely with engineer/mixer Cynthia Daniels, the Grammy-nominated pair recently turned to the cutting edge sound of the Sony DRE-S777 to make a bit of multichannel history.

"*The Producers* is the first major Broadway show to be done in 5.1," Silverman continues. "Cynthia and I planned this project carefully from beginning to end and wanted to truly recreate the theatrical experience. That's when we decided to use the Sony S777." Silverman, who owns Arf! Digital, a high-res mastering facility in New York City, noted that he he'd never used the reverb before working on the show. "I had heard an impressive demo and was convinced it was the way to go," he says.

Recording and mixing *The Producers* also provided Daniels with her first experience with the Sony reverb. "I had come to believe, through word of mouth, that the S777 was the best sounding reverb unit," she stated. "After using it, I found all the rumors to be true." Working at an incredibly rapid pace, Daniels managed to capture a 40 piece orchestra, eight principal stars and a cast of 20; all live to 48-tracks. "She is about the fastest engineer I've ever seen," Silverman said. With Grammy-nominated cast recordings such as *Kiss Me Kate* and *The Music Man* on their credit list, the two make a powerful team.

Tracking at The Edison studio in New York, Daniels utilized the room's natural sound, but felt she needed something extra to bring it into the Broadway realm. "We have a way of working with stems, and we decided that process worked so well for us in our stereo recording that we would carry it over into the surround mixes," explains Silverman. "When we took the project into the mastering room, we were so happy with the way the ambiance

and the S777 were working, we got the idea to bring in a second S777."

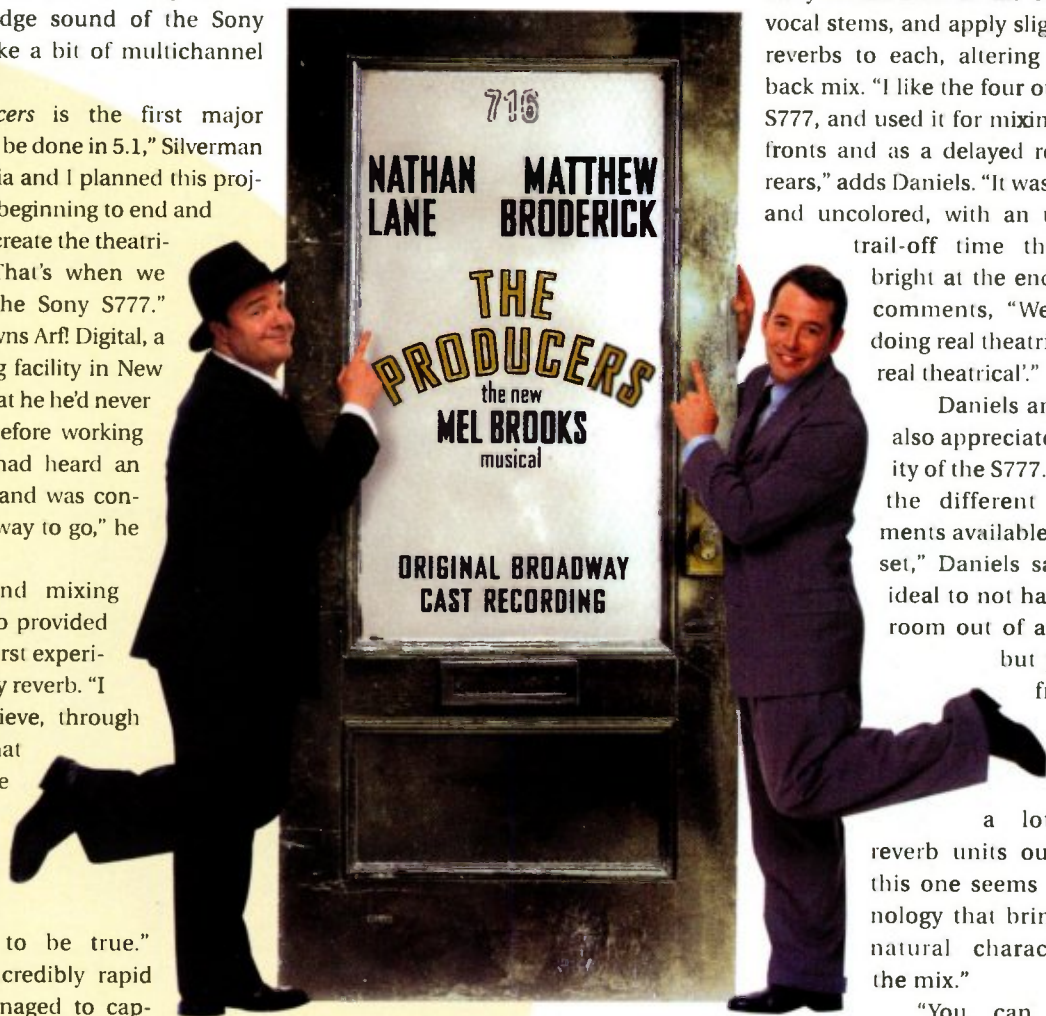
Then, according to Silverman, they began experimenting by assigning one reverb unit to the front, and another to the rear.

They would load in the orchestral and vocal stems, and apply slightly different reverbs to each, altering the front to back mix. "I like the four outputs on the S777, and used it for mixing both in the fronts and as a delayed reverb for the rears," adds Daniels. "It was very smooth and uncolored, with an ungranulated trail-off time that isn't too bright at the end," Silverman comments, "We went from doing real theatrical to 'mega-real theatrical'."

Daniels and Silverman also appreciate the flexibility of the S777. "I really like the different mic placements available in each preset," Daniels says. "It was ideal to not have to build a room out of an algorithm, but just tweak it from my listening spot. There are a lot of great reverb units out there, but this one seems to use technology that brings the most natural characteristics to the mix."

"You can tweak the spaces away from their original intent in a very creative way," Silverman adds. "The purity of this reverb allows it to interact very well with other state-of-the-art mastering gear. It paired especially well with the fantastic new Z-Systems surround EQ and compressor that were also employed in the mastering of this project."

"The S777 was able to create a beautiful Broadway ambiance, just like being in a wonderful theater with fantastic acoustics," concludes Silverman. "Everyone who has heard it in my room has been emotionally moved by what can be done with it. That fact that you can very convincingly put your project into these wonderful spaces is amazing. It's quite a reverb."



David Was Picks CDR-W66 for CBS Hit The Education of Max Bickford

Noted composer/engineer David Was used Sony's recently introduced CDR-W66 CD recorder to record and master the score for the initial episodes of *The Education of Max Bickford*, CBS's new hour-long drama starring Richard Dreyfuss and Marcia Gay Harden.

"I generated a lot of cues within a pair of synthesizers then added live music (piano, strings, woodwinds, etc.) to give the score a human quality," Was states. "I kept the W66 on full time."

Working out of his own Hollywood-based recording studio, Was used the W66 to go from picture to master with the help of Digidesign's Digi 001 hardware interface. "As soon as I finished a cue, I could go back to it, un-pause it, and record another. Within a few days, I had 15 to 18 cues to deliver to the music editor," he explains. "He loved the sound of it. The W66 worked flawlessly. It was the most important link in the chain."

Was reports that before he acquired the W66, he was able to burn CDs on his computer, but the demands of the *Max Bickford* series made it totally impractical for him to deal with the vagaries of digital glitches and poor sound quality. "I wanted to get out of that 'inside computer world' and actually have a signal sent (via the Digi 001) to a high quality recorder," he states. "The sonic clarity of the W66 is amazing."

To illustrate the capabilities of the unit Was points to a recent *Max Bickford* episode which included scenes from a WWII documentary about 1000 Jews escaping from Germany on a ship. "The United States refused to accept them, and it took a very delicate cue to accent the despair on the faces of the refugees on the boat," he recalls. "I used a piano, drenched with reverb, and layered strings beneath. My main objective was to truly capture the mood of the music. I hoped that such a soft cue would come across without losing any of its subtleties. It did. The W66 really brought the delicate presence of the piece to life."



Two Sony DMX-R100s for the Radio City Christmas Spectacular



Radio City Entertainment purchased two Sony DMX-R100 digital consoles for its beloved holiday theatrical, *The Radio City Christmas Spectacular*, starring the world-famous Radio City Rockettes (pictured). The

new consoles performed both production and live sound duties for shows in Atlanta and Cleveland. *The Radio City Christmas Spectacular* is presented in seven markets across the country in addition to New York's 2001 edition of the show.

Sound designer Dan Gerhard reports that FOH engineer John Montgomery ran the entire show through an R100: "He used the console for everything, and he didn't need any outboard gear at all. It works wonderfully on-site. The R100 is very reliable, and it sounds great."

Prior to going out on the road, both R100s are used to mix the orchestra. "The vocals are live, but for out-of-town shows, the 56-piece orchestra is pre-recorded," Gerhard says. "The R100s work seamlessly with our high-resolution digital recorders. I did quite a bit of research on small-format digital mixers before choosing the R100. Other consoles were kind of clunky and cumbersome, and more importantly, could not handle high resolution. The R100 is a truly versatile unit, and I love the fact that it operates without fan noise. We'll definitely use it on other Radio City Entertainment events throughout the year."

new consoles performed both production and live sound duties for shows in Atlanta and Cleveland. *The Radio City Christmas Spectacular* is presented in seven markets across the country in addition to New York's 2001 edition of the show.

Sound designer Dan Gerhard reports that FOH engineer John

The **Irresistible** Sound of **Jessica Simpson**

Jessica Simpson, one of the most widely-recognized and respected new artists in modern pop music, has recorded *Irresistible*, the eagerly awaited follow-up to her multi-platinum debut album *Sweet Kisses*, with a bevy of top behind-the-scenes talent and equipment, including the Sony C800G studio microphone for vocals and the Sony Oxford digital console for final mixing.

Working with a group of world-class engineers and producers for her second album – including Mick Guzauski and Walter Afanasieff (Walter A) – Simpson created an electrifying collection of songs which serves as a showcase for her ever-growing vocal talent.

Released in November 1999, Simpson's debut album *Sweet Kisses* established her as an international pop star, featuring two Top 40 hits: "I Wanna Love You Forever" and "I



Think I'm In Love With You" and sold more than three million copies around the world.

Among the new album's many highlights are the songs "There You Were," a duet with Marc Anthony, and "A Little Bit," a hook-filled follow-up to the album's first single, "Irresistible." Simpson takes a decidedly R&B turn on *Irresistible*, evidenced

by the new album's up-tempo jams; while the ballads on the album find a grace, poise, power and maturity in her already impressive vocal range.

Multi-platinum producer Walter A worked extensively with Simpson on three cuts on the *Irresistible* album.

Some initial work, including background vocals and overdubs, was accomplished on the Oxford console in his

San Rafael, CA. Wally World Studio B, but Walter credits Mick Guzauski's Oxford mixing as one of the most significant technical contributions to the album.

"Beyond Jessica's performance, it's the mix that makes this record special," says Walter A.

Miking the Vocals

Excellent for vocal recording in studios and film post production houses, Sony's C-800G Studio Tube Condenser Microphone is designed for the highest possible sound reproduction quality. The C-800G features a high-quality dual large diaphragm for true reproduction of vocal qualities, vacuum tube warm sound quality through a 6AU6 vacuum tube, a unique Peltier-based cooling system to achieve optimum tube operating temperature, and an electronically selectable pick-up pattern (Omni/Uni) for various recording applications.

"In the studio, it comes down to what you hear," says Sony Music Studio's Robert Williams, the in-studio engineer who miked the vocals on the new album. "Jessica's voice is simply amazing. She has such a big range, from a whisper to really belting it out, and you need a microphone that can handle the range without distortion. The 800G mic has a good head run from the softest to the loudest sounds. With every project, I'm always testing two or three mics at the front of a session. I used the 800 with Jessica on her first album, and I felt it suited her well."

Williams points out that if an artist likes what he or she hears up front, a level of trust is quickly built giving the sessions additional creative flavor. "You have to give an artist what they need

Miking and Mixing a Dynamic Vocal Range with the Sony C800G Microphone and the Oxford Digital Console

mpson

to hear from the start," says Williams. "Microphone selection plays an important role in that. On ballads, for example, the S's and the



Robert Williams, Sony Music Studio engineer on the Simpson album.

wet sound of lips are important to the overall texture of a song. In Jessica's case, her vocals tend to be quite bright and I would add just a little to the low end to round out the body. The 800 mic gave me the flexibility to do this."

But the bottom line for Williams is the quality of the singer's voice. "Jessica has a gift," he says. "Not everyone has it. She's been blessed in that sense. She has all the tools it takes to get her where she wants to go."

Mixing the Vocals

Top audio engineer Mick Guzauski, whose credits list more than 25 #1 singles and more than 25 gold and platinum albums for superstars throughout the pop music universe, agrees with Williams' assessment. He mixed two cuts on the *Irresistible* album, the ballad duet "Forever in Your Eyes" and choir-backed "His Eye is on the Sparrow."

"Because of the incredible dynamic range of Jessica's voice, the automated EQ feature in the Oxford console was very beneficial because I could tailor the frequency responses and dynamics within each song with optimum EQ at every pitch and level," says Guzauski, who has been described by top audio industry professionals as having "golden ears."

Guzauski's awareness of the Sony Oxford console goes back to the R&D stages, when the console was still a prototype. "When I first became aware of the Oxford," says Guzauski, "it wasn't entirely complete, yet even then it had the best A/D and D/A converters I'd ever heard. I've never heard a better sounding console, either analog or digital."



C800G Microphone

DMX-R100

The Versatile Sony Digital Console Has Developed a Strong Following and is Showing Up Everywhere – From Specialty Radio Production Houses and DVD Audio Studios to Churches

Spotlight

By Kathleen Murphy



A Joyful Noise at Crossroads Tabernacle

Crossroads Tabernacle and Boden Center for The Performing Arts, a prominent inner-city church located in the Bronx has, with the Walters-Storyk Design Group (WSDG), created a state-of-the-art audio & video production studio, and is completely refurbishing an 800+ seat theater for worship, concerts, dramas, and outreach events. The restoration, which also includes new administrative facilities and a children's educational wing, is scheduled for completion in 2002. The 1000+ sq. ft. studio houses three isolation booths, and a control room equipped with a Sony DMX-R100 digital console.



Radio Productions at GAP Digital

Walters-Storyk Design Group has also developed a three-studio complex for GAP Digital, one of the only U.S. recording studios specializing in the production of long-form radio drama. The 3000 square-foot facility is located in the Chicago suburb of Wheaton, adjacent to Wheaton College. Studios A and B at the facility each house a Sony DMX-R100 digital console.

In business since 1980, GAP Digital has created scores of radio dramas, including programs based on such classic stories as Victor Hugo's *Les Miserables*, C. S. Lewis' *Chronicles of Narnia*, and George Eliot's *Silas Marner*. The facility is currently producing 144 half-hour episodes of a drama series titled *Left Behind*, based on the best-selling book series of the same name. *Left Behind* is being broadcast on over 700 radio stations.

"Our goal is to provide clients with a multipurpose, 5.1-capable facility, that supports both radio and audio-for-video projects, in a visually stimulating environment," comments owner Todd Busteded.

DVD Production at Mi Casa

Grammy Award-winner Robert Margouloff and his partner/chief engineer Brant Biles are enjoying an extended period of high-profile DVD mixing and mastering work at L.A.-based Mi Casa Multimedia, Inc. Currently celebrating their first anniversary in their new digs, Mi Casa's home-theater-style, two-room audio production facility, design by WSDG, has developed a strong following for their video, music, and DVD multichannel mixing/mastering.

Located in a 1928 Spanish Revival house formerly owned by Bela Lugosi, Mi Casa (www.micasastudio.com) features two 5.1 high-end home-theater environments.

"We didn't want to build a commercial facility," reports Biles. "Because our projects are screened in actual 5.1 and 6.1 home theaters, we wanted our work space to emulate that environment complete with tables, lamps and furniture. Our studio is literally a house in the best sense of the word."

Each room is identically equipped with a Sony DMX-R100 digital mixing console. "Our thing is high-quality audio, and that's what DVDs are all about," states Biles. "The Sony DMX-R100s sound great and are extremely flexible. We especially love the fact that the board has separate surround output busses. With the flick of a button, I can switch from stereo to surround."





Soundmirror R100 Suite's Sweet Sound

A beta test site for the DMX-R100 console and its new version 2.0 software, Soundmirror, of Boston, Mass, recently completed several classical music projects. "We just remixed an opera, *Thérèse Raquin*, that we recorded last month in Dallas. It's a world premiere by composer Tobias Picker," says Soundmirror president John Newton. "We're also working on a series of multitrack surround recordings for the Pittsburgh Symphony and the Boston Modern Orchestra Project."

WireWorld Raises Its Twin R100s Consoles

Nashville-based WireWorld Studios recently upgraded its twin DMX-R100 consoles with version 2.0 software. Current projects at the studio include: recording and surround mixing for Brazilian act Badi Assad, mixing for an upcoming Dokken album, and mixing for the California-based band The Tories.



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- FRANK FILIPETTI, Grammy Award Winning Engineer/Producer

"The cleanest reverb I've ever heard."

- BOB LUDWIG, President of Gateway Mastering and DVD, Les Paul Award Recipient, and 9-time TEC Award Winner

"The sonic quality was astounding."

- DAVID HALL, Independent Recording Engineer, as quoted in the December 2000 issue of Pro Sound News

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- DAVE WILKERSON, Owner, Right Coast Recording, Inc.

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- TOM JUNG, as quoted in the December 1999 issue of Pro Audio Review

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- BOBBY OWSINSKI, as quoted in the October 2000 issue of Surround Professional Magazine



The Sony DRE-S777 digital reverb astounds everyone who hears it. Why? Because each effect incorporates the actual timing, amplitude and frequency response of natural reflections in a real acoustic space. The DRE-S777 gets its power from a massive parallel array of Sony 32-bit DSP chips, delivering 1,000 times the processing power of ordinary reverbs. Reverberant spaces are stored on CD-ROMs that bring you studios, churches, concert halls and natural spaces from around the world. And with Sony's new optional sampling function software, you can even capture acoustic spaces of your own choosing! Form your own opinion of this important development. Call to order your Free Demonstration CD and VHS tape.

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"The R100 packs more creative power per sample than most full size digital consoles." - BRUCE BOTNICK

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- JOHN NEWTON, Grammy-nominated engineer and owner of Soundmirror, Inc.

"We loved it... sonically beautiful and clean...the best small-format console ever... outstanding performance, execution and design."

- ROBERT MARGOULEFF and BRANT S. BILES, Proprietors of MI Casa Multimedia Inc.

"This is the first digital console of this size that sounds this good.
What goes in comes out. The R100 is right on the money."

- TOM LAZARUS, Engineer and owner of Classic Sound, NYC

"...pretty fantastic...rave reviews...incredible sonic integrity...and
incredibly easy to learn and operate...a new generation of digital console."

- DENNY PURCELL, Award-winning mastering engineer, President - Georgetown Masters

"Sounds great, reliable and easy-to-use." - ALLEN SMITH, Chief Engineer, Soundtrack Boston



The DMX-R100 is changing even the experts' opinion of what to expect from a compact, affordable digital console. A full input module with a knob for every key function; selectable high sample rate operation; 5.1 surround mixing and

monitoring; and a high resolution touch screen that becomes an extension of your hands. The next thing to do is go out and hear one for yourself. In the meantime call today and we'll send you a brochure and tutorial CD-ROM.

DMX-R100



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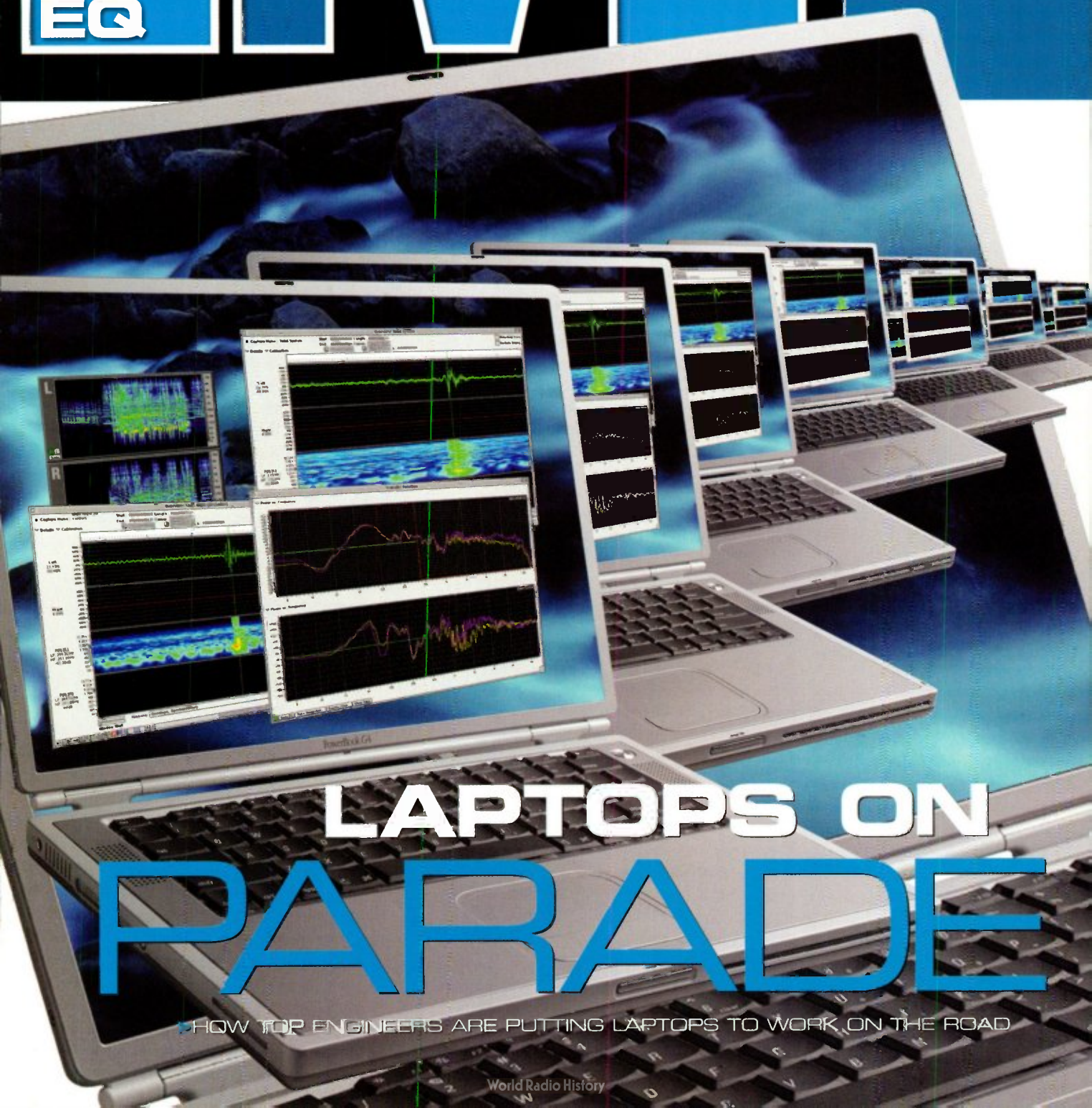
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INSIDE:

88> Meet My Back:
Tom Bennett

90> Laptops On Parade



LAPTOPS ON PARADE

HOW TOP ENGINEERS ARE PUTTING LAPTOPS TO WORK ON THE ROAD

TOM BENNETT

Taking Berlin around the country

NAME: Tom Bennett

POSITION: Front of house engineer, tour manager

CURRENT ASSIGNMENT: Berlin

PRIOR ASSIGNMENTS: Slash's Snakepit

TRANSPORT: Custom-built eight-space rack on wheels

HARDWARE: Ashly 3102 31-band stereo graphic EQ, Yamaha SPX90, SPX990 [2]; Presonus ACP88, TASCAM DA-88, dbx 266XL

COMMENTS: "I run into way too many rooms with inadequate effects and EQs that are unusable, so it's nice to have the Ashly 3102 with me," explains Bennett. "I patch the Ashly from the output of the board (not at the insert) so I can use it to boost up the gain of the system without adding noise. If I am still having problems getting enough gain to drive the system, I may patch the output of the EQ to the input of the dbx 266 — not necessarily for the compression, but to get even more gain. Then I'll go from the 266 into the house system.

"I like the analog sliders on the 3102 because Terri [Nunn, Berlin lead vocalist] will go out in front of the mains with her wireless microphone, and I can easily grab a frequency that might otherwise take off without punching through menus or screens. I usually insist on getting a stereo PA for exactly that reason: so I can pan her voice to the opposite side if she's got her mic

in front of the mains. Terri likes to climb. She's been up on the side stacks with the mic right in a horn while she's climbing!

"I use five channels from the DA-88, four of which run basically throughout the show: bass, percussion, keys, and guitar. The fifth track is a backing vocal with effects that I can't always create at the venue — maybe a longer delay with a pitchshift on it. Four channels of the ACP88 are on the main DA-88 tracks, and the other four are for vocals. The reason I need the compressors on the tracks is that the recordings don't have the kind of consistency in level that I need from song to song.

"The DA-88 has an XLR breakout, and on the ends I use Shure adjustable pads so they don't kill the console preamp. Chris Olivas [drummer] takes the RCA outputs of the DA-88 directly to his own mixer so he can do his in-ear mix. We discovered that if there's phantom power on those XLR lines, the DA-88 output will not work. You'll get a short blip of audio and then it fades out when phantom power comes up on the line. I ran into this problem several times and the first time I didn't know what was going on. I knew the bass worked fine at soundcheck. Showtime came and I had no bass. Well, the opening act had turned on the phantom power for some of the channels we were using for the DA88. Since we didn't know that, we used the RCA outs to solve the problem.

"What really confused me was that, if I unplugged the XLR and then plugged it back in, the track would play for a second (until the voltages built up). You could sit there all day, plug and unplug it, and it would work for a split second and then cut out. The solution was to take a couple of dead DIs and install a resistor and a cap to shunt the phantom to ground. Now if I have the problem, I pull out this ugly thing and put it inline with the outputs from the DA-88."

Tom Bennett may be reached online at 4tbb@msn.com.



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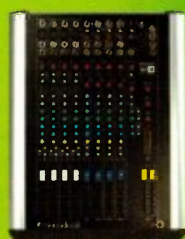
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LAPTOPS ON PARADE

HOW TOP ENGINEERS ARE PUTTING LAPTOPS TO WORK ON THE ROAD by **Steve LaCerra**

It seems as if everyone is carrying a laptop these days — especially people working on the road. There are a lot of reasons for taking your computer on the road, but, of course, one of the best reasons is to use it as an audio tool. Tom Bennett, FOH engineer and tour manager for the band Berlin, explains that he usually carries a Sony Vaio laptop “to do the tour managing stuff. I also have a Midiman Midisport 2x2 interface and I run [JBL Professional] SMAARTLive. If I need to dive into a BSS Omnidrive, Ashly Protéa, or any other processor, I can look at the system processing and make adjustments from the computer.

“One of the clubs I work at has a 355 Omnidrive, so I downloaded the BSS profile information online. In SMAARTLive, I click on ‘system control,’ and the screen shows the controls for the Omnidrive 355 along with the unit’s active settings including the output assignments and delays. It’s almost like a BSS plug-in for SMAART. The program has a pull-down menu with a list of processors from a variety of manufacturers. I’m sure you can download other profiles, but I haven’t had to — I just use their generic controller profile. When I find out what speakers are installed in a venue, I’ll try to determine the speaker parameters and do a little preproduction

before I get there. It’s a good way to evaluate a room when you don’t know what you’re walking into.”

Along with the Vaio, Tom uses an “80 GB Maxtor external Firewire drive and a Wavelength U2A audio interface. It has balanced 1/4-inch input plus coax and optical ins. I run a matrix out of the console into the U2A, and use the Vaio to make a recording of the show. I bumped up the Vaio’s RAM to 512 MB so that I could record without any problems. I originally ran into glitches when I recorded because I was recording onto my partitioned drive, and everyone except me knew it was a mistake! Now the Vaio’s internal drive is not being used for recording, so I don’t have any problems.”









BUMP AHEAD

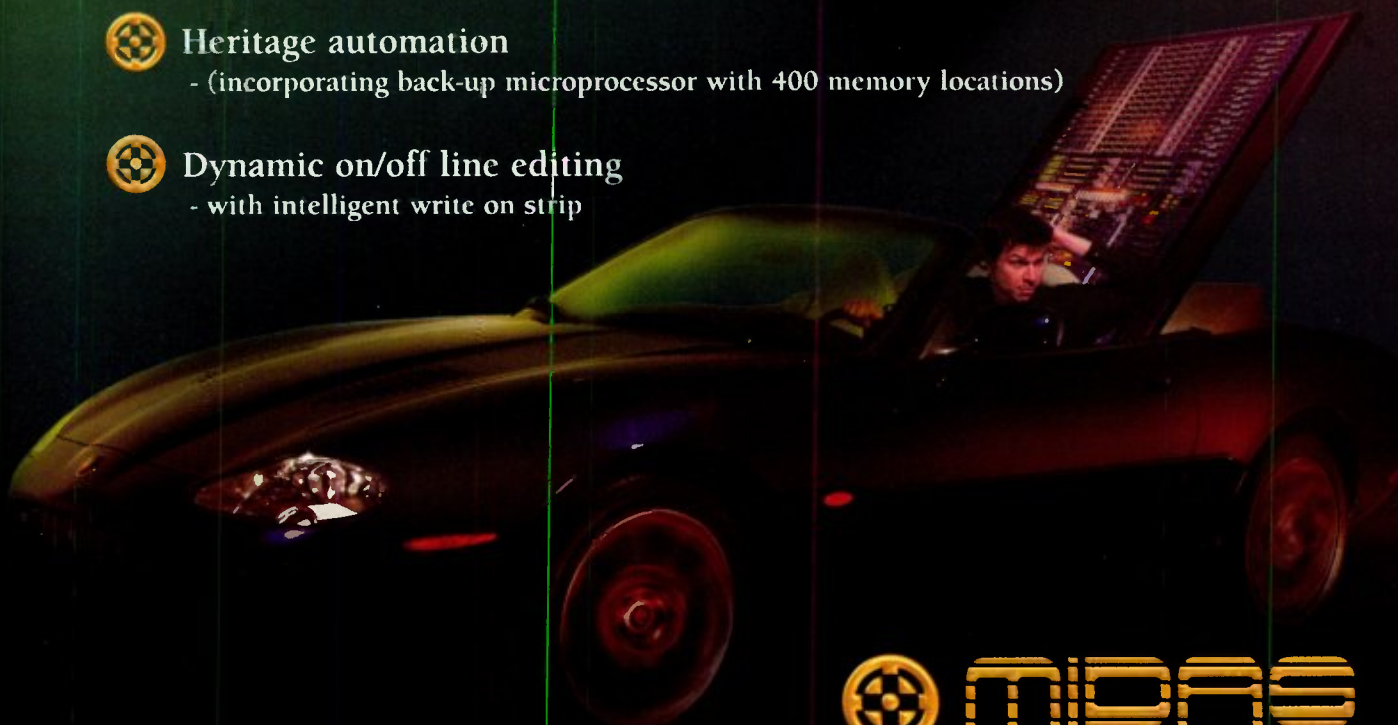
When Apple introduced their G3 PowerBooks, Brad Madix — currently mixing front-of-house for Mr. Big — made a decision to remain faithful to the Mac OS by opting for Metric Halo’s SpectraFoo, which he now runs on a Titanium 500 PowerBook G4 with 256 MB RAM running Mac OS 9.1. “The setup I use most frequently,” says Brad, “includes an FFT and an RTA running at the same time. I find this very useful in the afternoon when tuning the PA, at soundcheck, and for the first few songs of the

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LAPTOPS ON PARADE

show. Basically, the FFT is the window I rely on most, but having the RTA running is useful as a check on what I think I'm hearing. To put it another way: if the mix seems a little 400 Hz-heavy, I can glance at the screen and see [a] it's not my imagination because I see a little bump at 400 right there on the RTA, and [b] it's something in the system or room rather than the mix, because the little bump is also showing up on the FFT. Alternatively, I might see that the bump is in the RTA, but not the FFT, which would tell me that there is some 400 that needs to come out of the mix on the console. Of course, I might look over there and see that there is no bump anywhere, which tells me I should just get back to mixing the show!

"If you can hook up a pre- and post-EQ input, it can be very helpful to line up EQ with response on the FFT. If you run an FFT of the pre- and post-EQ signals, and the signal versus an analyzer mic, then you can adjust the bandwidth and depth of your EQ to overlay exactly on the system

response curve. This is great if you're the kind of person who prefers parametric EQ on the system (like me). It's especially great if you like parametric EQ such as a [Meyer] CP10, which can be hard to read. Then you can look at the curve on the computer screen and make the adjustments there.

"At some point in a show, I'll usually check out the phase scope, especially in the Stereo Position mode. There's a lot of stereo information coming from the stage these days, and this meter can be really helpful with placement and imaging. I have a theory that, although it's really hard to place things exactly where you want them in the stereo image when the gig sounds like a giant swimming pool, the difference between having it sort-of-right and really nailing it is dramatic. I have caught a couple of musicians red-handed who are passing off as stereo things that were really two mis-aligned mono signals. Sorting this out — though seemingly subtle — made a big difference in the mix.



Richard Battaglia, FOH,
Bela Fleck and the Flecktones

"When I was using a G3, I simply routed audio to the sound input through either a matrix on the console, a small separate line mixer, or through a set of outboard preamps. Any of these worked, but it was always a little painful moving from one

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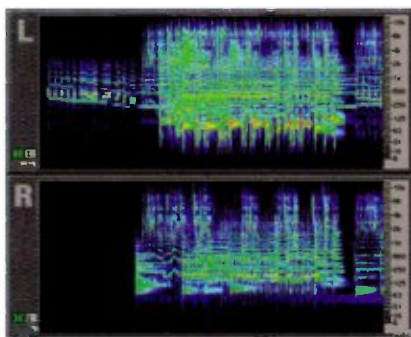
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LAPTOPS ON PARADE



This is a Spectrogram of the first few seconds of "Strawberry Fields" by the Beatles. You can see the frequency distribution across the spectrum, as well as the different parts coming in.

while I was getting this going.

"At a show that is just a one-off, or on short tours where we aren't carrying production, I'm just using the FFT and the RTA and then recording the show to the hard disk for the band. On a tour that carries sound, I've found that, after several shows, I'm getting into layers of detail I couldn't previously. I can really tweak placement, phase, and EQ in extremely fine ways that were just too hard to sort out in the din of an arena. Also, finding the spots where you've eaten up your headroom and looking at how your compression is reading on the mastering meters is very handy. I'd say the mix builds just as it always did, to a point. Then I'm able to focus on some really tiny details and nail them. Again, it's made me realize the difference between being extremely close with a mix, and right on the money."

Ken Newman (front-of-house for Barry Manilow) uses SpectraFoo mainly for "the Transfer Function mode, comparing a matrix output of the console to the output of my Midiman Audio Buddy mic pre, into which my Earthworks M30 mic is connected. The 'set' that I use consists of Transfer Function with control panel, input meters, and a real-time analyzer that is viewing the output of the mic pre. The 'calculate delay' function is invaluable, as it is extremely helpful in setting delay times for zones of the system other than the main left/right (not to mention my nearfield monitors). I keep 'Foo running during the show, as it is helpful to see if the room response has changed much from the empty room to a room full of people. The Real-Time

Analyzer window is very helpful during the show, letting me watch for any strange resonances or peaks.

Ken runs SpectraFoo on a G4/400 Titanium PowerBook, and uses a Digigram VX Pocket PC card for audio input. "I set it to line level input and put a matrix output of the console into the left side, and the output of my Audio Buddy mic pre into the right side.

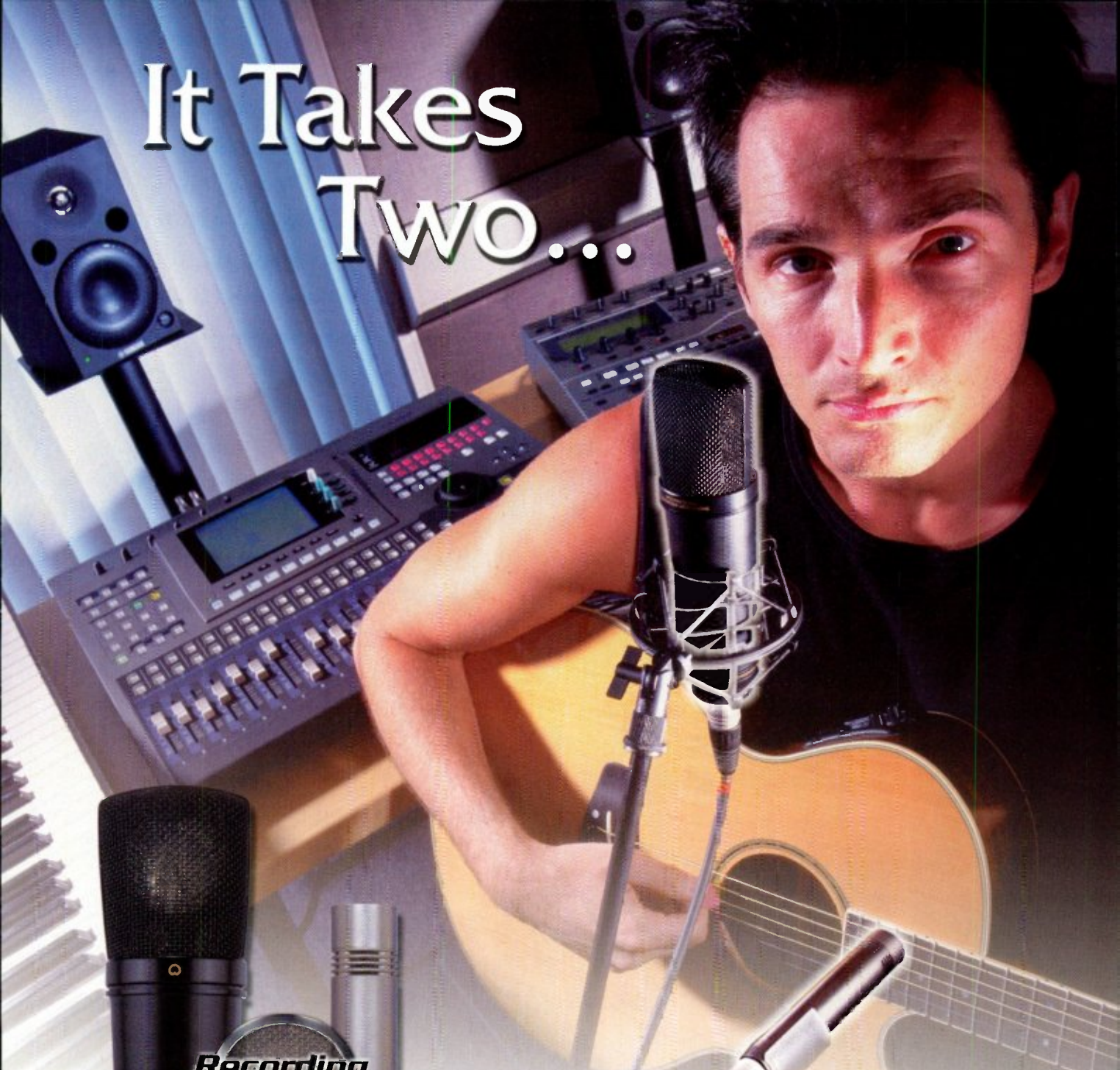
"It certainly has made system EQing a whole lot more repeatable. Now the tests that were previously my mainstay ('check, check, 1, 2,' into a mic, plus CD playback of certain tracks) are my final tests to make sure that I'm comfortable with what the computer has told me. But I don't think it's affected the way I mix much, other than the fact that now I can (usually) concentrate on the musical balance, as opposed to working on system EQ until I'm comfortable, and then concentrating on musical balance."

Richard Battaglia (front-of-house for Bela Fleck and The Flecktones) agrees on the importance of Transfer Function. "The ability to see a comparison between what is coming out of the board and what happens to it in the room after it comes out of the speakers is a valuable tool for any engineer. During soundcheck, I can check different speaker zones to see if they are aligned. For example, if a theater has left and right stacks flown on the wings and a center cluster above the stage, I make sure the cluster is in alignment with the stacks — which is essential for a smooth sound in the room. I carry an Ashley Protéa and slave, which allows me to add delay to the various speaker zones in the room. This also works with the subs.

"If I'm having a problem with a particular instrument, I can solo that instrument with SpectraFoo's SpectraGraph to see what is going on. When I'm mixing for The Flecktones, I use a lot of stereo channels from the stage. The Lissajous Phase Scope comes in handy to make sure all my stereo pairs are in phase. When the band is playing, it's pretty difficult to decide if the electric banjo is in phase or not. With the scope, I can solo up the two channels and see if they are in phase."

► continued on page 141

It Takes Two....



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Native Instruments Studio Collection PTE and Spektral Delay PTE

New host-based plug-in versions for Pro Tools

When Digidesign released the last couple of versions (5.1 and higher) of Pro Tools, there was a surprise lurking in the program's depths. Without fanfare — in fact, without even announcing it — the company had included a new plug-in format, HTDM. There was no mention of this format until recently when Native Instruments announced their Studio Collection PTE (Pro Tools Edition) and Spektral Delay PTE. The Studio Collection includes three Native Instruments plug-ins: the B4 Hammond organ simulator (reviewed November 2000), Pro 52 Prophet-5 modeler (reviewed January 2001), and Battery, a percussion sample playback module. All three of these plug-ins, as well as Spektral Delay (reviewed July 2001), are functionally the same as their stand-alone, MAS, and VST versions. The only difference is that they operate as RTAS and HTDM plug-ins within Pro Tools.

HTDM REVEALED

Let's take a step back and examine what the HTDM format is all about. An HTDM plug-in appears in Pro Tools and operates exactly like a regular TDM plug-in, except that it runs on the host computer's CPU rather than on a TDM DSP card chip. You can use HTDM plug-ins on audio, aux, and master tracks, in any order with other plug-ins. (RTAS plug-ins are limited to audio tracks, and must appear in the chain before any TDM plug-ins.)



FIGURE 1: No, your eyes aren't deceiving you; that's Native Instruments B4, Battery, Pro52, and Spektral Delay all running simultaneously as plug-ins within Pro Tools.

▶ NATIVE INSTRUMENTS

MANUFACTURER: Native Instruments USA, 6477 Almaden Expy., Suite D2-F8, San Jose, CA 95120. Web: www.native-instruments.com.

SUMMARY: Do we really need another plug-in format? For Pro Tools users, the answer is yes! These HTDM Native Instruments plug-ins function exactly the same as DSP-based TDM plug-ins, but they run on the computer's CPU, giving you the advantages host-based processing with total recall and full automation control.

STRENGTHS: Function like TDM plug-ins without using card-based DSP. Total recall. Pro Tools automation support. For HTDM, DirectConnect is handled transparently in the background. HTDM plug-ins can be used in aux and master channels and in any plug-in order.

WEAKNESSES: HTDM version uses DirectConnect, so a DSP chip is still used up. Spektral Delay doesn't sync to Pro Tools tempo. VST or MAS versions of B4, Battery, and Pro52 are better for Digital Performer or Logic Audio. Studio Collection is more expensive than combined prices of the VST/MAS versions, yet offers the same functionality.

MINIMUM SYSTEM REQUIREMENTS: Power PC 300 MHz or faster (350 MHz or faster for Spektral Delay), Mac OS 8.6 or higher, Pro Tools TDM v5.1 or Pro Tools LE v5.1 or higher, OMS v2.3.8

PRICE: Studio Collection PTE, \$999.95; Spektral Delay PTE, \$449.

Further investigation reveals that HTDM uses DirectConnect, Digidesign's protocol for streaming audio into and out of the Pro Tools audio engine. This means that, although the HTDM plug-ins don't run on the DSP cards per se, a DSP chip is still required for DirectConnect to operate. With the Native Instruments plug-ins reviewed here, each instance uses 6% of the DirectConnect chip. Up to 16 HTDM plug-ins can run simultaneously, however, these "share" audio streams with any "external" DirectConnect applications that might be running. A total of up to 32 DirectConnect streams can be open at once; a stereo connection uses up two streams.

None of this matters with RTAS. However, as mentioned above, RTAS plug-ins can only be used on audio tracks, so a Pro Tools audio voice is used for RTAS. Actually, the Native Instruments RTAS plug-ins are stereo-only, so two voices are used. HTDM plug-ins don't use a voice when instantiated on an audio track.

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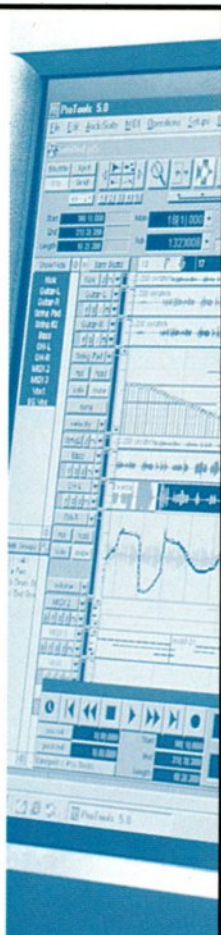
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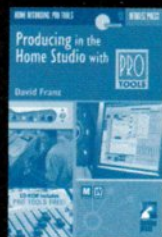

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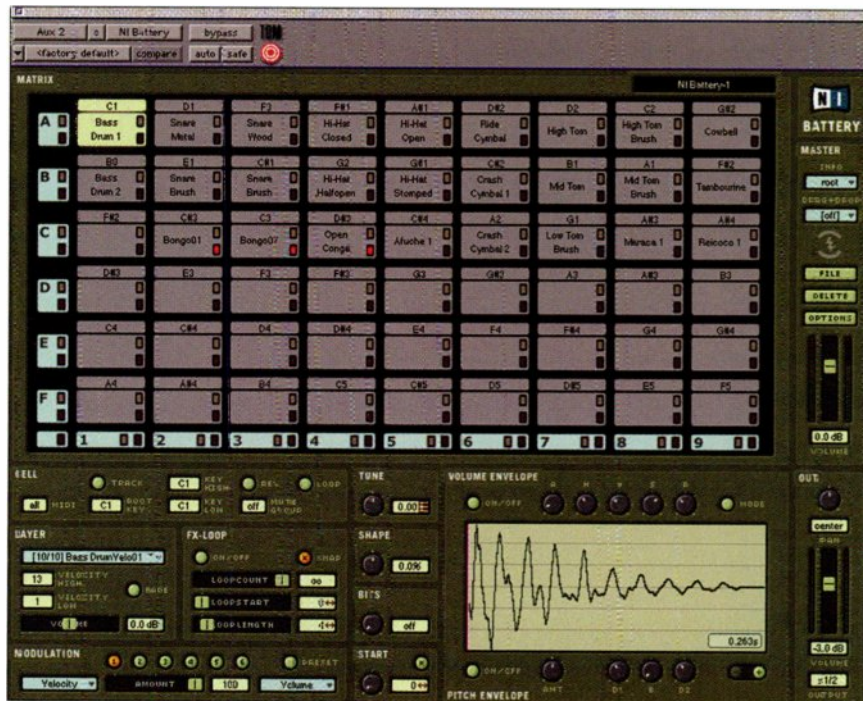


FIGURE 2: Battery is a percussion sampler. Each of the 54 "cells" can hold up to 128 samples, each assigned to its own velocity layer. Each cell has its own independent tuning, volume envelope, pitch envelope, bit reduction, and wave shaper settings.

IN USE

The Studio Collection and Spektral Delay plug-ins worked well for me on my Pro Tools Mix+ system. As soon as you open one of the instruments, a virtual OMS port appears for it in Pro Tools' MIDI tracks. In addition to MIDI control, full Pro Tools automation support is offered for both the HTDM and RTAS plug-ins. I was also able to address the Native Instruments plug-in parameters from a Control 24 control surface; a ProControl should also work.

When you save a song, all plug-in settings are saved, just like with any other RTAS or TDM plug-in. If you have Battery instantiated and loaded with samples, all of that info is also saved with the session. When you re-launch the session, the correct samples are loaded into Battery, ready to play. This contrasts with using external DirectConnect versions of these instruments. In that case, you have to open each instrument separately, load the correct samples into Battery, then launch Pro Tools and hook up to DirectConnect in order to play your session. Total recall is a serious advantage to the new HTDM format.

One note: Battery uses Pro Tools'

memory allocation for sample RAM, not DAE's. I discovered this through trial and error, since the manual doesn't discuss RAM at all, although the Battery system requirements incorrectly specify a "minimum of 60 MB additional allocated memory to DAE."

While we're on the topic, I had a problem when there wasn't enough RAM available to load all of a bank's samples into Battery. If this happened when I tried to open a session, the Pro Tools would crash. I was also unable to get Spektral Delay to sync to Pro Tools' tempo.

I tried the plug-ins in Logic Audio and Digital Performer running under DAE. The results varied. You can load the HTDM plug-ins, but you can't play



FIGURE 3: In B4, as in all of Native Instruments' PTE plug-ins, all parameters can be automated in Pro Tools.

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FIGURE 4: Here we see Pro52, Native Instruments virtual Prophet-5 re-creation running under RTAS.

the instruments through MIDI. Spektral Delay worked fine as a TDM plug-in. At one point, Digital Performer crashed, and wouldn't see the HTDM plug-ins even after I restarted the computer. (It would still see regular TDM plug-ins.) My advice is to stick to the VST and MAS versions of these plug-ins for those programs; leave the HTDM to Pro Tools.

For kicks, I also tried all four plug-ins in Pro Tools Free, running on my Titanium laptop, but had little luck. Battery and Pro52 worked okay (aside from some error messages), but Spektral Delay and B4 crashed the program. Since PT Free isn't on the supported applications list, I can't complain too much about this...but it would have been a nice bonus.

Although Pro Tools Free isn't supported, Pro Tools LE is.

THE FUTURE

I'm very happy with the way in which the Studio Collection and Spektral Delay functioned in my Pro Tools system. Hopefully, Native Instruments' Absynth and FM7 will be HTDM-compatible soon. I also hope that Kontakt (introduced at Winter NAMM) will be made HTDM-compatible. As long as I'm hoping, I'd really like to see some other manufacturers' plug-ins become HTDM-compatible: AudioEase's Altiverb comes to mind, as does Digidesign's own Soft SampleCell. And how about an RTAS- or HTDM-to-VST wrapper, similar to those available for DirectX and MAS systems? Could be a great product for some motivated programmer out there....

In the meantime, I'm quite happy with the HTDM plug-ins that Native Instruments has provided. They work well, and have all the benefits of total recall and automation.

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Nady TCM 1050 Tube Condenser Microphone

Multi pattern
tubes on a
budget

When you think of Nady Systems, you probably think of wireless microphones — and it's true, the company is a prominent manufacturer of wireless mics. But their range of products extends beyond the wireless world into PA gear, studio electronics, and to studio mics, such as the model on review here.

The TCM1050 is Nady's top-end studio mic. It's a large-diaphragm condenser microphone, utilizing a one-inch, three-micron gold-sputtered dual-diaphragm capsule. Its electronics are based around a 6072

(12AT7) tube specially selected for low distortion, high signal-to-noise, and minimal mechanical vibration sensitivity. The TCM1050 is capable of nine polar patterns, ranging from omnidirectional to cardioid to figure-8, with six variations in between. The polar patterns are switched on the included TMPS-2 power supply, which connects to the mic using a 30-foot seven-pin XLR cable. I repeatedly had difficulty getting the cable plugged into the mic, as the mic's connector pins are easily bent out of alignment, which prevents the cable connector from being inserted.

The mic comes packaged in a nice lockable aluminum flight case, which holds the mic, power supply, a foam windscreen, and a spider-style shock mount. The TCM1050 screws securely into the shock mount, which holds it solidly despite the mic's substantial weight.

There are no pads or filtering on the mic or power supply. However, the mic is spec'd to handle up to 134 dB

► NADY TCM 1050

MANUFACTURER: Nady Systems, 6701 Shellmound St., Emoryville, CA 94608. Tel: 510-652-2411. Web: www.nadywireless.com.

SUMMARY: If your tastes run toward large-diaphragm tube microphones, but your budget is limited, the TCM 1050 offers good bang for the buck.

STRENGTHS: Solid construction. Nine polar patterns. Polar patterns are remote selectable from power supply. Price includes aluminum flight case and shock mount.

WEAKNESSES: No low-pass filter. No pad. Somewhat "compressed" dynamic response. Seven-pin connector pins on mic are easily bent.

PRICE: \$399.95

maximum SPL, so it should fare well in all but the loudest situations.

In use, the TCM1050 performs well. The mic feels solid; it's manufactured mainly of brass parts. The nine polar patterns offer substantial tonal differences in addition to the expected pick-up pattern variations. These tonal differences extend beyond the fact that an omni pattern has no proximity effect compared to a cardioid pattern. The top end and strong presence of the tone remain fairly consistent through the patterns; what changes are the bass and the low mids. The omni pattern is light on low end; the cardioid pattern rounds out, and the figure-8 pattern develops a full, chesty tone with solid low end.

I did find that the mic didn't respond as well to dynamics changes as some other (more expensive) mics I compared it to did. I would characterize it as having almost a lightly compressed response to dynamics. While this bothered me a bit with up-front intimate vocals and other dynamic sources such as acoustic guitar, for loud vocals or in front of a roaring guitar amp, it wasn't a problem.

The TCM1050 holds its own well, even without considering its price. When you do factor in the price point, its performance becomes more impressive. For under \$400, it's worth considering for the budget studio, where the mic's polar pattern versatility and tonal variations will serve its owner well. For those who already have a reasonably well-stocked mic locker, the TCM1050 is still worth a listen. As a secondary mic or as another tone color, at \$400 you can't go too far wrong. ■



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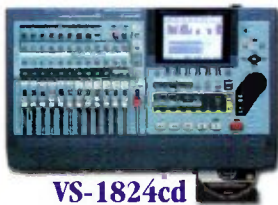
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IK Multimedia T-Racks 24 2.0 Mastering Software

Easy-to-use
virtual
mastering
tools

The tools of the mastering trade include elements of waveform editing and sound design, but dynamics and EQ tweaking are at the core of the discipline — and the *raison d'être* of T-Racks 24 mastering software. This is not an all-in-one audio factory along the lines of Steinberg's Wavelab, TCIWorks Spark, BIAS Peak, or other programs that combine real-time audio processing with sample-accurate waveform editing. Nor does it sport the direct CD prep, assembly, and burning features you'd find in Emagic's Waveburner Pro.

Instead, T-Racks offers a 32-bit digitally modeled analog signal chain consisting of four elements: a six-band parametric EQ, a "tube" compressor, a multi-band limiter, and an output stage with saturation and clipping control. The look is computer retro: each processor sports a number of onscreen knobs and switches that correspond with what you'd find on their hardware equivalents. I tested version 2.0, which offers 24-bit file support, dithering, and a number of sonic and cosmetic enhancements.

THE BASICS

Setup and installation are easy. Authorization is via challenge/response, and the program will work in demo mode while you wait for your code. You can use the buffer settings to optimize real-time performance on your computer. The Mac G4/450 used for testing presented no pops and clicks, but a slower machine might require some buffer tweaking.

You start a T-Racks session by opening a digital audio file with the File menu or directly from the Session pop-up, which serves as a little transport section. Here's where you navigate the file, define loop and marker points, and set up fades in and out for your file.

► IK MULTIMEDIA T-RACKS 24

MANUFACTURER: IK Multimedia Production, srl
Via dell'Industria, 46 41100 Modena, Italy. Phone:
39-59-285496. Web: www.ikmultimedia.com.

SUMMARY: T-Racks pairs great sound with intuitive operation.

STRENGTHS: Intuitive interface. Great sound. Flexible. Powerful processing suite. 24-bit file handling. Cross platform.

WEAKNESSES: Limited waveform editing. Lacks external control support. Does not support streaming media such as MP3.

MINIMUM SYSTEM REQUIREMENTS:

Mac: 180 MHz PPC603e or 120 MHz PPC604e with OS 7.5 or later, 32 MB RAM.

Windows: Pentium 200 MHz MMX with Windows 95/98/ME, NT 4.0, or 2000, 32 MB RAM, and high-quality sound card.

PRICE: \$299

T-Racks' "virtual rack" follows one of two predetermined signal paths (the EQ and compressor can swap their position as first or second in the chain). All the components are available all the time, though you can bypass individual processors or the entire processing suite.

Operation is intuitive. Other mastering programs give you more visual feedback on what's happening with your mix, but it can also be nice to close your eyes and let your ears and instincts decide what sounds best. This program encourages you to grab a knob and go.

EQ

The T-Racks' EQ is powerful but easy to use. The bands include a sweepable high-pass filter (15 Hz–5 kHz); Low shelving band (30–200 Hz); Low Mid (33 Hz–5.5 kHz) and Hi Mid (200 Hz–18 kHz) peaking bands; Hi shelving (750 Hz–8 kHz); and a Hi cut filter, sweepable between 200 Hz and 20



kHz. With the exception of the high- and low-pass filters, each band offers 15 dB of boost and cut. You can switch any of the bands in and out independently or bypass the entire EQ. The Low and Hi Mid bands each offer two bandwidth settings — narrow and wide, though the narrow setting would never be mistaken for a notch filter. A scope-like screen displays the current frequency curve.

Overall, the EQ is very musical — an overused term that actually applies here. It may not be the tool for surgical precision, but, because all the frequencies sweep over a wide range, you can easily match the EQ to your mix. Slight adjustments can have a profound effect, and for most jobs I worked within a few dB of center.

COMPRESSOR

T-Racks' compressor is definitely of the old school, or at least as old school as you can get in a piece of software. It's designed to emulate the soft-clipping characteristics of a tube circuit. Basic controls include Attack Time, Release Time, Input Drive, and Ratio. In addition, the compressor offers a stereo enhancement function that lets you adjust the width of your mix.

Overall, the compressor's effect is gentle and progressive, though even at low compression settings the processor colors the audio. But that's a good thing — if your definition of "tube warmth" means adding subtle punch and character to the sound, you'll be happy. Of course, you can also slam your mix by pumping up the ratio and input drive.

LIMITER

Multi-band limiting is among the most important mastering tools because it prevents dynamic anomalies in one frequency range from choking your entire mix. The T-Racks limiter splits the signal into three bands. Controls include Release Time, Overload (which governs the amount of gain reduction), and Input Drive (which increases gain to drive the limiter). Some settings, such as crossover point, are essentially fixed — you can't control them with the limiter's interface, though you *can* go into a special configuration file and make changes. You can download an alternative internal setting from the company's Web site. The factory settings work well, however, and I found that the limiter's basic interface to be more of an asset than a limitation — I spent less time fooling with the settings and ended up with better results.

OUTPUT STAGE

Although the compressor and limiter are both designed to control your track's gain profile, you set your final levels at the output stage. Not only does this allow you to compensate for gain changes caused by the EQ and dynamics processing, but it also lets you set levels on tracks when you want to bypass one or all of the above processors. In addition to tools such as metering and left/right balance control, the Output section offers a clipping stage that lets you pump level and shave peaks. You can determine the amount and shape of the clipping, as well as the overall output. You can check your mix in mono, stereo, or difference modes, which removes the center of the mix from the soundfield.

► continued on page 132

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Quantec 2402/F Yardstick Digital Reverb

Lush digital reverb in a unique package

Although the tendency these days is away from huge dripping reverbs, there's always a need for excellent ambiances when mixing and recording. The Quantec 2402/F "Yardstick" builds on its much-heralded predecessors to deliver outstanding-sounding reverbs. One of the unit's forebears include the Quantec QRS (Quantec Room Simulator), which was one of the first digital reverbs (circa 1982) to attempt to "model" real reverberant spaces using the company's proprietary Digital Room Simulation Algorithm. In the Yardstick, that algorithm has been updated with today's DSP technology.

The Yardstick has several notable unique qualities. First of all, physically, it's a single rack-space unit — okay, not all that unusual — but it's only 1-3/4 inches deep, three inches including its protruding rack handles and IEC power jack. The user interface is extremely streamlined: a data entry "dome" (called a "Pulsar") and two wedge-shaped orange cursor buttons (called the "Key Pair"). A few LEDs, AES lock and MIDI indicators, sample rate indicators, four three-stage level LEDs (stereo in and out), a small LCD, and a power switch wrap up the front panel. The back panel is even more sparse: the aforementioned AC power connector, XLR AES/EBU in and out, an RS-232 port for a remote controller, and MIDI in/out/thru. Wait a second, no analog I/O? That's correct; the Yardstick only offers AES/EBU I/O.

Navigating the Yardstick's menu structure is easy enough. It defaults to preset mode. As you scroll through the presets using the Pulsar, you can choose to either automatically load the current preset, or to manually select for loading. Presets load very quickly, without clicks or pops — given that the reverb tail of the last preset has stopped. One limitation is that there are only 30 presets. The first 18 come loaded from the factory, and the rest are blank. The unit scrolls through the preset list slowly. When you spin the Pulsar quickly, you'll get ahead of the screen scrolling, which is an annoyance.

Getting deeper into the Yardstick requires using the Key Pair to cursor between using the Pulsar for selecting parameters or for parameter value editing. Fortunately, the menus aren't all

▶ QUANTEC 2402/F YARDSTICK

MANUFACTURER: Marantz Professional, 2640 White Oak Circle, Ste. A, Aurora, IL 60504. Tel: 630-820-4800. Web: www.marantzpro.com.

Quantec 2402/F Yardstick

MANUFACTURER: Quantec, dist. by HHB Communications, 1410 Centinela Ave., Los Angeles, CA 90025. Tel: 310-319-1111. Web: www.hhbusa.com.

SUMMARY: Building on a legacy of fine digital reverbs, the Quantec Yardstick delivers beautiful ambiances. The lack of analog I/O will be a problem for some, others won't notice.

STRENGTHS: Gorgeous reverbs.

WEAKNESSES: Extremely limited user interface. Only 30 presets.

PRICE: \$2,999

that deep. You're given ample control over the major characteristics of the reverb sound, but a lot of the tweaky detail is handled by the room simulation algorithm behind the scenes.

MIDI control is another area where the Yardstick forges its own path. Presets can be called up through MIDI program change messages, but parameters are controlled by SysEx or MIDI note number messages using velocity as parameter value — why not use continuous controller messages for parameter control?

But, in practice, the lack of tweaky editing detail and strange MIDI control aren't that big of a deal. Why? Because this thing sounds so good that all foibles are forgiven. The presets are excellent, and are great starting points for creating variations. In a word, the reverbs are lush. In fact, the biggest problem with it is that it's far too easy to spend hours playing tracks through the various presets. Guitars adored the Theater and Concert Hall presets, and the Chapel, Church, and Cathedral presets sounded truly heavenly on solo flugelhorn tracks. Drum and vocal tracks were awesome through any of the presets.

Quantec has done an outstanding job with the reverbs in the Yardstick. It has a quirky user interface — and the manual won't be much help — but, after you hear the 'verbs, you won't care. Very nice. ■



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ReCycle 2.0 Loop Tempo-Matching Software

Version 2.0 of this loop software adds numerous enhancements

The biggest problem in loop-oriented music is matching loops with different tempos or pitches. For Mac or PC owners, ReCycle offers a brilliant solution: chop the loop into pieces, with one sound (or sound cluster, like a snare and kick hitting at the same time) per "slice," and assign each slice to a MIDI note. The program then creates an accompanying MIDI sequence that places notes at each slice's temporal location. If you trigger the slices at the same tempo as the original loop, it sounds like the original. Speeding up the sequence moves the attacks closer together, thus increasing tempo without changing the audio (except for shortening the decay). Slowing down is harder to do, but the program can extend a sample's decay to cover the "gap" caused by moving the slices further apart.

The file format generated by ReCycle 1.0, called a "REX" file, became somewhat of a standard. Programs such as Cubase can load these files, and Reason includes a REX file player. Even when Acid's "acidizing" process appeared, for some types of loops the REX file remained the best way to do things — which brings us to ReCycle 2.0.

SOMETHING OLD, SOMETHING NEW

Version 2.0 adds several enhancements (fig. 1):

- Stereo file support.
- Envelope. You can now change attack, decay, and stretch (the amount a decay should be extended when slowing down a loop). These changes are global for all loops — you can't change, for example, the attack for just one slice.
- Transient Shaper. This gives results similar to compression.
- Four-band EQ with low cut, low and high



► RECYCLE 2.0

MANUFACTURER: Propellerhead Software, dist. by Midiman, 45 East Saint Joseph St., Arcadia, CA 91006. Tel: 626-445-2842. Web: www.propellerheads.se or www.midiman.net.

SUMMARY: Simplifies the process of matching loops of different tempos and pitches.

STRENGTHS: Unique function not fulfilled by other software. With percussive loops, can sound better than digital audio-based time-stretch algorithms. Useful effects added in version 2.0.

LIMITATIONS: May require tweaking for best results. Can't save in Version 1 ReCycle or "acidized" file formats.

MINIMUM SYSTEM REQUIREMENTS:

Mac: PowerMac, System 8.6 or later.

Windows: 66 MHz or faster Pentium, Windows 98/98SE/Me/2000/NT 4.0.

PRICE: \$179

parametric stages, and high cut.

- Handles audio up to 24 bits and 96 kHz sample rates.

HOW PAINLESS IS IT?

A "sensitivity" slider seeks out transients and places markers to create slices. With simple drum loops, the process is extremely accurate. More complex loops may require tweaking the markers. It can be somewhat time-consuming to tweak a complex loop so that it responds well over a wide range, but it's usually worth the effort.

ReCycle 2.0 doesn't work well on something like a sustained organ or guitar chord. However, placing markers at regular intervals and adjusting the decay can produce some great "chopped" sounds.

THE SAMPLER CONNECTION

ReCycle 2.0 supports many samplers via MIDI or SCSI, including models from Akai, Ensoniq, Kurzweil, Roland, Yamaha, and Emu, as well as Digidesign SampleCell (Mac/Windows) and SDS, SMDI, and extended SMDI.

You can also work exclusively in the computer, importing a variety of file types, doing the necessary processing, then exporting in a number of file formats, including Standard MIDI File. Unfortunately, you can't save as an "acidized" file, but you can save the file as a complete file that reflects the results of your processing, rather than as a bunch of slices.

If you work with loops, ReCycle is a must-have program — simple as that. ■

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Royer SF-1 Ribbon Microphone

Tie a ribbon around your acoustic



While condenser mics seem to get all the hype and glory, it's the ribbons that really do it for me. I've always loved ribbon microphones. In fact, some of my very best, and most expensive, lessons in my early years of recording came when using ribbons. I can remember as a recording novice putting a couple of Beyer M160's on toms and going, "That's the sound I've been looking for!" only to have them go dead shortly thereafter. Obviously, putting a ribbon mic on something as dynamic as a drum wasn't a good idea in the early '70s, but the latest generation of ribbon mics manufactured by Royer Labs are a lot more robust, enabling them to take punishment that their predecessors couldn't even dream of.

Leading this new generation is the Royer R-121, a mic that can take all you can give it and then some (see review in the September 2000 *EQ*). But now Royer's come out with the SF-1, a throwback to its distant cousin of the '50s and '60s in terms of ribbon fragility, but with more to offer as well. Over a period of a couple of months, I tried the R-121 and SF-1 side by side to see just what the difference was.

THE TOUR

The SF-1 is a monaural ribbon microphone, with a figure-8 pattern, as is common with ribbons. At the heart of the mic is a proprietary cross-field ribbon transducer motor assembly comprising four powerful neodymium magnets and Permendur iron pole-pieces. The cross-field design helps to give the SF-1 its extended high-frequency response (30–15,000 Hz \pm 3 dB, according to Royer). The case is fashioned from ingot iron and forms the magnetic return circuit, which provides low leakage flux and, therefore, accounts for the relatively high sensitivity of the unit.

The mic exhibits a fairly flat frequency response and features

► ROYER SF-1

MANUFACTURER: Royer Labs, Inc., 821 North Ford Street, Burbank, CA 91505. Tel: 818-760-8472. Web: www.royerlabs.com.

SUMMARY: A mono ribbon mic with a figure-8 pattern

STRENGTHS: Very hi-fi. Extended high-frequency response.

WEAKNESSES: More fragile than some other ribbon mics.

PRICE: \$1,075

excellent transient response thanks to its ultra-low-mass 1.8-micron ribbon assembly. In fact, the frequency response is really good regardless of the angle of sound striking the ribbon, with off-axis coloration extremely low.

Because there are no internal active electronics, there's little worry of overload or distortion unless the maximum SPL rating (rated at more than 130 dB) is exceeded. There's also extremely low residual noise. According to Royer, the ribbon element is not affected by heat or humidity.

The unit is supplied in a protective wood case with a microphone clip. Optional accessories include a windscreens and shock mount.

IN USE

I used a pair of SF-1's and compared them with a pair of R-121's over a period of months, and in every case the conclusion was the same. Both mics sounded great, but the SF-1 had more air thanks to the extended top end. On overheads, the 121 was great, but the SF-1 had more "zing." On percussion, the SF-1's extended frequency response seemed to bring the instrument closer and cut through a little (and I mean *little*) better in the mix. Acoustic guitars had a bit more definition, again thanks to that little extra on the top end. We'd put the R-121 up and think, "This is great. It can't get much better." And sure enough, the SF-1 was. Now don't get me wrong, the difference is small and program dependent — acoustic instruments, in particular, benefited from the more "hi-fi" SF-1.

I'm told that the SF-1 has become the mic of choice in classical recording these days (used extensively on woodwinds and strings), and I can see why. One of the things that you notice with the SF-1 is the consistent frequency response regardless of distance, which is an

unusual trait for most microphones. This makes it perfect as a room mic or in any application where anything other than close miking is required.

But the down side is the fact that you have to treat the SF-1 just like the ribbon mics of old; that is, more or less with kid gloves. Unlike the R-121, which loves loud electric guitars and kick drums, an SF-1 will pop its ribbon in no time at all if you're not careful. And I don't know if I'd use it as a close mic on a vocal (a choir maybe) for fear that a plosive would cause some damage.

WHICH ONE IS FOR YOU?

If you want an all-around good mic that will provide excellent results on just about anything, the R-121 would be my pick. If you do mostly acoustic or orchestral music where the utmost in fidelity is the concern and you don't have to suffer loud



transients, the SF-1 would truly be an excellent choice. Either way, you can't go wrong. These mics aren't only state-of-the-art, they're everything condenser mics wished they could be. And at about \$1,000 each, the price is indeed right considering the level of quality that you get.

Royer also manufactures a stereo version of the SF-1; the SF-12 (see the review in the September 2000 EQ). The SF-12 was actually released first, and the SF-1 followed at the request of engineers who liked the sound of the SF-12, but preferred a mono mic. Excellent for overheads or stereo applications, the price of the SF-12 is \$2,150. ■

SPECTRASONICS

► continued from page 40

Another interesting feature is that loop elements are individually editable — for example, you could filter the kick, but leave the snare alone; or change tunings on the hi-hats independently of the other sounds. This gives a lot more control than is possible with a stereo audio loop.

Minimum system requirements for the three plug-ins are reasonable. For

the Mac, Stylus and Trilogy want a 300 MHz G3 running OS 8 or higher; for the PC, Windows 98 and a 400 MHz CPU. Atmosphere needs extra oomph — 450 MHz G3/600 MHz PIII. You need about 3.5 free GB of hard drive space per instrument. Between this and the increasing number of sample-intensive virtual instruments, those 60 and 80 GB hard drives are looking more like a necessity, not a luxury — and now, more than ever, virtual instruments are looking like the wave of the future. ■

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Peavey Kosmos Bass Enhancer

Thumping
bass without
the mud

The Kosmos is a 1U signal processor that adds depth and power to the audio spectrum's low end, but without EQ or compression. It analyzes the input signal, tracks a relatively narrow range of the most prominent bass frequencies, and synthesizes additional content one octave lower. This results in a "focused" bass enhancement (not a "blob" of muddy low frequency) that's equally at home in a mastering suite or a live performance PA system.

INS, OUTS, AND CONTROLS

The rear-panel I/O is straightforward: paralleled 1/4-inch TRS and XLR balanced ins and outs, along with a separate 1/4-inch TRS-only subwoofer out that filters out frequencies above 90 Hz. These are all designed for +4 dBu signal levels. Although a front-panel input level control can raise a -10 dB signal to work with Kosmos, there's no output level control to pad it back down again.

Also on the rear panel is an IEC AC cord receptacle. Kosmos is available in either 100/120 or 230V versions; there's no way to switch.

The front panel has an input level control with active/clip LEDs, bypass switch (not hard-wired, though; Kosmos needs power even when bypassed), and subwoofer output level. The bass-enhancing control section includes Quake (subharmonic level), Thud (EQ that effectively adds definition to the subharmonics), Cut Sub Bass from Main switch to send the enhanced lows only to the subwoofer, and Subterranean Shift switch to compensate for whether you're driving bigger or smaller speakers.

The final control, Xpanse, is more like a traditional high-frequency exciter. It boosts the upper midrange/treble, and expands the stereo image. This comes in handy if you've boosted bass to the point where the treble seems to lack something in comparison, or if you need a bit of zing in the high end, but be careful — you

▶ PEAVEY KOSMOS

MANUFACTURER: Peavey, 711 A Street, Meridian, MS 39301. Tel: 601-483-5356. Web: www.peavey.com.

SUMMARY: A versatile processor that does for the low end what "exciters" do for the high end, without adding mud.

STRENGTHS: Cost-effective. Useful on stage, in the studio, or when mastering. Clever design enhances bass in a very focused way. Xpanse control adds high-end enhancement. Great for restoring bass on vinyl recordings. Simple, straightforward operation.

LIMITATIONS: Can't switch between 120/100V and 230V. Manual doesn't describe any typical applications. Not designed for -10 dB operation.

PRICE: \$299

usually need only a little bit. With signals that already have a lot of highs, adding in Xpanse can put the highs over the top.

APPLICATIONS

Kosmos provides effects from subtle to downright magical. I used it as an insert effect for several different signal sources, with uniformly useful results. Kicks acquire a larger-than-life, gut-shaking thud. A formerly weak B3 patch sounded like its bass pedals had gone on a body-building regimen, and when applied to acoustic guitar, Kosmos brought back some of that physical "body" that seems to get lost as soon as a mic becomes involved.

As a mastering tool, I was shocked to be able to literally reconstruct a bass part from an old record cut in the '60s. This album had everything rolled off below about 80 Hz to avoid stressing out the cutter, but there were enough bass harmonics left in the sound that Kosmos could seek them out, synthesize the notes an octave lower, and re-create the bass part. Amazing. And with material that's already well recorded, adding a touch of Kosmos adds authority and depth to the low end. Because it's actually creating new frequencies rather than



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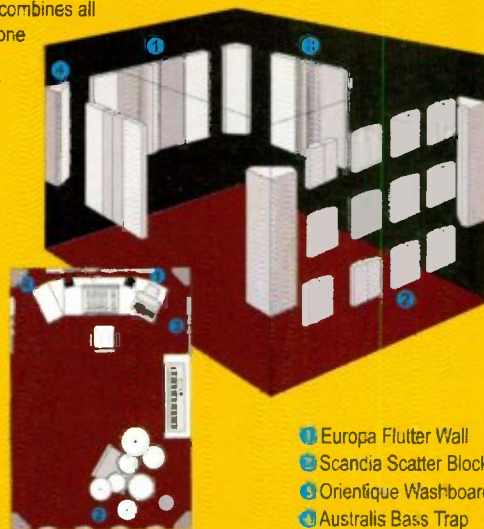
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JUST A PHASE

With early units, the subwoofer out reversed phase compared to the main outputs (newer models have fixed the problem). Peavey will modify older units for free, or you can do it yourself in one of two ways: create a custom phase-reversing patch cord (e.g., cross-connect pins 2 and 3 on the two ends), or change a connection inside the unit as follows.

1. With the AC cord disconnected, remove the 11 screws that hold the top plate in place, then pull off the top.
3. Locate the four-conductor ribbon cable that attaches to the board behind the subwoofer jack.
4. Unsolder the ribbon cable, reverse it 180 degrees (the black lead now faces the transformer instead of the other jacks), and resolder.
5. Close it back up, and you're done.

processing existing ones, as long as you're conservative with the Quake (subharmonics level) control, the low end won't sound muddier — just bigger.

For DJs, Kosmos is a dream machine. Not only can it add low end to vinyl so that it can better match today's bass-heavy CDs, but it can also pound out bass without resorting to low-end compression or EQ. On some of my own cuts, Kosmos was able to create the same kind of low-end depth I experience when playing live through huge, subwoofer-heavy systems over in Europe. Too cool.

For live use, Kosmos also has a lot of tricks up its sleeve. It's been reported that Wynona's band uses Kosmos with their in-ear monitors to gain back some of the lows lost by not using wedges. And I assume Kosmos would be killer with a surround system, although I don't have one for testing.

Frankly, I was expecting a sort of ho-hum, "okay, there's more bass" type of processor, but the more I messed with Kosmos, the more impressed I became. Sometimes the results were very subtle, adding just a hint of depth. Sometimes the results were dramatic, and capable of shaking the floors. But overall, this is a versatile, clever device, and it's reasonably priced. If you think "bass is the place," don't miss this box.

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Rosendahl Nanosyncs Master Sync Clock Generator and Distributor

Set your whole system to this clock

Stability is a good thing in both interpersonal relationships and in project studios. If you've been hacking your way through the digital jungle these past few years, you've probably already discovered the absolute need to lock all of your audio devices to the same master clock. Failure to do so can result in anything from compromised fidelity (most usually collapsing of width or depth and/or flabby low end) to pops and clicks to no signal at all.

One way around the problem is to designate one of your devices (hopefully the one with the most stable, jitter-free clock) as the master and then connect all other devices to it. However, few pieces of audio gear offer multiple clock outputs or clock in/thru "daisy-chaining" capability, so many users turn to clock distribution devices such as the Aardvark Sync DA (reviewed in the March 2001 issue of *EQ*).

Another solution is to purchase a dedicated clock generator, such as the Aardvark Aardsync II (also reviewed in the March 2001 issue of *EQ*), whose sole purpose is to provide stable clock signal to every piece of digital gear in your arsenal. The Rosendahl Nanosyncs is a single-space rack device that actually fulfills *both* roles — it can act as a master clock source or can slave to pretty much any kind of incoming clock and then distribute the signal to multiple devices in a variety of formats.

The rear panel of the Nanosyncs is testimony to its impressive flexibility. There are six word clock outputs (all on standard BNC connectors), as well as AES/EBU and S/PDIF outputs (on the usual XLR and RCA-type connectors, respectively). In addition, there are four video blackburst outputs (again, on BNCs) and three reference inputs, allowing the Nanosyncs to slave to incoming signal. Options here include video sync, word clock, or even linear SMPTE timecode (LTC). When the latter is chosen as clock master, a second connector acts as a SMPTE through port, enabling the LTC to be passed on to other devices. One quibble is that the LTC input and throughput are both on BNC connectors, which may be standard for high-end video equipment, but is less frequently found on audio gear.

▶ ROSENDAHL NANOSYNCS

MANUFACTURER: Rosendahl Studioteknik, dist. by HHB Communications, 1410 Centinela Ave., Los Angeles, CA 90025. Tel: 310-319-1111. Web: www.rosendahl-studioteknik.de, www.hhbusa.com, or www.nanosyncs.com.

SUMMARY: One-stop shopping for all your clock needs, especially in postproduction environments.

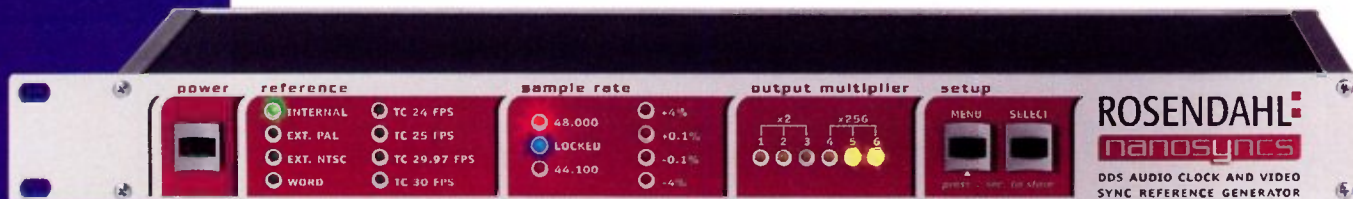
STRENGTHS: Internal clock generator operates at double-speed (96k and 88.2k) sample rates as well as standard 48k and 44.1k. Six word clock outputs, plus four video outputs and AES/EBU and S/PDIF outputs. Word clock outputs can be configured to single-speed, double-speed, or Digidesign Super Clock. Can derive word clock from video or linear SMPTE (LTC). Built-in video blackburst generator and distribution amplifier. Supports four pull-up or pull-down speeds. Variable brightness LED shows strength of lock to external signal. Simple user operation.

WEAKNESSES: LTC input and throughput connections are BNC only.

PRICE: \$1,340

Simple front-panel operations allow you to select either internal or external clock sources, and one user setup can be stored. The internal clock generator can be set to operate at either 44.1 or 48 kHz sample rates, and each of the first three word clock outputs can be individually configured to operate at double-speed, allowing you to slave devices at 88.2 or 96k. The remaining three word clock outputs can be individually designated to route clock signal at the specified single-speed sample rate or to generate Digidesign Super Clock (x256). In addition, pull-up and pull-down clock speeds of plus or minus 0.1% or 4% are supported. (These are used, for example, in video postproduction applications when transferring between film, NTSC, and PAL formats, or vice-versa). When internal clock is selected as the source, the four video outputs all distribute blackburst signal, making the Nanosyncs suitable for use as master clock generator even in a studio that is primarily geared for postproduction.

The published specifications for the



Nanosyncs are a little confusing in that the owner's manual states an absolute clock jitter of less than 800 picoseconds, while a current product brochure lists the same spec as less than 350 picoseconds. Although both these figures are slightly higher than that of the Aardsync II (which claims jitter at 150–200 picoseconds), I have to say that I detected no audible change in sound quality when switching between the two as the master clock source in my project studio. Not surprisingly, I did hear a noticeable improvement in fidelity (a wider soundstage and tighter low end) when operating my console (a Sony DMX-R100) at double-speed sample rates; however, there was no significant difference between using the DMX's internal clock at these higher sample rates or using the Nanosyncs as master clock source.

When an external clock source is selected as master, a spiffy blue front-panel LED indicates lock. According to the owner's manual (which is on the thin side but fairly comprehensive), the brighter this LED lights, the more stable the incoming signal. However, I hooked up the Nanosyncs to a number of master clock sources (both video and word clock) and it always seemed to glow with the same brightness. When locked to external clock, blackburst signal connected to the video input is distributed to all four connectors. Regardless of the clock source selected, the AES/EBU and S/PDIF outputs pass along "null" clock signal at the designated sample rate, enabling you to lock up digital audio devices that do not have word clock inputs (such as most PC sound cards, for example). Clock can be derived either from an incoming word clock signal (at any sample rate from 40 to 51 kHz), from incoming video sync or blackburst signal (NTSC or PAL versions available), or even, as mentioned previously, from incoming linear SMPTE timecode (frame rates supported are 24, 25, 29.97, or 30 fps). When using SMPTE timecode, the first lockup is slow (up to half a minute), as the Nanosyncs calibrates itself to the timecode. Once calibrated, it relocks immediately.

Although clearly designed with the professional postproduction facility in mind, the sheer number of features offered by the Nanosyncs assure that it can happily find a home in almost any project studio that incorporates digital

MEASURING CLOCK JITTER

If you're shopping for a clock generator by comparing specs, HHB sales engineer Don Hannah warns, "A standard of measurement is necessary in order to publish clock jitter values that can be compared accurately. Unfortunately, there is no industry-established standard that defines the measuring equipment used, a common unit of measurement (e.g., RMS, peak, etc.), the audio sample delay used, or if the measurement is an average over a prescribed time. Therefore, contrasting published jitter values between different synchronization devices may be incongruous."

audio gear. Well worth checking out!

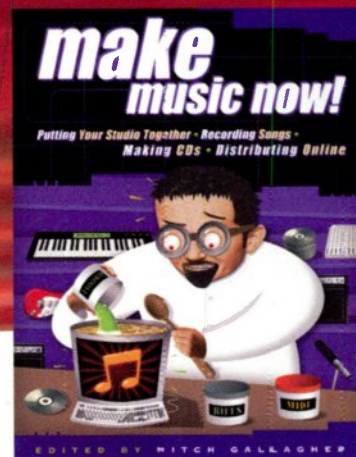
Howard Massey heads up On The Right Wavelength, an audio consulting company, as

well as Workaday World Productions, a full-featured project studio. His latest book, *Behind The Glass* (Backbeat Books), is a collection of interviews with record producers.

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EQ0203

Equi-Tech ETI.5RQ Balanced Power System

Zen and the
art of bringing
your AC into
balance

I'm a fanatic about AC power. My studio is on a separate circuit; all computers and digital gear connect to a single outlet, while all the audio gear connects to a separate single outlet. The only connection between them is optical, and all the AC grounds use a star ground system. There are no ground lifters, no ground loops, and no dimmers.

So I was curious to see if Equi-Tech's balanced power system, which supposedly reduces AC-related noise floor degradation, could benefit my setup. Furthermore, I wanted some *objective* way of showing whether the concept works or not. After all, "balanced power" sounds like one of those snake-oil concepts. Power is power, right? Well...not exactly.

BALANCED POWER THEORY

Noise, clicks, pops, and spikes that can get into your gear's ground ride along on your AC line. And all those bypass caps that go to ground can distribute the noise to your gear's audio sections. Balanced power isolates incoming AC through a center-tapped, precision-wound transformer. The secondary has a grounded center tap, and produces two out-of-phase 60-volt signals.

When you connect across the transformer secondary, there's 120 volts. But like a balanced mic transformer, common-mode signals — *i.e.*, the dirt riding on the line — cancel. The only caveat is that you can't feed an uninterruptible power supply from the output; it must go prior to the Equi-Tech unit. (Note: These units also offer surge and ground fault protection.)

BALANCED POWER IN PRACTICE

Most of the glowing reports about the Equi-Tech unit come from people who've done an entire studio, but I wanted to see if there would be a difference with a *single* signal processor or amp and mixer. My test setup was simple: The Equi-Tech plugged into a wall outlet. To test the sound with and without balanced power, I plugged a barrier strip that powered the gear either into the wall or the Equi-Tech's output.



► EQUI-TECH ET I.5RQ

MANUFACTURER: Equi-Tech, 18258 Redwood Highway, Selma, OR 97538. Phone: 541-597-4448. Web: www.equitech.com.

SUMMARY: Removes electrical noise from the AC feeding your gear, thus lowering the overall noise floor.

STRENGTHS: Really does work, and the difference is measurable. Easy to hook up.

LIMITATIONS: Effectiveness varies depending on your setup. Not exactly inexpensive.

PRICE: From \$889 for an 8.3A rack system to \$6,854 for a 105A wall system. Various options are available, such as EMI/RFI filters, front-panel voltmeter, export models, etc.

To measure noise, audio was transferred optically to a computer running WaveLab 3.0.

Fig. 1 shows the noise from a Carvin guitar amp's preamp output connected to a Panasonic DA7 mixer. The crucial spec is the blue average noise reading. Note that, with



FIGURE 1



FIGURE 2

balanced power (the lower meter), the reading is -41.01 instead of -39.92 — over 1 dB quieter. The peak reading (green) is about 1.5 dB lower.

Fig. 2 shows the same test with a Peavey TubeFex. Balanced power again reduced the average noise, in this case by 0.75 dB, with peaks down about 1.2 dB. Remember, this is in a studio that's already very quiet.

I also tested an Aphex Model 107 tube mic pre that receives power from a wall wart instead of the AC line. Here, there was no significant difference using balanced power. This seems to be due to the wall wart; gear that connects to the AC line apparently benefits most from balanced power.

A dB or two of improvement may not seem like much, but if there's multiple mic pres on a drum

► continued on page 132

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World Radio History



Summit Audio TD-100 Tube Direct Box

Shore up your studio with this powerful front end

Since the brave new world of digital recording came to my neighborhood, I've been amassing vintage analog gear to shore up the "front end" of my recording chain. Owning great mics, preamps, EQs, and compressors are certainly mandatory, but the one thing often forgotten is the simple instrument interface: the direct box.

The Summit TD-100 isn't just a direct box; it is also an instrument preamp with enough gain to drive the line input of an analog console or a DAW. The front panel features a stepped gain control with up to 24 dB of gain plus an impedance matching control (more about this in a minute). Also on the front panel are a direct output jack to feed an amp as well as a polarity switch and a ground switch. The rear panel has an XLR mic-level output plus a balanced TRS line-level output jack. Also provided is a 1/4-inch headphone output. The circuit is a hybrid design based around a 12AX7 tube.

For my listening tests, I enlisted Justin Meldal Johnson, long-time bassist for Beck and studio bass player for many others. We did our tests at La Casa studio in Los Angeles.

We needed a standard to compare with, so having recorded Justin on many occasions through my normal bass chain (Demeter Tube Direct via my Neve 1073), I had a good reference point. The Demeter delivers a warm "tube" tone with a nice bump in the lower mids to round out the tone. We then patched the Summit TD-100 into the 1073. The Summit sounded fast, full, present, and natural. The low end was deep and full. The top end had real clarity and extremely fast transient response. The newness of the Precision bass strings was easily apparent.

We next evaluated the Summit using its line-level outs directly into Pro Tools. The Summit's deep low end was instantly impressive. An added bonus of the Summit is its front-panel impedance-loading control. By varying the impedance, I could change the tone from very tight, damped, almost slow attack/choked release-type sound to

► SUMMIT AUDIO TD-100

MANUFACTURER: Summit Audio, 390 Westridge Drive, Watsonville, CA 95076. Tel: 831-728-1302. Web: www.summitaudio.com.

SUMMARY: A great sounding, highly flexible direct box/instrument preamp.

STRENGTHS: Excellent sound. Line-level output. Variable impedance control.

WEAKNESSES: None to speak of.

PRICE: \$495

a more open, fast transient, full low-end sound. My only real complaint is that the Summit line-level out is a 1/4-inch balanced TRS. An XLR output would have made it more flexible. Also, we weren't that impressed with the sound of the headphone output. I'd prefer to hear a more tailored, colored output that might be more inspirational to play through.

I wanted to try one more instrument through the box: the studio's 1974 Minimoog. Without the Summit, the Minimoog sounded full and deep, delivering all that one would expect. With the TD-100, the synth had even more in the subsonic range, and the note attacks seemed clearer. We also tried some really harsh high-end triangle waves, and the DI seemed to round off the brittleness and make them more musical sounding. The Minimoog just overall sounded fuller. Plus, by having the ability to control the preamp gain, I could add a little bit of overdrive to the sound if desired. Once again the impedance matching control offered a variety of subtle shades in the transient response and low-end damping.

This box would be perfect for the re-amping addict. With line level coming out of the TD-100, you can just print a clean punchy direct guitar tone and your future amp options are endless. If you're in the market for a tube direct box, there are certainly lots to choose from, all delivering slightly different tones. But, after this review, I'm sold on the TD-100 — this evening of evaluation just cost me \$500. Thanks, EQ... ■



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Sample CD Reviews



CONCEPT:FX3 F7 Sound and Vision (www.f7sound.com)

Were you a fan of the "Poke in the Ear with a Sharp Stick" series? Do you sample short-wave radio rather than listen to it? Do you need squerks, sneeps, and blonks to liven up your multimedia tracks or provide rude backbeat layering? Then this one's for you. Concept:fx3 has over a thousand files, duplicated in WAV (non-acidized) and AIFF formats (540 MB total). There are no loops, pianos, or French horns; documentation is minimal, although I don't know how you'd classify these sounds anyway.

Files are organized in seven folders, whose names vaguely resemble the sounds therein: bites (282 files), comic (173 files), grunge (102 files), hits (327 files), longer (48 files), small (171 files), and static (189 files). Longer is my favorite — the ambiences are wonderful — but there are lots of useful sounds, and you can audition some of them on the Web site so you have an idea of what you're in for. CD-ROM with WAV/AIFF files; \$89.95

AFRO-CUBAN (LATIN) PERCUSSION Sonic Implants

(www.sonicimplants.com)

This sample CD is a feast of percussion instruments: agogo bells, ankle bells, birimbou, bongos, caxixi, cha cha bells, claves, three congas, cowbells, cuica, finger snaps, guiros, jam blocks, large basket, rattle, maracas, pandiero, reco reco, repenique, samba whistles, macana, tam-

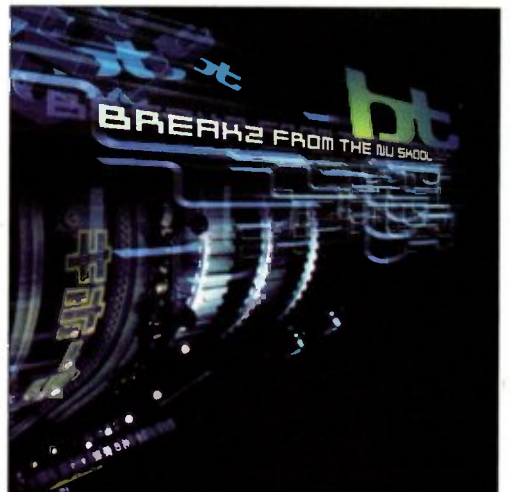
borim, timbales, etc. Each instrument is available in four versions, two with ambience and two close-miked; each of these offers a full keymap (with all velocities and articulations) and small keymap (with reduced size for limited memory).

This is serious stuff; there aren't any presets with a ton of sounds, instead each instrument gets generous mappings across multiple keys, making them easy to play and articulate. If you've been using the "perc" samples tacked on to a drum machine or synth, it's a treat to make far more expressive

parts thanks to quality recorded sounds, lots of velocity-switched dynamics, and a great choice of articulations. Available in Kurzweil, Giga, SoundFonts (version reviewed), and Akai/E-mu formats; \$99.95

BREAKZ FROM THE NU SKOOL

Eastwest (www.soundsonline.com)
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loops, with an emphasis on the 90–140 BPM range. There are two general loop types, Dirt and Live. Both are extensively, and creatively, processed. The Dirt ones seem to use more electronic sound sources, whereas Live sounds more like acoustic drums — but given the amount of mutation, who knows?

What matters is the end result, and the loops are strong, compelling, and speaker-shaking. While this isn't a construction kit, some loops are a relatively long eight measures, and have enough variation that any semi-skilled digital audio surgeon could easily cut them up into custom grooves. Although the WAV files aren't acidized, they load into Acid with no problem. Sometimes the beats almost seem like too much of a good thing (the motto seems to be "why just



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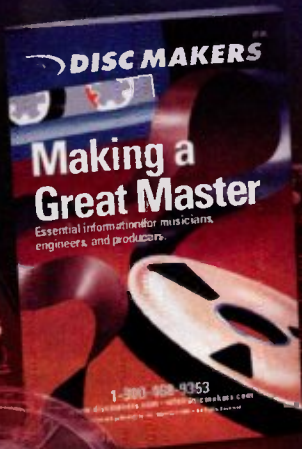
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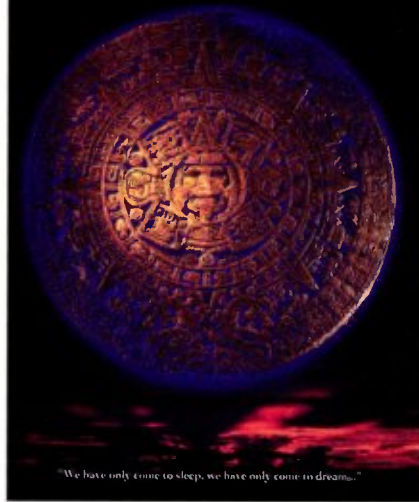
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VOICES OF THE AZTECS Q Up Arts (www.quparts.com)

Voices of the Aztecs is definitely not another me-too CD. After a demo, it kicks off with multisampled percussion and instrument sounds from archaeological artifacts, with different articulations. Some of the sounds seem almost more electronic than acoustic, and the recording and production techniques bring out their mystery. Mastering is minimal; the inherent sound is authentic, but there's plenty of room left if you want to do creative processing.

There are also 520⁺ of vocal phrases, 743⁺ of 11 different ambiances (I could picture these dropped into any of several movies), and almost a minute of loops. These aren't dance floor loops, but there are hypnotic drum patterns and such.

The CD has only about 28 minutes of material, but, then again, there are only so many Aztec instruments around to sample. For those who want some entirely different sounds to add to their palette, this isn't just a different genre — it's a different civilization. Audio, \$99; Akai3000 and GigaSampler, \$299; AIFF and WAV (also for HALion), \$249. ■

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IK MULTIMEDIA

► continued from page 111

You get two metering options to help you set final levels — three-point with over light (always on) and high resolution. Once the track is mastered to your satisfaction, you click the Process button to write it to disk. You can save your masters in 24- or 16-bit (with internal dithering); compressed formats such as MP3 aren't supported.

PRESETS AND OTHER TOOLS

T-Racks may look retro, but it does offer computer niceties such as the ability to store presets and up to eight basic snapshots of your settings. The factory presets run the gamut from subtle to extreme and do a good job of getting you familiar with what this software can do. Many of them make a good starting point for your own edits. You can store and load presets for an individual processor or for the entire suite — nice. You can also change the look of T-Racks to some degree — not the most essential of features, but fun nonetheless.

FINAL ANALYSIS

Simplicity and retro vibe are nice, but the value of T-Racks is in its ability to produce excellent-sounding results quickly. I recently remixed a track and mastered it twice: once with T-Racks, and once with another mastering program. Using the presets as a means of testing the waters, I was able to find a profile that matched the track and fine tune it in minutes. The mastered mix sounded punchier and bigger than the original. More impressive, when I A/B'd it against the other mastered version of the same mix, I found that the T-Racks version, which had been heavily limited, sounded less squashed, yet louder, than the alternative. That's not to say I couldn't have achieved similar results with another program, but the speed and ease of T-Racks was impressive.

On the other hand, I *did* have to use my other mastering software in order to fine tune my waveform edits and prepare my CD. Deeper audio editing features would make T-Racks even more appealing, as would CD burning, the ability to operate the processors with an outboard control surface, and MP3 and other streaming media support. Still, with great sound and intuitive operation, T-Racks 24 is the master of its domain. ■

EQUI=TECH

► continued from page 124

set, some older outboard gear, and a few minor ground loops, those individual decibels of noise reduction can really add up. It's not surprising that some people report a noise floor reduction of 15 dB or more after converting their entire studio to balanced power.

SO IS IT FOR YOU?

Equi=Tech makes a variety of units for different current requirements. They aren't cheap, so the overall cost-effectiveness depends on your scenario. If the AC is dirty or you're running lots of sensitive or "vintage" gear, balanced power could make a major improvement in your overall sound. If you've paid close attention to power and grounding, the difference won't be as dramatic...although, as figs. 1 and 2 show, it's still significant. (Incidentally, Equi=Tech offers a 30-day satisfaction guarantee, so if you try it and don't hear any difference, no hard feelings.)

Incidentally, some people claim the Equi=Tech system creates a "more open soundstage" or a more "transparent sound." While I'm generally skeptical of "golden ears" claims, in my opinion these claims hold up. Lowering the noise floor provides these benefits because it removes masking of low-level detail. So, clean AC power doesn't improve the sound *per se*; but reducing the noise floor in associated gear *does* indeed improve the sound. With 24-bit converters putting a magnifying glass on the lower end of your dynamic range, balanced power will command increasing attention as a quick path to a lower noise floor. ■

WINTER NAMM

► continued from page 70

ZOOM: The compact MRSZ-4 MultiTrak Recording Studio (\$499.99) offers eight tracks, 32 virtual tracks, stereo recording, mastering effects, MIDI control, digital editing controls, and storage on SmartMedia cards...The **MRT-3 Micro RhythmTrak** (\$194.95) is a stand-alone drum and bass machine that features seven velocity-sensitive drum pads, 20-note polyphony, and 96 PPQ resolution...A new version of the MRS-1044 hard disk recorder, the **MRS-1044CD**, includes an internal CD-R drive, twice as much hard disk space (40 GB), and a mix-down memory feature that allows you to save 10 different stereo mixes on the hard drive before committing one to CD-R.

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LEE ROY PARNELL

► continued from page 14

Generally we track in a big room (preferably on a Neve console) with plenty of room for the drums to breathe, where the players and I can be eye to eye (Muscle Shoals Sound, AL or Groove Masters, LA most recently). We track live to two-inch analog and dump it to the RADAR II. Then it's back to my place where we overdub and mix. My Mackie D8B has proved to be a wonderful tool for the mixing process. Along with the vintage and new analog processing we have on hand, we have experienced excellent results."

PRODUCTION NOTES: "I really needed the big windows to keep the energy and spirits up when John and I work long hours. Thanks to the folks at Auralex, we were able to keep the windows and fireplace by treating the control room and overdub room to their specs. If you're going to mix in your own space, you've got to be able to trust what you're getting from your monitors. The Auralex treatment made a world of difference."

EQUIPMENT NOTES: "John mans the controls when it's time for me to play or sing. He is a wonderful engineer and co-producer. I need the objectivity of another ear I can trust. For my vocals, I tend to favor the C12 through the Neve 1081's with a little compression from the Tube Tech. When it comes to recording electric guitar, I will go to *any* length to get a great tone. Lately it's been a [Gibson] Les Paul or '335 through a combination of a vintage 50W Marshall with a 4x10 open-back cabinet, along with my [Fender] '65 Super Reverb. Both amps are miked about one foot away with Royer R-121's through the Neves, and Tube Techs. In addition, we mic each cabinet with a Shure KSM32 using the Ampex pres, compressing one with the LA-4 and one with the 160VU. Finally, we'll place a Neumann M 149, (through the 9098 and the Manley Vari-MU) six to eight feet away and about six feet high — just about where you would normally hear it. Then we begin adjusting the faders until we hit on that right combination."

"We always bring the two-mix through the Manley Vari-MU before it hits the two-track. We print to the MasterLink simultaneously, but the tape machine keeps winning!" ■

ROGER NICHOLS

► continued from page 146

used as a guide to line up the multitrack audio. What a mess.

Not all six hours of show were recorded on the ADATs. One of the performances had the first two minutes missing. Some performances had no ADAT audio at all. All of the video edits were done based on the audio feed to the video truck. Nobody bothered to check to see what audio was missing before the video editing was done. In those cases, the only audio available was the audio feed to the video truck — a bad mix with feedback from the onstage monitors. Try making a surround mix of that!

The moral of this story? Make sure when you are recording multitrack audio that you have two methods of assuring sync. [1] Word clock derived from video sync, such as you get from an Aardsync, and [2] timecode from the video truck that is continuous with no dropouts. If there is potential for dropouts, record the timecode on two tracks on different ADATs. The chances of both tracks dropping-out at the same time will be less likely. .

SESSION DOCUMENTATION

Once more, I am going to harp on session documentation. Whether you are using Pro Tools, Logic Audio, Digital Performer, Cubase, Deck, or whatever, make sure you document what you are doing. Make sure you name the tracks before you start recording so that the audio file names mean something. An audio file named "Kick" is easier to figure out than an audio file named "Audio 01-01." If you're using external effects or processes such as a reverb or tube compressor, document the type of device and the settings.

A good idea is to include a "Read Me" file that describes the configuration of your Pro Tools or other DAW. If you are using Digital Performer, was the interface an 828, a 1296, or a 24i? Were the mixes done completely inside the DAW, or were sub-mixes done on an external console? If so, which console, what settings, and what effects were added in the external console.

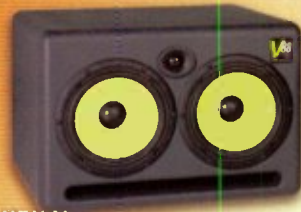
The first time you try to work on a session sent to you by someone else, or try to recall a session that you did yourself three years ago on a previous version of your favorite software, you will appreciate a comprehensive set of notes. ■

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► continued from page 96

GOING MOBILE

A paramount concern for ESPN X-Games Operations Audio Consultant Ron Scalise is networking the entire set of ESPN-based mobile television trucks. "First and most important is the programming of a 124 x 124 cross-point Pesa routing system. This is a very large matrixing device that tells what video and what audio goes where, and when it goes. There are more than 60 separate user positions that — at any time for any reason — can select their desired input or output sources and destinations. Feeding a variety of linear and non-linear video/audio record/playback devices as well as audio consoles and monitoring/preview devices, this preprogrammed interstate keeps very busy. For instance when you see and hear the right replay of a goal, home-run, pass, or crash, someone has selected that from their point of view image and its associated sounds via this router system. There are, of course, several angles to be seen, so it is important to choreograph this process with the variations of picture and sound. And when an audio/video special effect is used, this determines where the image is coming from and its path of travel so it can be used as a production element. It is a very complex digital and analog electronic video and multilayer-audio patching system that is all programmable through PC operation.

"Another very elaborate system is a computer-programmed central mainframe that is keeping all active personnel in contact with the right group of people. This is the Adam Matrix System, with the ability to PC-preprogram PL channels, point-to-point talk/listens, IFBs for talent [interruptible foldback, a system in which production personnel talks to on-air talent], and individual program mixes, which must be accurately routed in correct combinations with balanced levels set for under game condition use. When the red light goes on, all involved in the telecast can talk to the right people at will, and this preselected personnel menu is different for almost 50-plus users."

MUSIC MAKERS

Of course, there are folks out on the road using their computers to make music! Steve Morse, founder of the Dixie Dregs and guitarist for Deep Purple, recently used his laptop to do some on-the-road preproduction for an upcoming project: "As a guitarist/engineer, I used my laptop with Cubase and a Wamibox interface to record a substantial portion of *Split Decision*, my new, upcoming release on Magna Carta records. For sound, I used a Line 6 Pod, and also generated MIDI tracks by laboriously typing note-by-note in the editing window of Cubase. I would have used a keyboard, but it had to all fit in my suitcase since I was on the road with Deep Purple full-time. Not all the sounds were great enough to live by themselves on the final mix, but it really gave me a head start to have a template and sounds to work with as soon as I got home."

For David M. Lohr of DML Audio, a laptop provides a "tool to accurately tune a system by isolating the problem frequency bandwidths to precisely filter the problem areas. I run the system constantly during system tuning, soundcheck, and shows. With a continuous line RTA, I'm able to watch problem frequency areas for resonant frequencies. Since becoming familiar with SpectraFoo, I've not had to change the system equalization much, if at all, during the show. I've been able to get the console to work correctly, and because the environment reacts more consistently, you don't have to change the mix very much system to system."

"The computer has given me the confidence to trust my ears," summarizes Richard Battaglia. "With lots of available software for audio processing, the computer can be invaluable to a mixer. Software such as SpectraFoo and SMAART are valuable tools that help in making decisions based upon facts. To be able to see what I hear can only improve the end result. I can now make sure that a room is properly aligned. It's much easier to mix when what I am hearing is coming at me properly."

Steve La Cerra is on the road mixing front-of-house, wrestling with PA alignment and analysis on a daily basis. He can be reached at slacerra@uemedia.com.

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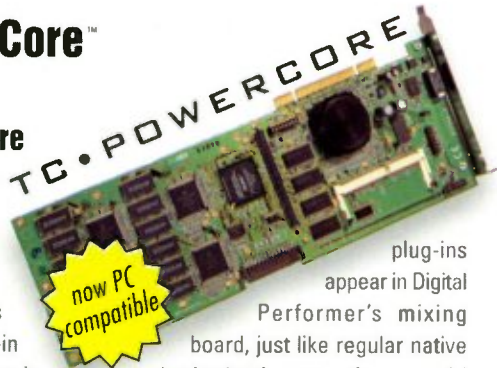
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DSP Turbo™ for
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Plug-ins

TC•PowerCore is a major breakthrough for Digital Performer's real-time MAS plug-in environment because it provides DSP turbocharged plug-in processing. At last, the renowned TC TOOLS/96 studio-quality FX package (included), with TC MEGAVERB, TC Chorus/DELAY and TC EQ^{SR}, can be at your fingertips in Digital Performer, plus other TC | Works



plug-ins such as TC MasterX and TC Voice Tools (sold separately). These powerful



plug-ins appear in Digital Performer's mixing board, just like regular native plug-ins, but they run on four powerful 56K DSP chips on the TC•PowerCore PCI card. It's like adding four G4 processors (equal to 2.8 gigahertz of extra processing power!) to your computer. Run 12 studio-quality TC plug-ins with no hit on your CPU power, and run other native plug-ins at the same time! And coming soon from 3rd party developers: Waldorf Vocoder, Antares AutoTune, TC Helicon Voicecraft and others.

TC | WORKS

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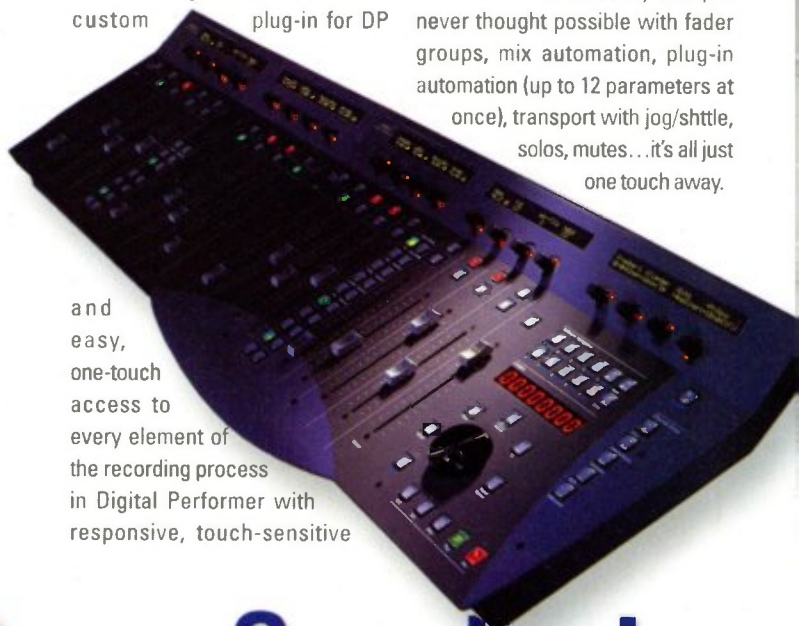


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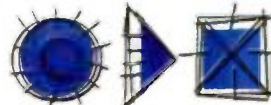
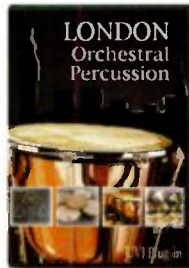
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Vol. 6 — Interactive Training for Digital Performer 3



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Smart Code Pro™
Surround Encoder Plug-ins For DP3



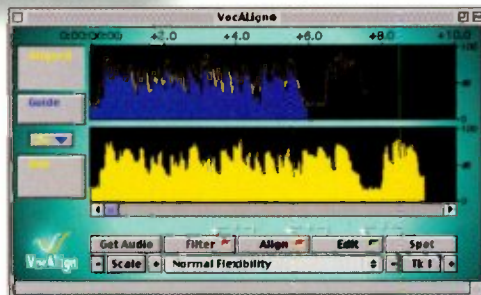
SmartCode Pro is the first and only surround encoder plug-in for Digital Performer. It allows you to deliver fully encoded surround mixes to your clients. Burn CDs or DVDs that you can preview using any consumer DVD player that supports Dolby Digital™ or DTS™ — a crucial final step in producing professional quality surround mixes. By encoding with Smart Code Pro directly within DP3, you avoid having to invest in expensive dedicated hardware encoders (that cost thousands), which saves you both time and money.

SmartCode Pro is available in two versions to accommodate the two most widely used surround formats: Dolby Digital and DTS. Both versions allow you to preview your 5.1 surround mixes in real time 5.1, then encode and decode the mix to create a 6-channel surround master. Smart Code Pro is a must-have for serious surround production with DP3.



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DAWs, timecode, and documentation

Good Choices, Bad Choices

Last night I got to see a demo of the new Pro Tools|HD system. Gill from Digidesign had it running on a Titanium G4 laptop with a Magma four-slot expansion chassis connected to a 192 I/O interface and a Sync I/O box.

Whether or not you think higher sample rates make any difference, there are some changes in the new Pro Tools|HD system that make it a highly desired upgrade to a Pro Tools|24 or Pro Tools|24 Mix system.

1. For the same amount of horsepower, the system costs about half of what a previous system cost. Each PCI card that goes into the computer contains nine DSP chips, instead of six, and they run 25% faster than the previous DSPs. Previous boards contained three different types of DSP chips, so plug-in shuffling would happen if the plug-in need a specific type of DSP. Now all of the DSP chips are of the S-RAM type that will run any plug-in.

2. Each card will handle 32 channels of I/O instead of 16. The cable connecting the 192 I/O to the card can be up to 50 feet long for 192k operation, or 100 feet for 96k operation. Instead of using a "Y" cable to connect two interface cables to an 888 or other I/O box, one cable goes to the first I/O box and then a short jumper connects the second I/O box.

3. One I/O interface handles 16 channels of analog, AES, TDIF, or ADAT audio at about the same price as an 888/24 I/O. Instead of six 888/24 I/O and three ADAT bridges, I now only need three 192 I/O interfaces to accomplish the same task.

4. If you're still working with 48k or 44.1k audio, you can have up to 128 tracks playing back at the same time, while at 96k the limit is 64 tracks, and at 192k the limit is 24 tracks. Remember that 96k takes twice as much storage, while 192k eats up four times the amount of hard disk space for the same length of music that 48k requires.

LIVE CONCERT RECORDING

I just finished doing surround mixes for a live concert DVD. I thought I had nightmares before, but these attained a whole new level of terror. The video part of the six-hour long show was professionally shot with multiple Betacams that were all receiving the same

timecode and locked to house sync (from the video switcher). The video editors had an easy job, but the audio....

The audio was recorded on four ADATs. A fifth ADAT was used to record the timecode, sort of. When the first set of ADAT tapes was recorded, the timecode was recorded on track 1 of the fifth ADAT. When the second set of ADAT tapes were put in, the timecode was recorded on track 2 of the fifth ADAT. When the ninth set of ADATs was recorded, the timecode was recorded on the first track of a new ADAT tape in the fifth machine. Got it so far?

There was no sync reference between the video machines and the audio tapes. What should have happened was that the same video syncing all of the cameras should have been sent to a box that generated word clock or ADAT sync. This would have ensured proper audio sync later.

A potential backup to solving the "no sync" problem would have been to resolve Pro Tools to the SMPTE timecode on the fifth ADAT tape. The SMPTE was locked to the video and can be used as a clocking reference if needed (although not the best choice). Here is where the nightmare gets worse.

All of the ADAT tapes had numerous dropouts. Audio tracks would disappear for long periods of time. This included the timecode tracks. Not one of the timecode tracks made it without four or five major 30-second or longer sections with missing timecode. Without continuous good timecode, you cannot use timecode as a clock reference.

If the ADATs had been recorded in sync to start with, then the digital audio would be in sync with the video, and any good portion of timecode could be used to trigger the start of the audio transfer from ADAT to Pro Tools. But not this time.

After the audio for the entire show was dumped into Pro Tools, about 15 edits for each song were needed to compensate for the drift of audio to picture. Luckily, there was a rough mix audio feed recorded on the switched video. This audio track was recorded into Pro Tools along with the video, and was

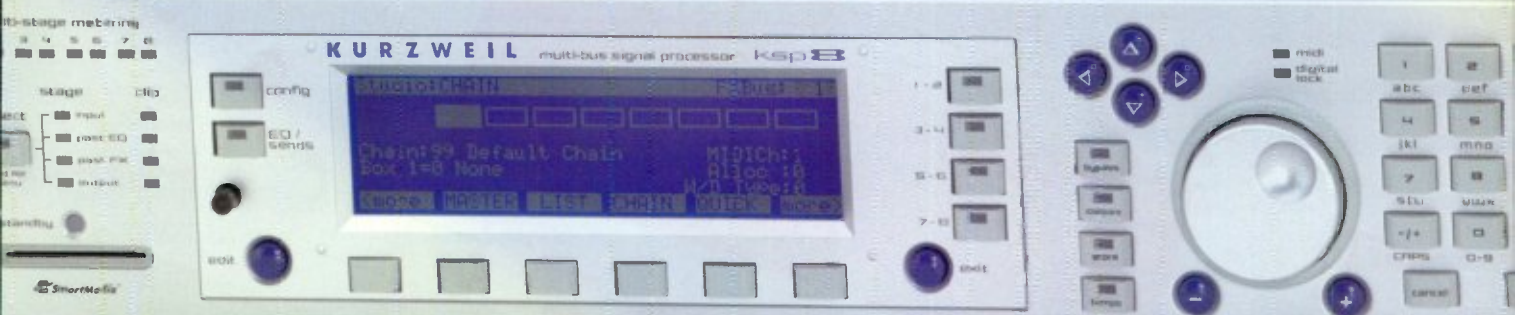
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