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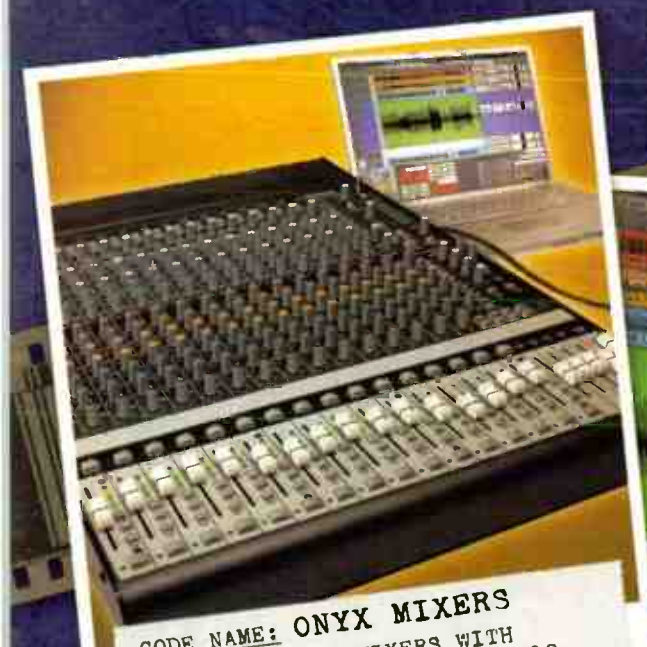

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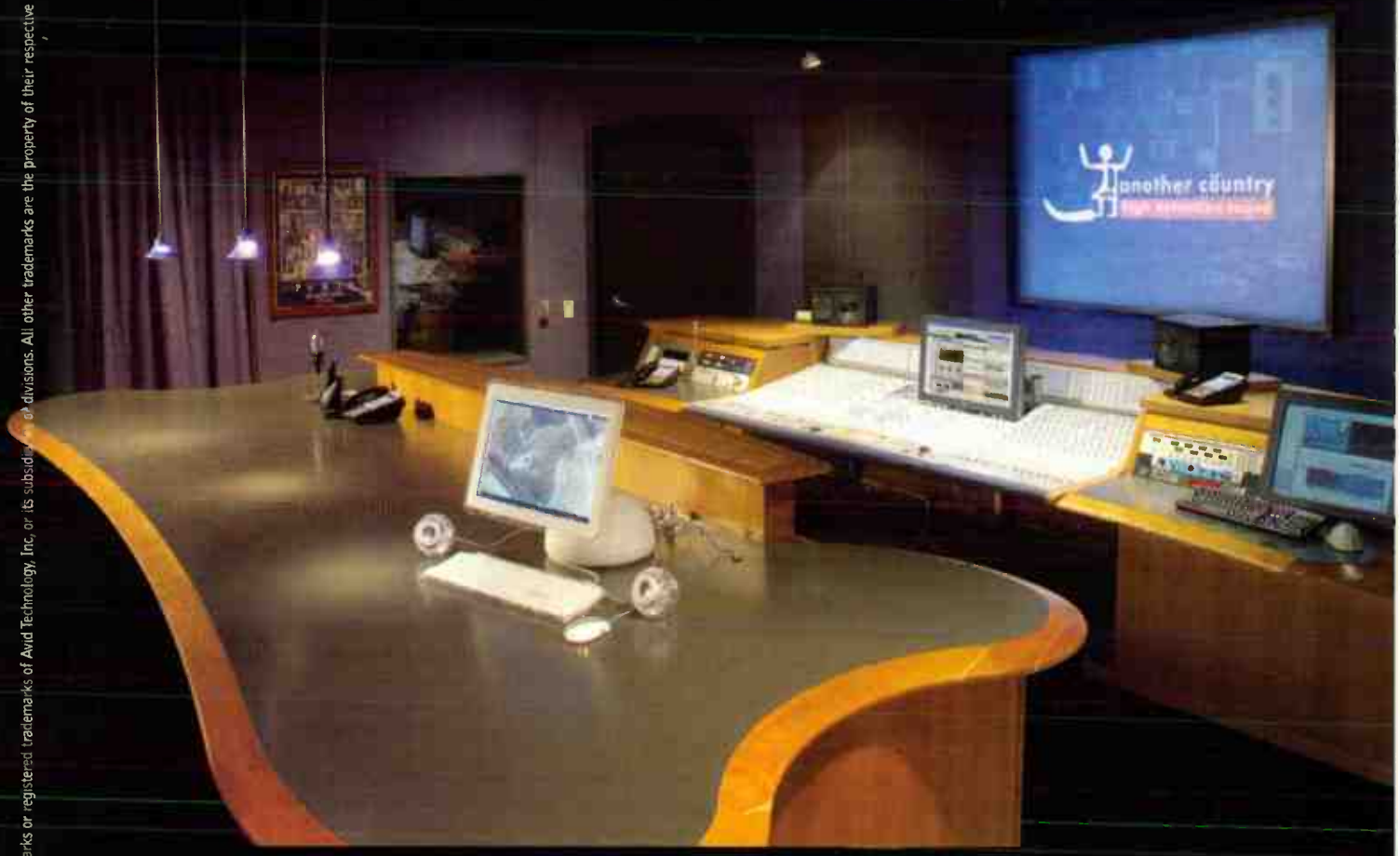

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Talk Box

Vol. 16, No. 3
March 2005

www.eqmag.com

MIXED UP. AND TERRIBLY, TERRIBLY CONFUSED.

Which is how you might find yourself whether you're doing it, having it done for you or just helping it happen. We're speaking here specifically of the Magical Mystical Mix. Which sits at the rubicon moment of any musical project: too far into it to go back, not close enough to it to stop. All kinds of things happen here in this space between being and non, with the faint of heart losing heart and those stout of purpose actually crafting out of all of their song styling strivings something worthwhile and lasting. And being one and not the other is the key difference between the also's and the ran's.

And to that end we're here to help.

Or rather JACK JOSEPH PUIG is. He of the mix mastery, holding court at LA's Ocean Way and being the go-to guy when you got a mix that's got to get to a go-to guy: he is IT. And he kicks off THE ULTIMATE MIX ISSUE with a possibly apt nod to Picasso when he says "If I had my way, and I could speak to Picasso today, I would not be interested in what kind of brush or paint Picasso used, or where he got the paint from. I would want to know what he was thinking when he was painting the picture."

Uh huh.

Add to that TAL HERZBERG's take on The Big Lie #39 – "we can fix it in the mix" – and Anderton's mix of tricks on Mixing With Plug-Ins plus The Shootout at *EQ* Corral's six gun take on studio design and The Art of Recording's Comparing Preamps and you've got the nearest and best solution to avoiding the painful and embarrassing discomfort of a bad mix that can't be blamed on anybody but you.

Read it, live it, love it.

Cheers,

The BAND STAND

Quantegy's dead. Now what?

Mitch Gallagher, Editor
Expect a run on tape suppliers as studios try to stockpile as much media as possible. Then the price of used reels will skyrocket as tape attains "vintage" status. T he Next Big Thing (we hope): a multi-gigabyte FireWire RAM stick.

Craig Anderton, Editor at Large
Next up: Hard disks. Instead of recording to them, record into tons of RAM — 64-bit apps will let us do that — then backup to HD or Blu-Ray DVD (whichever prevails). It sounds pricey now, but won't be in just a few years.

John Krogh, Technical Editor
I doubt that studios will be dumping their 2" machines anytime soon, so I'd wager there'll be an after-market rush (I hope). On a related note: Is anyone really surprised that tape manufacturers are abandoning the format?

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Punch—In

Tips & News You Can Use

BY EQ STAFF

The Money Where Your Mouth Is Award...

...this month goes to the cats at Earthworks Precision Audio who claim that their Earthworks DrumKit System will provide a better drum sound using just their THREE 25kHz mics than many others can do with seven or more. Impossible, you say? Hard to believe? Beyond the realm of possibility? Well, they'll shove a demo CD in your hands that'll let you hear what it sounds like when you use mics that are specifically designed with percussion in mind. Want one? We thought you might. www.earthworksaudio.com

Listen Hear

Since there's no accounting for taste then there's probably no accounting for why we haven't been able to get this stuff out of our heads this past month.

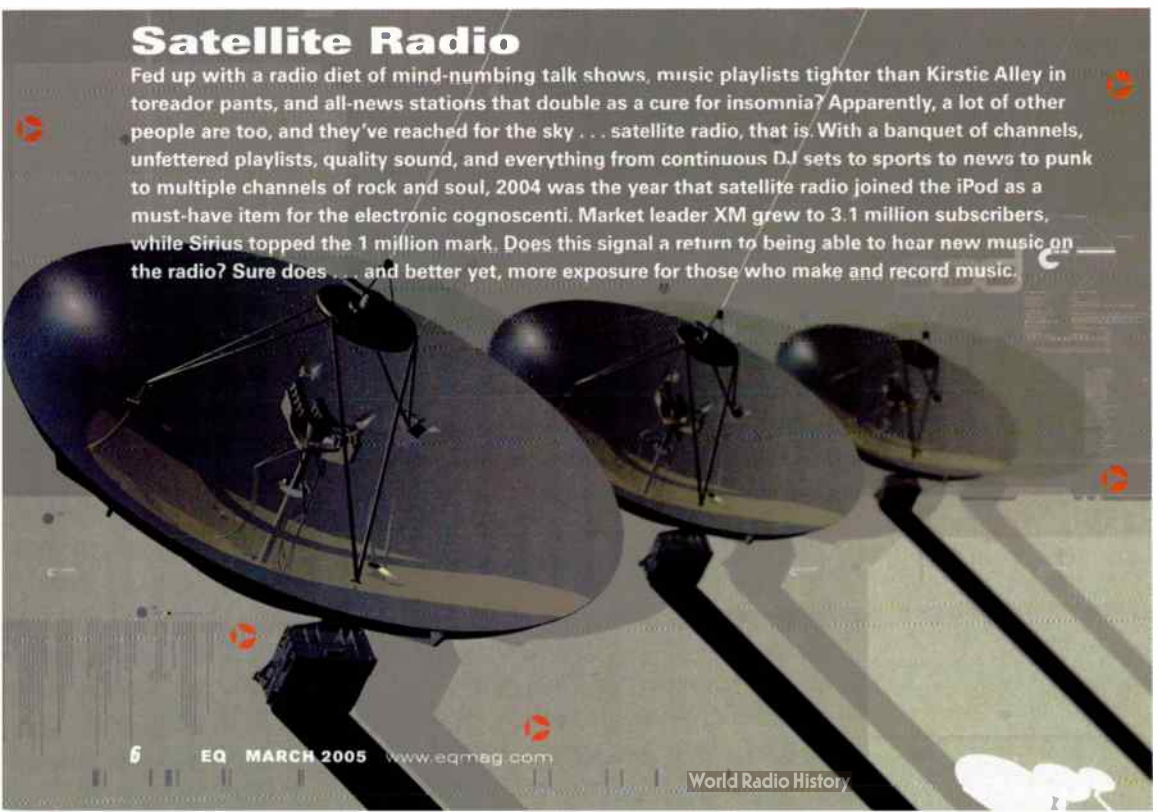
I♥HUCKABEES (Produced by Jon Brion & Jonathan Karp)

Wasn't this a movie? Sure, sure it was. A movie we didn't see incidentally. But the soundtrack? Not as cool as our other favorite all-time soundtrack record (Dennis Hopper's *Hotspot* with Miles Davis, John Lee Hooker, and Taj Mahal), but still chockfull of Mellotrons, euphoniums, harmoniums, and Wurlitzers all recorded with a sort of retro-*Abbey Road* touch.

PERSON, PLACE, OR THING **WE DIG** THE MOST THIS MONTH

Satellite Radio

Fed up with a radio diet of mind-numbing talk shows, music playlists tighter than Kirstie Alley in toreador pants, and all-news stations that double as a cure for insomnia? Apparently, a lot of other people are too, and they've reached for the sky . . . satellite radio, that is. With a banquet of channels, unfettered playlists, quality sound, and everything from continuous DJ sets to sports to news to punk to multiple channels of rock and soul, 2004 was the year that satellite radio joined the iPod as a must-have item for the electronic cognoscenti. Market leader XM grew to 3.1 million subscribers, while Sirius topped the 1 million mark. Does this signal a return to being able to hear new music on the radio? Sure does . . . and better yet, more exposure for those who make and record music.



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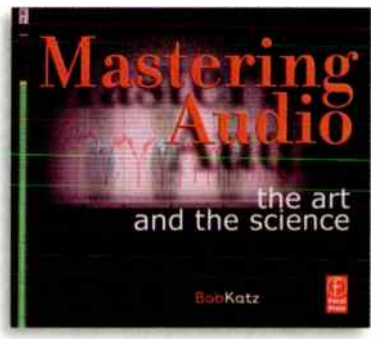
Book Review

Mastering Audio: The Art and the Science

Bob Katz
Focal Press (www.focalpress.com)
ISBN: 0-240-80545-3
319 pages, soft cover

Whether you want to learn mastering, not seem like an idiot when you work with a mastering engineer, or perhaps most importantly, want to create mixes that work well for mastering, this book demystifies some pretty advanced subjects in a surprisingly accessible manner. It covers bread-and-butter topics like monitoring, decibels,



typical gear, and mastering techniques (dynamics, noise reduction, equalization), but then moves into more advanced concepts such as high sample rates (do we really need them?), jitter, and various useful appendices.

Aimed at intermediate to advanced users, what sets this book apart is the liberal inclusion of practical tips, real-world experiences, and knowledge gained from others during the course of a career dedicated pretty much to mastering. It's one of those rare books that manages to be authoritative without being didactic, and clearly identifies opinions as opposed to verifiable facts. Bob also discusses a lot of myths, from the "warmth" of tubes (just because there's a tube doesn't mean it's good) to the digital vs. analog debate.

Even if you already do mastering, this book will help you do it better. And if you anticipate getting into mastering — start here.

tip

PLACING THE MIC, MIKING THE PLACE

We know the temptation is there to do it all yourself but ignore this (except when it comes to making coffee) and have someone else adjust the mic positions for you. Never put a condenser or ribbon mic where you wouldn't put your ear. And if you're combining the mics with a direct signal, check its phase against that of the combined mics.

DVD OF THE MONTH

DEVO
Devo: Live in the Land of the Rising Sun
Sick Video
$14.95, www.dvdnote.com

Devo, formed in 1972, was one of the weirdest, wildest, yet arguably deepest of the new wave bands that came to prominence in the late '70s/early '80s. They attacked a me-too society, while garnishing their message with the elaborate inside joke of "de-evolution."

Often identified with their one big hit, "Whip It," it'd have been easy to dismiss Devo as a novelty act. But underneath the goofy costumes and pioneering videos was a tight, kick-ass rock band with a love of electronics — from synths to toys. Despite having a significant influence on many of today's musicians, Devo was axed by vision-impaired label execs and sort of petered out in the '80s, their members going on to other (and highly successful) endeavors.

In 2003 Devo (with all the original members) returned to Japan, where they remain not only revered, but understood; this DVD captures their Tokyo concert. There's no lip-synching, pandering to the audience, scantily clad dancers, or elaborate staging — just five somewhat older, somewhat heavier, but no less kick-ass musicians putting their hearts into music only they could make.

If you liked Devo the first time around, this will remind you why. If you're discovering them for the first time, this DVD conveys only part of the Devo phenomenon — check the video montage at the beginning for a glimpse into the rest of it.

Ultimately, though, just listen to "Gates of Steel" a few times, and see if it doesn't convey emotions that no other band has addressed in quite the same way.

World Radio History

SURFBOARD

As we peruse and cruise the inner recesses, nooks, and crannies of the web, we're constantly flagging sites, news items, and useful tidbits that have almost *nothing* to do with pom, a-hem, and that we feel will be of interest to you.

■ **http://repairfaq.ece.drexel.edu/sam/cdfaq.htm#cdtwgcde**

There's a sucker born every minute. Two, if you count Cubs' fans. And to these hapless hordes stuff is sold at a GNP-bolsteringly alarming rate. This site heps you to identify Totally Worthless Gadgets for CD Enthusiasts. Now if we could only come up with a site like this for oh, just about everything else, we'd be set.

■ **www.apulsoft.ch/freeports**

And as a pleasant corollary to the person who buys every totally worthless gadget, there's this: a site dedicated to free software ports. That's right, FREE. Which, on a certain level, means you don't even care if it does anything because after all it was free (witness: tradeshow tchotchkes).

■ **http://www.synful.com/**

We *swear* that we were attracted to more than the URL here. We were, in fact, attracted to the possibility of new kind of a VST/DXi software plug-in for string and wind synths. Sure there's some free stuff here, but you'll have to pay for anything other than a trial download. And so then the question becomes: is it worth it? Unless our ears are lying to us, yes.

OVERRATED?

by Salvatore Russo

You know what I need right about now? I need a sub par copy of Pink Floyd's *Learning to Fly*. I need it to be poor quality... it should muck up my hard drive and above all, the service...you know the file sharing service? Well, it should make my computer vulnerable to all forms of computer viruses. Yeah, that's exactly what I need right now. Oh yes, before I forget, I also want to be a defendant in a case brought against thousands of file sharing "outlaws" by one of the most powerful music industry associations, the Recording Industry Association of America (RIAA). Can I get that? Cool!

File sharing services like Napster, in its original outlaw, pre-Metallica tirade, pre-RIAA lawsuit, were all the rage in the heady days that capped off the last millennium. Peaking at a mind-numbing number of eight million users in July of 2000, file sharing services offered access to the hard drives of millions of member computers for the purpose of sharing music.

But it seems as if these services were given far more credibility by their detractors then they deserved. The music downloaded from these sights was audio slop and often incomplete. While the music was audible and sometimes even bearable, for the most part the sonic qualities were poor and no match for the actual purchased compact disc. Cycling 128 kbps, MP3s, like those available on file sharing services, match up well with MDs that cycle at 290 kbps and sound smaller but cleaner. But the comparison to CD is in fact no comparison at all, because while many have made the distinction between vinyl and "real" music and CD and "fake" music (an argument we are not going to get into), we're still talking about a file so heavily compressed that its copy of a copy of a copy feel makes it not nearly worth the hassle.

So while the file sharing services did, in fact, serve a purpose — to help little known bands with little chance of getting radio play get a bit of much needed exposure — the flip side of that was the fact that obscure, better-left-dead artists were able to raise their ugly heads from the sea of ubiquitous has-been-ery that they were so rightly exiled to, to torture us again. Examples of which are far too numerous, and painful, to list. Ah screw it. Here goes:

1) Milli Vanilli. Which incidentally, as party music, holds the same campy quality as a gay porno at a bachelor party.

2) Abba. A whole generation of fat, unpopular teenage girls and boys want, check that, *need* a muffled version of "Dancing Queen" in order to make their muffled lives all the more bearable.

3) Christopher Cross. Note to those who have downloaded anything by Christopher Cross, including "Sailing," in the last five years. It didn't get you any women in 1979, '83 or '88. What would make it any different now?

So while the technology, idea, *and* process are ingenious, the reality is not quite up to snuff. Sort of like playing catch, but instead of a ball you use an 800-pound bronze statue. There is no question the statue is beautiful, what is in question, however, is whether or not you're prepared to toss around an 800-pound bronze statue *or* whether or not you should. I would have to say no, and with that say that file sharing programs were in fact very, very overrated. Unless you're a pudgy teenage boy or girl listening to "Dancing Queen" on your PC, in which case, all I got to say is: Good luck with all that.

Salvatore Russo is a freelance writer and a big fan of Swedish pop.

Know any Tips, Tricks, Techniques, People, Places that you think are OVERRATED? Go ahead. Let us know. Your secret is safe with us. eq@musicplayer.com

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MUSICPLAYER TSUNAMI RELIEF COLLABORATION PROJECT

EQ's MusicPlayer.com forums have spawned a fund-raising effort for the victims of the South Asian Tsunami. Dozens of musicians worldwide composed, recorded, and engineered a track entitled "Tears We Share" in eight days. Musician Ted Hoffman wrote the song and lyrics in a day. Contributing musicians used a click track shared via the web, and then all contributed tracks to a central FTP site. All tracks were recorded dry on a range of platforms including Nuendo, Pro Tools, and Logic.

David Holloway, instigator of the project, said, "We had the ideal opportunity to put something together in a short time as we had a number of musicians on the forums after Christmas. When the Tsunami disaster hit, we took the plunge into the process, and it's all worked out brilliantly."

The end result can be found at www.faceoffriendship.org. The song costs $3.00 with all proceeds going to the major charities supplying aid to the affected region.

NARAS & APPLE SITTING IN A TREE

The Recording Academy's voting members got a little help from their friends at Apple in deciding which GRAMMY-nominated songs to choose for Record of the Year: the opportunity to download all five songs, for free, from Apple's iTunes Music Store. Members were then given an access code to download the protected content to their iTunes library where the hard work begins. In the future, NARAS hopes to make all nominated music available for evaluation. www.naras.org

FORUM FEED: ANALOG VS. DIGITAL, TAKE 12

Anderton MusicPlayer.com posts: At some seminars we did in Mexico a few years back, you [producer/engineer Bruce Swedien] mentioned your aversion to signal processing, but also how you liked to capture to analog tape for its qualities, then transfer to digital to preserve. Do you still feel the same way about analog vs. digital?

Bruce Swedien: Looking back now, it seems that as soon as the newness of digital recording had worn off, we found that sound quality was still a very key issue. ***THE QUALITY OF THE SOUND OF DIGITAL RECORDING WAS, AND STILL IS, MEASURED BY HOW CLOSE IT SOUNDS TO ANALOG RECORDING.***

Five years ago I would have said, "Digital recording is sharp and clear, but by itself, as the primary recording medium, it's a bit harsh to my ear." At that time, digital recording sounded as if part of the sound was missing. Low volume level dynamics were shapeless and fuzzy. Those criticisms are now a thing of the past, at least for me. However, there are still a few sonic issues when recording music 100% in the digital domain that bother me.

A couple of years ago I would have answered, "I don't think either is better, merely different." Well, digital sound, as it applies to music recording, has made tremendous progress in the past year or two. For instance, with the introduction of high-resolution 24/96 digital recording, or Sony/Philips' DSD technology, the sound of digital recording has improved drastically.

TODAY I'D SAY I'M USING DIGITAL AS A PRIMARY RECORDING MEDIUM ALMOST ALL THE TIME. PLEASE NOTE I SAID, "ALMOST ALL THE TIME." I FOUND OUT LONG AGO THAT, AS AN ENGINEER, PRODUCER, OR ARTIST, YOU CANNOT IMPOSE YOUR INTENT OVER A PIECE OF MUSIC'S SONIC PERSONALITY. I DO OCCASIONALLY FIND A SONG THAT WOULD ACTUALLY PREFER TO BE RECORDED OR MIXED TO ANALOG THAN DIGITAL. You cannot record or mix a song to a particular medium just because *you* want to. The music always wins out! Let the music tell *us* what it wants.

Here's a story that I think really illustrates that point. I was working with Michael Jackson on his Epic Records album *Invincible*. We were mixing the song "2000 Watts" at Hit Factory/Criteria Studios in Miami, Florida. As Michael, Teddy Riley, and I often do on these high-energy, funky, dance songs, we asked Teddy Riley to sit down at the console and kick-off the mix. Teddy's concept of the mix values of the basic groove cannot be denied, and after a day or so, he had the groove absolutely kickin'.

Then Teddy and Michael asked me to take over and complete the mix. I worked on the mix for a day or so by myself, and planned on recording the mix on a highly respected, high-resolution, digital recording system. Michael, Teddy Riley, and I listened to the mix. All three of us thought it sounded really great.

I DON'T KNOW WHY, BUT I KEPT THINKING TO MYSELF, "I WONDER WHAT THIS MIX OF THIS SONG WOULD SOUND LIKE, STORED ON ANALOG." SO, AFTER A BIT I SAID TO MICHAEL AND TEDDY, "I ABSOLUTELY MUST TRY A MIX ON ANALOG!" OF COURSE THEY WERE BOTH EAGER TO HEAR IT.

I had the technicians set up my Ampex ATR 102, one-inch, two-track master mix machine at 30ips. The result was astounding! Everyone loved the sound of "2000 Watts" mixed on my two-track analog machine...a perfect example of the character of the music declaring its personality.

The bottom line in any music recording or mixing situation is to listen to the sound of the music with your ears first, but then ask your heart, "Is this the way I want my music to sound?" Or better yet, ask your heart, "Is there any way I can make it sound better?"

World Radio History

cakewalk

SONAR 4

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Rob King Producer and composer for TV, Video Games, Popular Music
Sony's Everquest series, Billboard-charting dance singles, Dawson's Creek, CBS, NBC

cutting edge environment

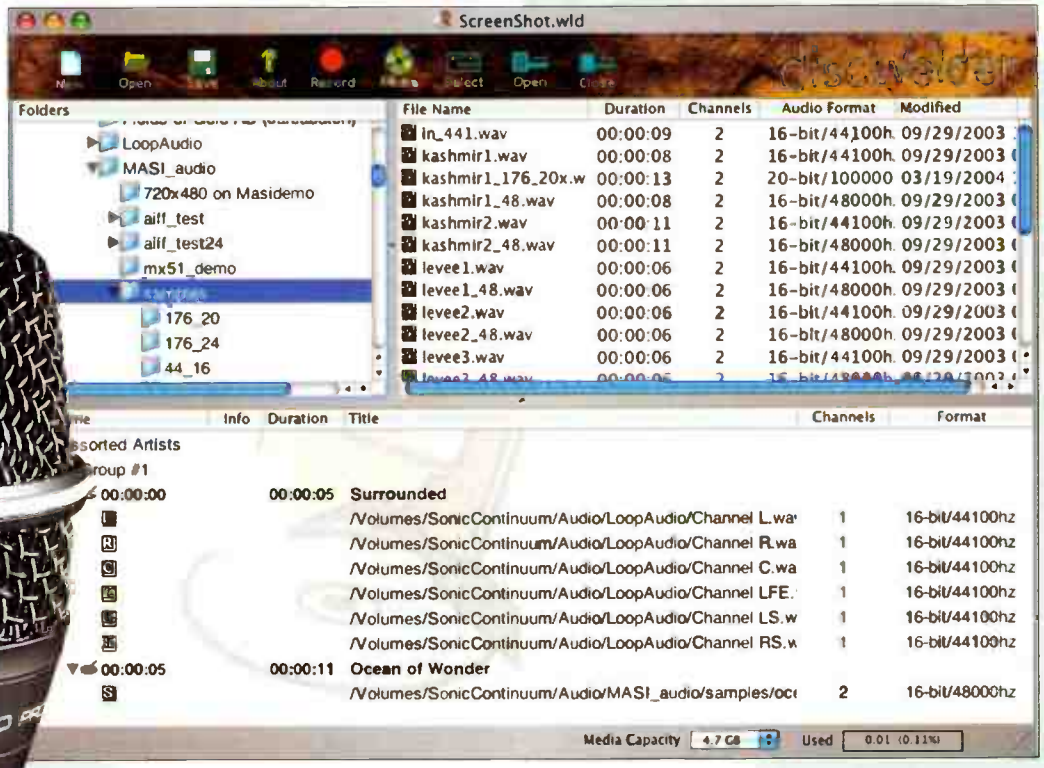
Version 4 transforms SONAR into a robust mixing environment, suitable for both surround and stereo, with exclusive features not found in any other applications. In addition, SONAR 4 delivers 32-bit floating point digital mixing and bussing technology with full delay compensation thorughout the signal path. Combined with its enhanced video support, you'll find SONAR 4 offers a superior solution for scoring and post production.

Learn more about SONAR 4's cutting-edge mix environment at www.sonar4.com/mix

World Radio History

Tool Box

BY KEVIN OWENS



Minnetonka discWelder Bronze for Mac

DVD-Audio authoring software

Minnetonka's first DVD-A authoring tool for OS X, **discWelder Bronze ($99)**, can import all Linear PCM formats supported in the DVD-A specification, including surround (up to six channels of 24-bit/48kHz) and high-resolution stereo (two channels of 24-bit/192kHz). Both surround and stereo tracks can be used on the same disc (in WAV or AIFF format), and Bronze-burned discs will play in any DVD-Audio player that supports DVD±R/W.

Minnetonka, www.discwelder.com

Peavey Studio Pro CM1

Condenser mic

The handheld **Studio Pro CM1 ($199)** is a cardioid-pattern, back-electret, condenser mic that features a medium-format element designed to maintain a clean sound at SPL levels up to 136dB. The mic has a sensitivity of –43dB per Pascal, a frequency response of 50Hz–16kHz, and a noise floor equivalent to 24dB SPL. Other features include a built-in shockmount and a dual-layer pop filter. Carrying case included. Natch.

Peavey, www.peavey.com

World Radio History

Beyerdynamic Opus Series

Percussion/instrument and boundary mics

Engineered to capture "every tonal nuance of the drum kit or any other percussive instrument, including piano," the Opus Series **(packages range from $649-$2,149 depending on mics chosen)** includes the **Opus 53** condenser (optimized for hi-hat and snare), the multipurpose **Opus 83**, the gooseneck-mounted **Opus 88** (with integrated preamp), and the **Opus 99** dynamic bass drum mic. Rounding out the series is the half-spherical-polar-pattern **Opus 51** (pictured), which is suitable for miking large sound sources, and also fits nicely inside pianos and kick drums.

Beyerdynamic, www.beyerdynamic.com

Kjaerhus Classic Auto-Filter

4-pole filter with resonance control

Auto-Filter (Free) is an analog-modeled 4-pole filter plug-in that can be used for auto-wah and filter sweep effects, or as a fixed filter. Selectable between lowpass, bandpass, and notch settings, the Classic features a syncable LFO with sine, random-hold, and stereo spread, as well as an envelope follower with adjustable attack and release.

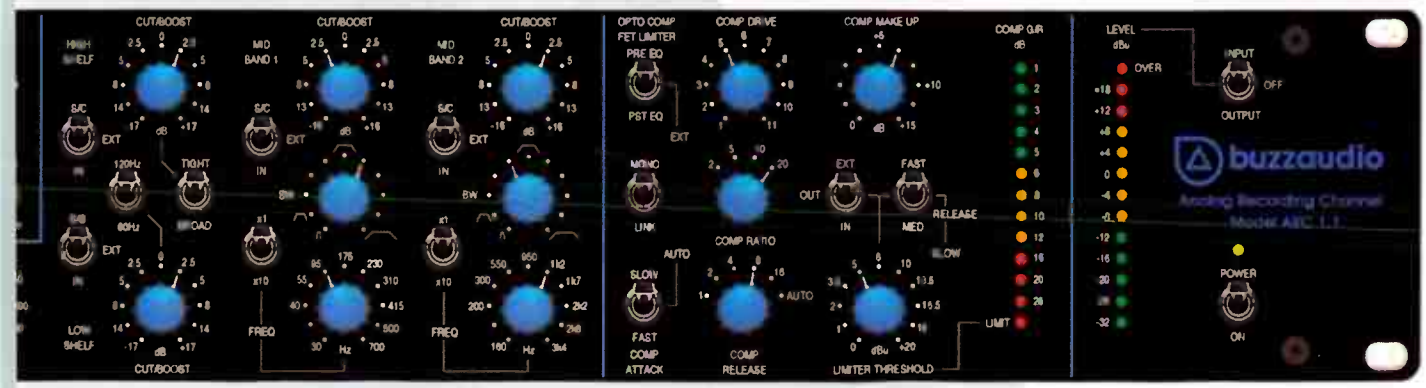
Kjaerhus, www.kjaerhusaudio.com

Buzz Audio ARC1.1

Analog recording channel

Two years in development, the **ARC1.1 ($3,500)** combines a mic/line preamp, a 5-band EQ, and an optical compressor/FET peak limiter into a 2-rackspace unit. The ARC's flexible processor lets you access the mic and line preamps, each band of the EQ, and the compressor/limiter separately or simultaneously, depending on your recording needs.

Buzz Audio, U.S. dist. by Atlas Pro Audio, www.atlasproaudio.com



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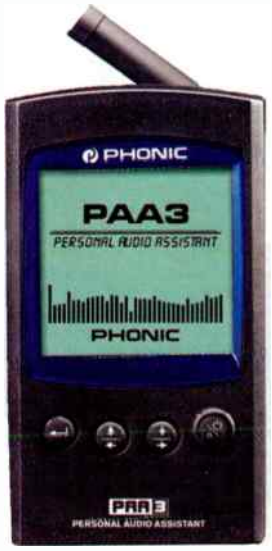

Phonic PAA3

Handheld audio analyzer

The **PAA3 ($469.99)** combines all the features of its predecessor, the PAA2, with USB connectivity and the addition of RT60 measurement in a cellphone-sized package. Some of those features are: a 31-band realtime spectrum analyzer, a built-in calibrated measurement mic, a phase checker, XLR I/O, a noise generator with pink noise, balanced output, an SPL level meter, and more.

Phonic, www.phonic.com

RealTraps GoboTraps

Acoustic treatment system

The foundation of the GoboTrap system is the **GoboTrap carriage ($179.99–$719.99)**, a lightweight wheel-equipped base that hovers low to the floor to minimize sound leakage, and is designed to accommodate both RealTraps' standard and new **Gobo MiniTraps**. GoboTraps are available in standard and HF versions — the standard model is absorbent on one side and reflective on the other, while the HF model is absorbent on both sides — and in a variety of configurations.

RealTraps, www.realtraps.com

iZotpe Spectron, Ozone 3, and Trash

64-bit audio processors

M-Audio announced the distribution of three iZotope-developed software titles for Mac OS X and Windows. **Spectron ($129.99)** is a complete effects package (delay, chorus, filter, flange, panning, and morphing) that uses the spooky sounding "spectral domain processing" to let you control selective frequency bands. **Ozone 3 ($249.99)** is a mastering system whose toolset includes an 8-band paragraphic EQ, tube-modeled modes, mastering reverb with plate and modeled algorithms, a brick-wall peak limiter, and more. **Trash ($199.99)** is an Oscar the Grouch-approved plug-in that offers multiband, dual-stage distortion and 36 filter types. Each of the three titles features 64-bit processing, 192kHz capability, and unlimited undo history.

iZotope, www.izotope.com, dist. by M-Audio, www.m-audio.com

World Radio History

Waves'
Convolution Revolution
Continues

Introducing IR-360

The world's only editable Surround Convolution Reverb

The new IR-360 Reverb is the highly anticipated surround version of IR-1, the only convolution reverb that can be tweaked with familiar controls such as pre-delay, room size, and density—controls that don't just filter the sound, but actually shape the underlying sample itself. Need the sound of the Sydney Opera House in 5.1 but a little smaller? You got it.

Introducing IR-1 Version 2

Now create your own impulse response samples

Version 2 of Waves' IR-1 Convolution Reverb now lets you capture your own impulse response samples from acoustic spaces and hardware devices.

Winner of the 2004 TEC Award for Outstanding Technical Achievement

Introducing IR-L

Convolution Reverb Light

For streamlined use, IR-L is our light version. You get the same exquisite samples but without the extensive controls of IR-1 for efficient, simplified use.

Introducing www.Acoustics.net

The download source for convolution samples Now IR Series Reverbs come with even more pristine samples of the most revered venues in the world, from London's Wembly Stadium to Manhattan's Birdland jazz club. Recorded under the guidance of renowned acoustics professor Angelo Farina, the samples feature new micing options for even more control. These samples—as well as samples contributed by Waves' IR Reverb users—are available at www.Acoustics.net, a new Waves website dedicated to impulse response sampling.

WAVES

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fax: +972-3-6084056

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14-Day Demo available at your Waves dealer and at www.Waves.com

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IK Multimedia AmpliTube Live

Guitar amp and effects modeling software

AmpliTube Live ($99) for both OS X and Windows is a light, make that LITE (read: more affordable), version of the full amp simulation package that functions standalone or as a plug-in (VST, AU, DX, RTAS). And features? Try three amps, three EQs, three cabinets; wah, reverb, delay, and overdrive effects; a built-in tuner; and MIDI footswitch controllability.

IK Multimedia, www.amplitube.com

CreamWare REstore

Sonic restoration package

REstore ($999) is made up of the new OsirisXP plug-in bundle (pictured), a Scope home DSP card, the Psy-Q Psycho Acoustic Processor, and CreamWare's tripleLE digital audio editor. OsirisXP relies on DeClicker, DeCrackler, and DeNoiser to eliminate all manners of unwanted sonic disturbances, while Psy-Q can be used to add liveliness, presence, and contour to the restored signal.

CreamWare, www.creamware.com

Klaar Syntrax

Portable soft synth/sequencer

Klaar's Syntrax ($20) lets you use your compatible PDA, mobile phone, or Symbian Series 60 device (such as the Nokia NGage, pictured) as a pocket studio whenever and wherever inspiration strikes. Features include eight audio channels, sample playback with bi-directional looping support, realtime synthesis with 15 sound generation effects, a full-featured sequencer, a built-in sample editor, and MIDI and WAV export functions.

Klaar, www.klaar.com

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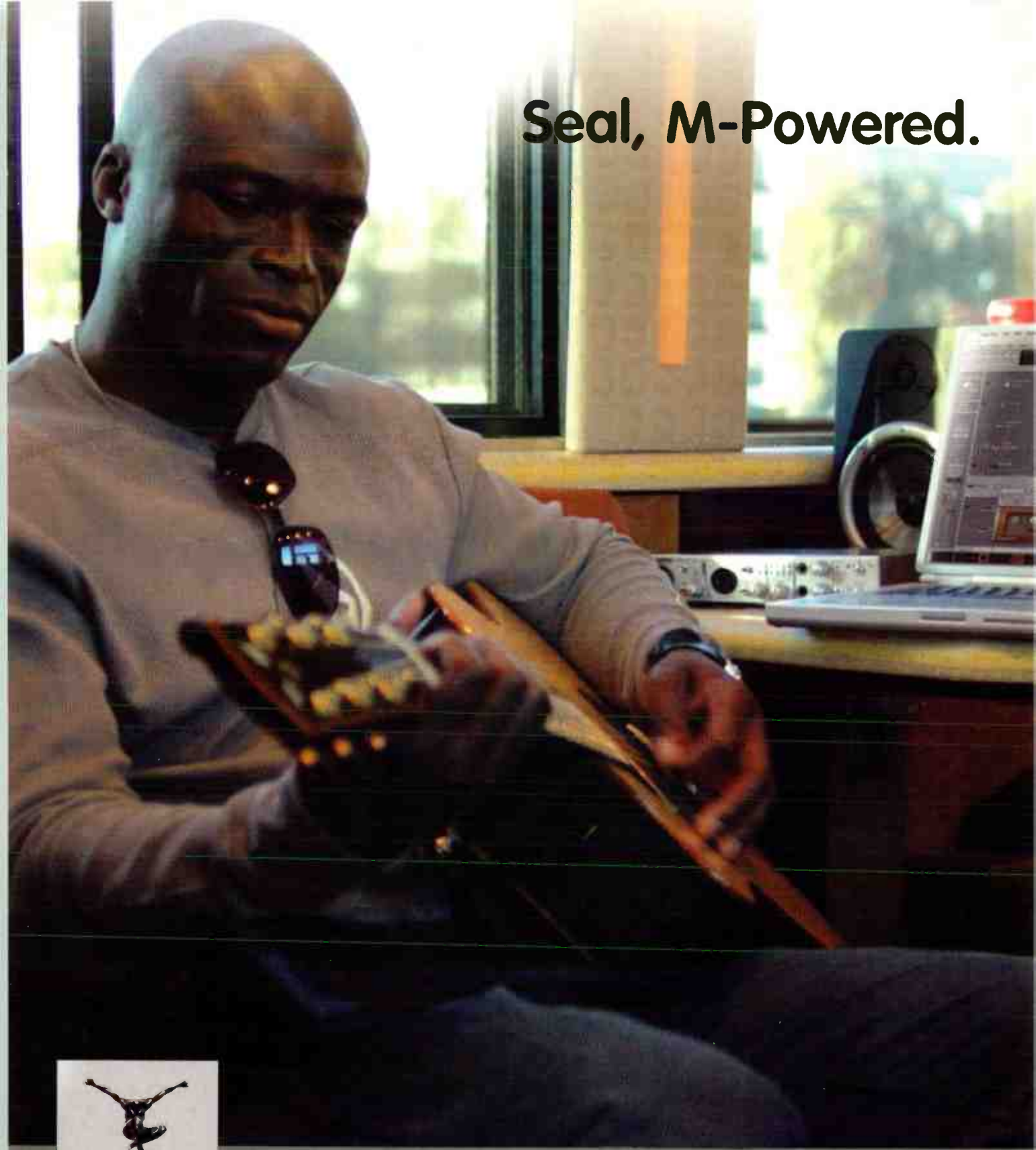

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World Radio History

by Lisa Roy

Bensonistics

Rock 'n' roll as rocket science?!? Well, depends on who you talk to about it. Producer Howard Benson? You mean he of the degree in aerospace engineering who had a hand in building high-tech widgets for the space shuttle? The one whose minors at the Philadelphia College of Performing Arts were music theory, composition, and jazz piano? Well, yeah, of course *he* might say so.

Enjoying a career trajectory that parallels the acceptance of Pro Tools in the industry as a viable music recording medium, Benson has been both a long time evangelist of and creator in the system, even notching a notable first: Sepultura's 1998 *Against* being one of the first hard rock albums to be done "in the box."

And it's that affinity for technology that undoubtedly helped bring Benson together with his regular engineer and fellow traveler, Mike Plotnikoff (Kiss, AC/DC). The pair has worked together for five years now, racking up hits for the likes of P.O.D., Papa Roach, My Chemical Romance, and now Hoobastank's *The Reason*, their Grammy nominated multi-million-selling sophomore album.

Go figure.

DATE: May – July 2004
STUDIO: Bay 7
LOCATION: North Hollywood, CA
ARTIST: Hoobastank
PROJECT: recording guitars with Dan Estrin for The Reason
PRODUCER: Howard Benson
ENGINEER: Mike Plotnikoff

SIGNAL PATH

"The only mic I use on guitars is a Shure SM57 and I run that through a Neve 1073 pre amp, then into an LA2A and out of the LA2A into a Pultec and onto analog tape," explains Plotnikoff. "We used the Studer A800 with BASF tape aligned at +9. I like the compression it gives. We're basically running all the drums, guitars, and everything through a sidecar of 1073s, not using the main console."

MIC POSITION

"I put the mic right up on the speaker, it's very close, pointing straight at the cabinet," says Plotnikoff. "Sometimes it's off to an angle, but it depends. We'll see how it fits in the track. If we want it a little brighter we'll point it straight on, if we want it a little darker, we angle it a bit."

PROCESSING

"I still like the old school stuff even though now we end up in Pro Tools HD on everything," Plotnikoff confides. "I still like the vintage gear, LA2A's, Pultec, I just like the way they color the sound compared to digital stuff. My setting for the LA2A is about 7dB of compression at the most. The Pultec I'll tweak the bottom end a little bit. I like to roll out a little bit and add a little bit at 100 on the EQ. Then I usually boost a little around 8k and I leave everything else on the wide setting."

TRACK NOTES

"Mike [Plotnikoff] absolutely knows what I want, and he delivers. Usually, we don't go into the studio unless the guitar player knows what he's going to do. I'm talking about the basic parts. A lot of the cool parts, like the overdubs, that's stuff that I absolutely trust Mike to do. It's very important to me that Mike and Keith [Nelson, guitar tech] and the guitar player feel ownership of those parts and don't have a producer hanging over their heads every second.

"I love to layer guitars and make them so they're big, fat, and wide. We use a lot of things we've developed over the years to put guitars into songs. We do a lot of guitars that are tuned up an octave. We do a lot of baritone guitar stuff. But that's basically in the choruses; big, powerful guitar parts that add to the power of the choruses but stay out of the way of the vocals. During the verses there's usually just a single melody line. I usually try to go for real textural stuff that adds a vibe to things, makes it sound emotional." EQ

Hoobastank guitarist Dan Estrin at Bay 7 studios during production of the band's multi-platinum and Grammy nominated album *The Reason* produced by Howard Benson, inset.

World Radio History

Sweetwater:
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Twenty-five years ago, Sweetwater was founded by a recording studio owner who needed the same things you need today: quality gear at great prices, expert advice before the sale, and first-class tech support and service after the sale. He assembled a staff of audio professionals who could provide top-notch service to recording professionals like you. Over the years, continued growth, dozens of industry awards and (above all) customer loyalty have shown that "The Sweetwater Difference" has made a difference in the way engineers and producers buy gear.

A quarter century later, other audio retailers have figured out that presenting themselves as "professionals" is a good idea. And if imitation is the sincerest form of flattery, well, we're flattered. But Sweetwater Sales Engineers, tech support staff and service experts remain the yardstick by which all other dealers are measured. So no matter what you need for your studio — from cables to consoles or anything in between — count on Sweetwater to be your first and best source of information, great prices and total support.

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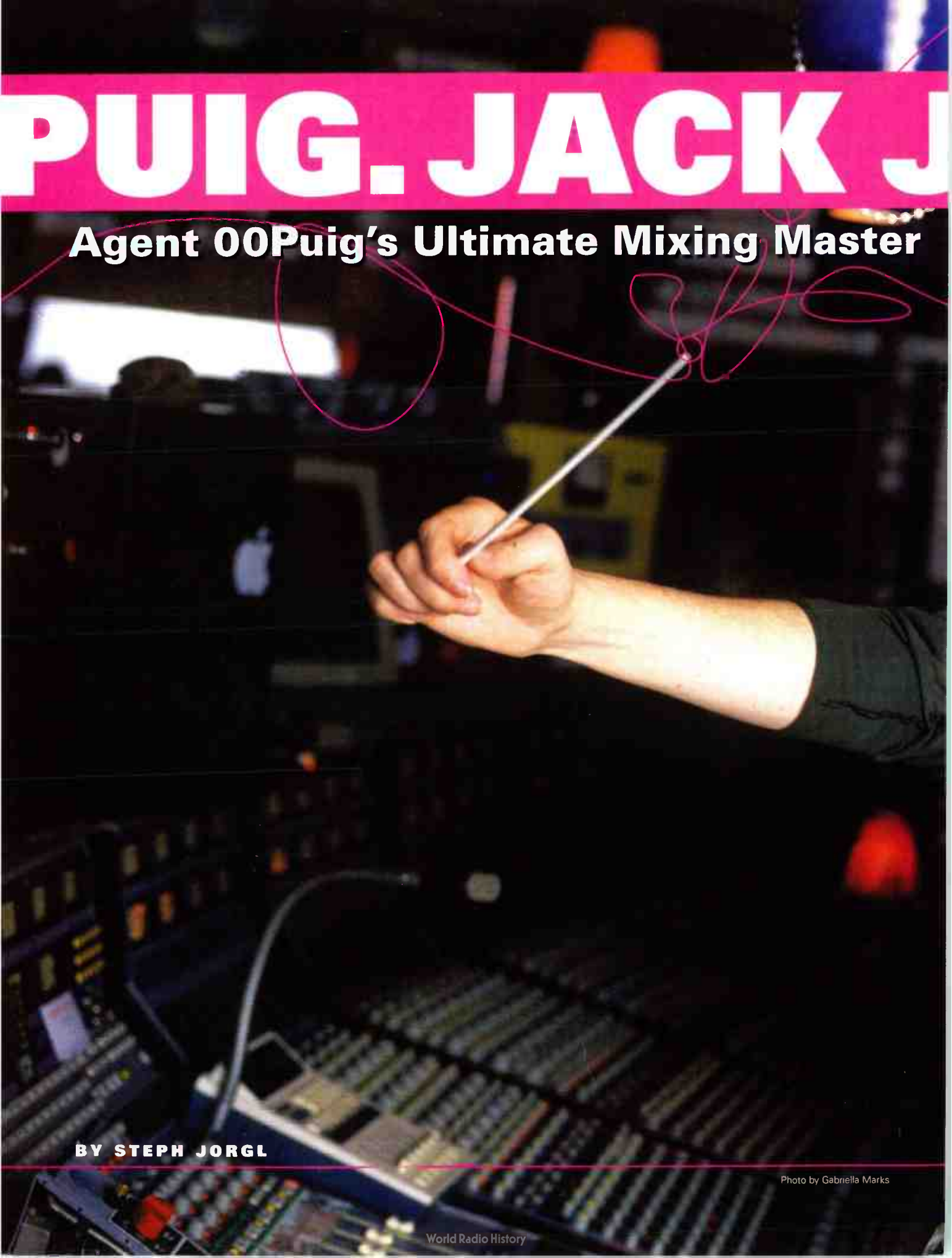
World Radio History

PUIG, JACK J

Agent 00Puig's Ultimate Mixing Master



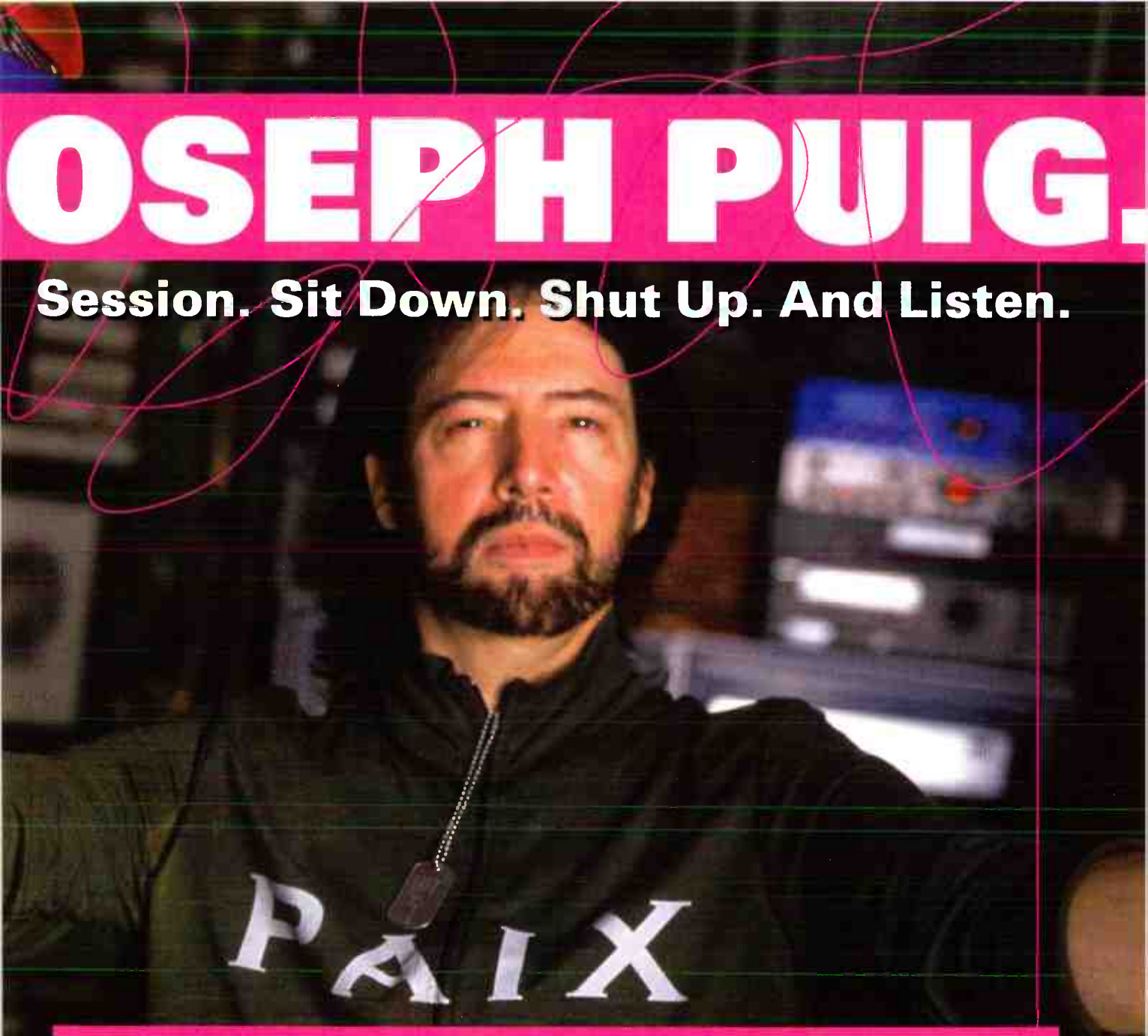
BY STEPH JORGL

Photo by Gabriella Marks

World Radio History

OSEPH PUIG.

Session. Sit Down. Shut Up. And Listen.



You want THE ULTIMATE MIX?

Something that's going to make the young days sob and the girls all weep? You want the unending adulation of the masses?

Well people in hell want ice water.

But for the rest of us there's four-time Grammy-nominated mixing and producing icon Jack Joseph Puig and his continuing insistence that getting The Ultimate Mix isn't about making the snare drum, guitar or bass sound stellar. Nooooo. Getting a great mix, he insists, is more about understanding the very fabric of what the song is about—what the person is trying to make you feel. And that's centered on sonically communicating the content of the lyrics across the entire mix by making the vocal—the voice—sound "engaging, honest, real, believable and creative."

No matter whether the [illegible] of it's [illegible], pop, punk, [illegible] or [illegible], Puig insists that "You really have to empower the song to make the voice's great."

And now to [illegible] award-winning and platinum-selling tracks for vocally [illegible] Green Day, The Goo Goo Dolls, No Doubt, 3[illegible] [illegible] and others, Puig definitely knows how to finesse the mold when it comes to mixing vocal tracks. You see when it comes to getting the ultimate vocal mix, Puig come-too-slowly cites four essential components: the way the voice is equalized, the way it's compressed, how the perspective (reverse and delays) is deployed, and how the overall balance of these sonic elements is achieved.

Believe it you better, grasshopper.

World Radio History

PUIG.

THE FOUR SISTERS: HANDMAIDENS OF HIT-MAKING WONDER

Once when Puig mixed a record for No Doubt, Gwen Stefani came to him and asked him how they could create a vocal sound she heard in her head. "I sat and I listened to her talk about it and I imagined how I would get it," says Puig. "And it ended up being that I got it using a Joe Meek compressor I had, which has a function called 'Enhance' that creates this very, very hyper top end that — for the most part — is pretty useless, but lots of times can also be great. It's almost an aphex built into a compressor.

"When she went through the description about the vocal sound, I thought, 'Maybe if I take the Joe Meek and actually use it wrong and way enhance the track in a way that you'd never want to use, then add it in as a side chain to the voice, *then* maybe I'll get this top end presence thing she hears in her head,'" he says. "So then I did it, and it was *great*. Since then, it's lived on my console, and on my console it says, 'The Gwen Sound.'"

Moreover, to put a finer point on it...

Equalization and Compression

The most important part of equalizing vocals, to Puig, is getting at the mid-range detail. "The mid-range is where the attitude and the soul is," he says. "It's not at 15K and it's not at 20Hz. In that mid-range area, you'll find the very core of a person's voice. And when you EQ, you really want to go for finding the passion and the attitude in their voice — the mood — that's what you want to get."

Compression is also important and sometimes Puig, using two or three compressors on a track, blends the best of both worlds by combining one that's really fast with one that's really slow. "Compression is important for making sure that you get the nuances of what the voice is doing," says Puig. "Sometimes there are little nuances that, if you get them up in the right perspective, you can *feel* what the person is emoting. You know, the feeling that you get when you're standing right next to them? *That's* what compression is supposed to do for you."

Balance and Perspective

Another part of the mix puzzle, for Puig, is making sure that the track and the perspective are well met. "The perspective has to match the song," he says. And then there's the balance of all of these aspects — equalization, compression, perspective — that needs to bring together the mix.

"There's balance between equalization, there's balance between left or right perspective, or panning, and there's balance between the perspective of the depth generally created by delays and reverbs and modulation," explains Puig. "But balance is extremely complicated because you have to factor all of those different elements in when you're thinking about the balance.

"So maybe you can have a mix where the snare drum is too bright and you'll think the mix is really bright when in actual fact the mix is really dull," he says. "But if you took the top end off of the snare drum, all of a sudden you'd realize that the other elements are not that bright. So that's why you need to balance the frequencies *and* the levels."

THE GEAR GRABBAG

Gear, gear everywhere and not a break to think. No prob. Puig's studio at Ocean way is not only a cinematic collection of antiques and other collectibles, back-lit and positioned to emulate the movie-set like atmosphere of another world, but also conveniently offers an immense collection of both analog and digital gear...all slaved to their master's dictates.

Different Trix for Different Tones

Regularly working with all kinds of equalizers and compressors from different manufacturers, from SSL to Neve, to Trident, to EMI, to API, to Helios, Puig says, "I like using them all because they *all* do certain things really great."

Puig prefers using Neves for his lead vocal track mixes, while he uses Avalons for the background vocals. But when he gets a vocal track that's soft, he'll quickly turn to the SSL. "With the SSL, I can really go in and get that mid-range detail," says Puig. "When vocals are too soft sometimes it's tough to make them sound convincing. But with the SSL, I can *make them* convincing."

THE WHO'S
Green Day
311
Ash
Fiona Apple
Guided By Voices
Hole
John Mayer
No Doubt
Rancid
Robbie Williams
Rolling Stones
Stone Temple Pilots
Tricky
Vanessa Carlton
Vines
Weezer
And, all the Crows: Sheryl, Black, and Counting

Of all of his mixes, Puig is particularly proud of the sound that he got out of John Mayer's voice on the "Daughters" track. "I love the Neve for recording vocals," he says. "One of my practices is to have the Pro Tools track automatically feed straight through a 1073. From there, it goes to my console. That way, I can pick up the sound of the Neve initially, before it even gets to the console.

"On that track, I also used the LA3 combined with the Fairchild," he adds. "The LA3 and the Fairchild's ballistics together create that smooth vocal sound that John Mayer has on 'Daughters.' I'm really happy about how that came out because I can *hear him* — I can hear his heart and his *soul*."

Pro Tools and Waves In The Mix

Puig also deploys several powerful software compressors and EQs within his mixes. "I really enjoy mixing with Pro Tools HD because of the amount of creative choices that exist — being able to change EQ at a given moment, frequency level,

World Radio History

reverb, and so on, has allowed me to do many things I've always wanted to do effortlessly," attests Puig. "I love Pro Tools automation, and I'm excited about seeing where they go with the digital consoles in the future."

"I absolutely love analog equipment like everyone else on the planet," he says. "But the digital compressors are amazing. I love the Renaissance package of EQs from Waves. And the Waves De-esser might be one of the best de-essers that I've ever used."

Multiple Mix Monitors and Subwoofing It

When it comes to monitoring his mixes, Puig relies on several types of monitors. "I use NS-10s, some Genelecs and the mains here at Ocean Way," he says. "Then I've got two different ghetto blasters, the car, some Tannoys in the other rooms, and a couple of JBLs that I like to listen through.

"A lot of people get fooled by the listening environment that they're in," says Puig. "They think they have X... but they truly have Z. You really need to put yourself in a listening environment that you can relate to. Not one that fits your style, but one that fits your ears. That's important."

Problems in a mixing environment can also result from excesses or deficits in room reflection, or in the power-level of the monitors you're using for your mix. Further, massive-powered subwoofer systems can also distort your perception on what your final mixes will really sound like.

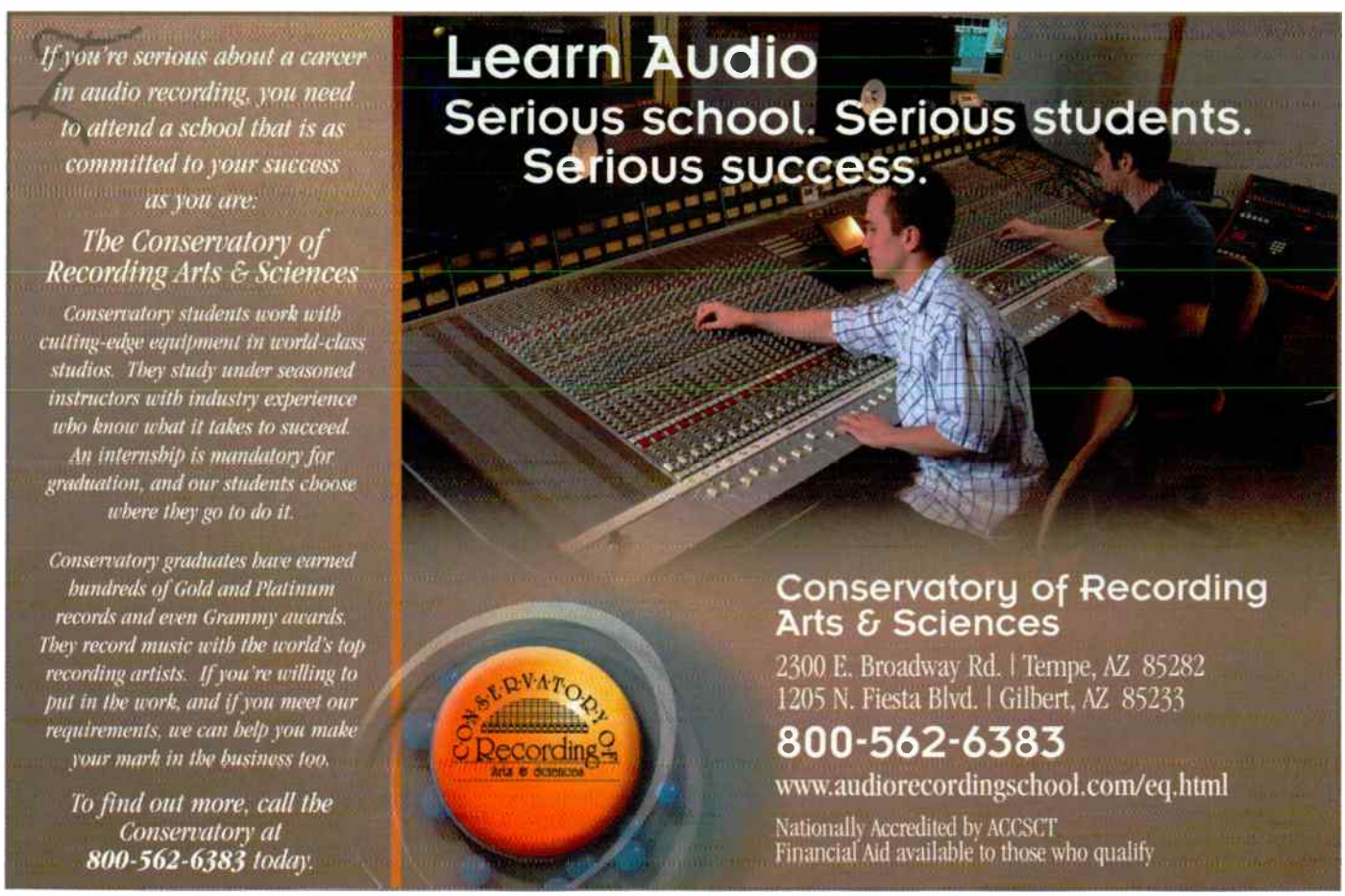
"To use too much of a subwoofer can be dangerous, because it can cause juicy stereo — a three-point perspective that really isn't real," says Puig. "And it can give you a false sense of how big your record is or what the bottom end is like. So a subwoofer should be used very carefully."

ULTIMATE MIX TIP-MANIA

Puig essentials for getting the most out of your mix? Outside of two air-cooled Black & Deckers? Try the Big Three: finding your own mixing style, creating cool systems and figuring out what's the best level to mix at. Got it? Not yet you don't...

Learning to Mix

If you're just getting into mixing or producing, Puig suggests that you pick out a couple of people that you like, listen to their work and then set out to emulate it. "As a kid growing up, you emulate your parents," says Puig. "Then a therapist comes along and helps you undo the things that weren't good and helps you see the things that were great. And I think that's the kind of state you have to go through when you're learning to mix. You have to listen to those records and go, 'How did they do



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PUIG.

that?' and 'I'm going to try to copy that.' And then gradually you start to do your own thing and you end up with your own style."

Puig also suggests that you decide what area you want to work in — whether you're going to be an artist, mixer, producer or engineer — and then go for it. "That's very important," he says. "And so is being honest with yourself about *what* you're good at and what works for you."

Creating Your Own System

Another thing Puig recommends for a better mixing environment is to create systems. "For me, my drums always start at 33 and will go all the way as high as 46, my voice always comes down 32, my bass always comes down 25 and 26, my guitars always come down 30 and 31, and my backing voices always come down 17 and 18.

"The reason *why* is that when you have a system like that, the technical part of your brain isn't engaged, only the creative side is because your hands automatically go to those places," explains Puig. "So you stay in that euphoric creative place, which also starts to become something instinctual. You know where you're going and you're listening, you're moving and creating as opposed to stopping and going, 'What channel is the bass on?'

So you stay in that euphoric creative place, which also starts to become something instinctual.

"So the more you let go of the technical acrobatics, the more you can allow your brain to function creatively," he adds. He also recommends creating similar systems for your reverb sends, delay sends and other effects returns.

Keeping It On the DL

When it comes to monitoring mixes, The Puig advises: listening at lower volume levels is a much better strategy than cranking it up. "I find it very useful to listen at a very low level for the very extreme sensitive balancing," he says. "At a very low level you can hear pitch, time, feel and balance much better than you can at a very loud level — even at 96spl.

"The louder you turn it up, the more the other factors begin to become involved—the power amp, the speakers, the acoustics of the room—and all of a sudden there are all these things working that are not real," says Puig. "If you don't have it pumping and sounding great at a low level, you probably don't have it." EQ

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MIXING IN A PLUG-IN WORLD

To your CPU, mixing is the ultimate power trip

by Craig Anderton

You've got to love plug-ins, but...well, no *buts* really...they've undeniably changed the rules of mixing. So while the issue back in the hardware days was always whether you had enough hardware to deal with all your tracks, now that you can insert the same plug-in into multiple tracks, the question is: Can your processor handle all of them?

Well here's another question: Does it matter?

After all, mixing is about music, balance, and emotional impact — not processing. Yeah, yeah, but it's also about fidelity, because you want good sound. And that's right where Mr. Practical gets into a fight with Mr. Power.

THE PLUG-IN PROBLEM

Plug-ins need power. CPU power. But, CPUs can't supply infinite amounts *of* power. Get the picture? Run too many plug-ins, and your CPU will act like an overdrawn bank account. And you'll hear the results: Audio gapping, stuttering, and maybe even a complete audio engine nervous breakdown.

And in a cruel twist of irony and fate, the best-sounding plug-ins often drain the most CPU power. This isn't an ironclad rule by any stretch, though. Some poorly written plug-ins are so inefficient that they draw huge amounts of power, while some designers have developed ultra-efficient algorithms that sound great and don't place too many demands on your CPU. But, *in general*, it holds true.

Bottom line: If you need to use processing in your mix, you want as much available power as possible. Here are the Top Ten tips on how to get it.

1. UPGRADE YOUR CPU

Let's get the most expensive option out of the way first. Because plug-ins eat CPU cycles, the faster your processor can execute commands, the more plug-ins it can handle. Although there are a few other variables, as a rule of thumb, *higher clock speeds = more power for plug-ins*. Still running in the sub-GigaHertz range? Time for an upgrade. ***Cool bonus:*** Any kind of "rendering" (applying effects, format conversion, and so on) will happen faster, too.

2. INCREASE LATENCY

And in the spirit of equal time, here's the least expensive option: Increase your system latency. When you're recording, especially if you're doing real-time processing (*e.g.*, playing guitar through a guitar amp simulation plug-in) or playing soft synths via keyboard, low latency is essential so that there's minimal delay between playing a note and hearing it. However, that forces your CPU to work a lot harder. Mixing is a different deal: You'll never really notice 10 or

Fig. 1: When mixing, 20 or 30ms or latency will let you run more plug-ins, with a negligible tradeoff in performance.

Fig. 2: Even running a reverb, heavy-duty guitar amp simulator, and limiter, the UAD-1 is using only 35% of its onboard CPU's capacity.

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Fig. 3: Ableton Live's Reverb has been inserted into the A Send 1 bus, thus saving considerable CPU power over inserting several instances into multiple tracks.

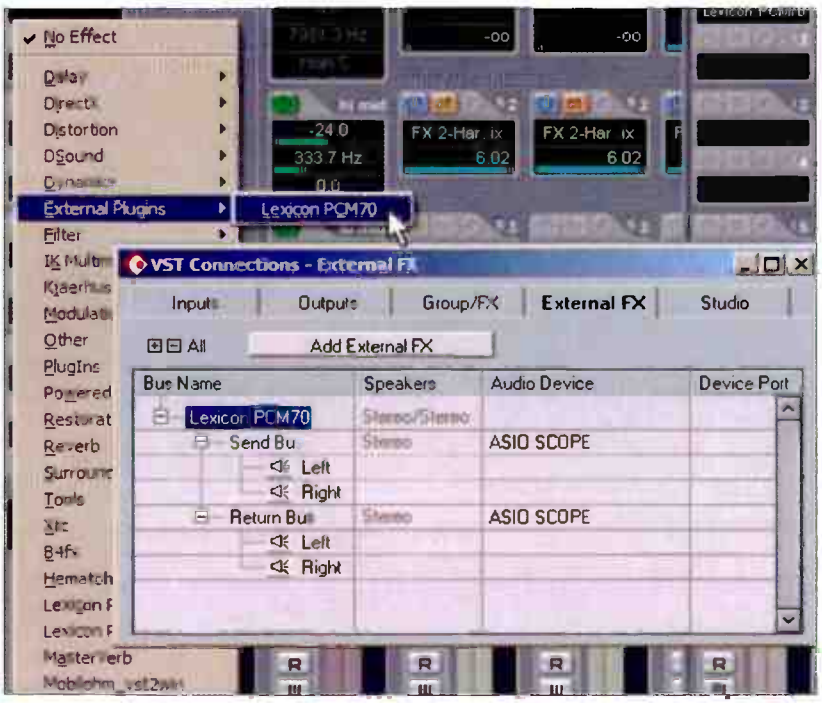

Fig. 5: With Cubase SX3, you can dedicate some of your audio interface's I/O to external effects, and they show up under a track's insert — just like any other plug-in.

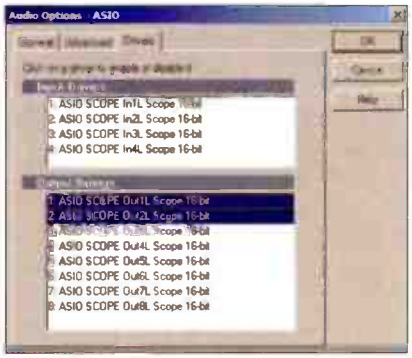

Fig. 4: When it's mixdown time with Sonar, I disable all the inputs and all outputs, except those needed to carry the stereo mix.

even 25ms of latency. The higher the latency, the more plug-ins you'll be able to run. Some apps let you adjust latency from a slider, found under something like "Preferences." Or, you may need to adjust it in an applet that comes with your sound card (Figure 1).

3. USE HARDWARE-BASED PLUG-INS

The August 2004 issue went into this subject in great detail, so we'll just recap here. Several companies make high-performance audio DSP cards — TC Electronic PowerCore, Universal Audio UAD-1 (Figure 2), Creamware SCOPE and Pulsar, Digidesign DSP Farm, and so on. These either insert into your computer, or connect to it via a fast interface, like FireWire. The cards run their own proprietary plug-ins (although they often enjoy third-party support), so the plugs don't load down the host CPU — the boards handle the heavy lifting. Although these boards will eventually say *no mas!* as well, one advantage compared to CPU-based processing is you have a finite, known amount of power so you can "red-line" the DSP without fear. With your CPU, sometimes running too close to the edge will cause a meltdown when the CPU has to perform that one extra function. ***Cool bonus:*** Hardware-based plug-ins are often platform-independent.

4. AUX BUS BEATS INSERTS

Inserting one effect in an aux bus is much more efficient than inserting multiple instances of an effect in multiple tracks (Figure 3). Of course, there are some cases where an effect must be limited to a single track. But for something like reverb,

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which tends to draw a lot of juice, see if it isn't possible to do the aux bus option instead. Sometimes, even EQ can work as a bus effect. For example, suppose you miked a bunch of acoustic percussion, and feel all the percussion tracks need to be brightened up a bit. Send them to a stereo bus, and insert a single EQ into that bus.

5. TURN OFF STUFF THAT'S NOT NEEDED

Anything that's active is making demands on your CPU. Using only one band of a four-band EQ? See if you can turn off the others. Even input and output drivers drain your CPU. When you're mixing, you probably don't need *any* of your sound card's input drivers to be active (with an exception we'll cover next) — go ahead and disable them (Figure 4).

6. GET HARDWARE INTO THE ACT

Reverb is one of the most CPU-intensive effects, period. A native reverb that sounds good will show no mercy to your CPU, which is why some of the best reverbs come from hardware-based plug-ins. But you can also use an external hardware processor. Dedicate one of your sound card output buses to feeding the reverb, and bring it back into an input. But, you say, there will be some latency going through the reverb. Well, you're right. Think of it as free pre-delay, or record the reverb to a track and shift it ahead in time if you're really picky. ***Cool bonus:*** Cubase SX3 makes using external hardware pretty painless (Figure 5), and compensates for any latency (although this is a manual, not automatic, process).

But, you say, there will be some latency going through the reverb. Think of it as free pre-delay.

7. SEND "STEMS" TO A MIXER

A digital mixer remains an important part of my setup, not only because it's useful while tracking, but because I really like the EQ in my particular model (Panasonic DA7). If I need more high-quality EQ than the computer can handle, I'll send out individual tracks or premixes to my mixer via the Creamware interface's light pipe. Then it's time to use the mixer EQ. Either I'll return the mixer out back to the host,

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or with some projects, do my mixing in the DA7 itself, using that old school "move the faders" technique. ***Cool bonus:*** The outboard mixer's aux bus is an ideal place for putting a reverb. And, you get to mix with real faders.

8. FREEZE YOUR TRACKS

Soft synths, especially ones that sound good, suck power like there's no tomorrow. "Mastering quality" signal processing plug-ins also like to drink at the CPU power bar. So, use your host's "freeze" function to convert tracks that use realtime plug-ins into hard disk tracks, which are far more efficient. For more details on the freeze process, as well as how to freeze tracks with hosts that don't have a dedicated freeze function, see last month's article "Meet Mr. Freeze."

9. USE SNAPSHOT AUTOMATION

Plug-ins aren't the only things that stress out your CPU: Complex, realtime automation also chows down on CPU cycles. So, simplifying your automation curves will leave more power available for the CPU to run plugs. Your host may have a "thinning" algorithm; use it, as you generally don't need that much automation data to do the job (particularly if you did realtime automation with fader moves). But the ultimate CPU saver is using snapshot automation (which in many cases is all you really need anyway) instead of continuous curves.

10. CHECK YOUR PLUG-IN'S AUTOMATION PROTOCOL

Our last tip doesn't relate to saving CPU power, but to preserving sound quality. Many plug-ins and soft synths offer multiple ways to automate: By recording the motion of on-screen controls, driving with MIDI controller data, using host automation (like VST or DXi), and so on. However, not all automation methods are created equal. For example, moving panel controls may give higher internal resolution than driving via MIDI, which may be quantized into 128 steps. Bottom line: Using the right automation will make for smoother filter sweeps, less stair-stepping, and other benefits.

Okay . . . there are your Top Ten tips, but here's a bonus one: Any time you go to insert a plug-in, ask yourself if you really *need* to use it. A lot of people start their mix a track at a time, and optimize the sound for that track by adding EQ, reverb, and whatever else. Then they bring in other tracks and optimize those. Eventually, you end up with an over-processed, overdone sound that's just plain annoying. Instead, try setting up a mix first with your instruments more or less "naked." Only then, start analyzing where any problems might be, then go about fixing them. Often, tracks that may not sound that great in isolation mesh well when played together. EQ

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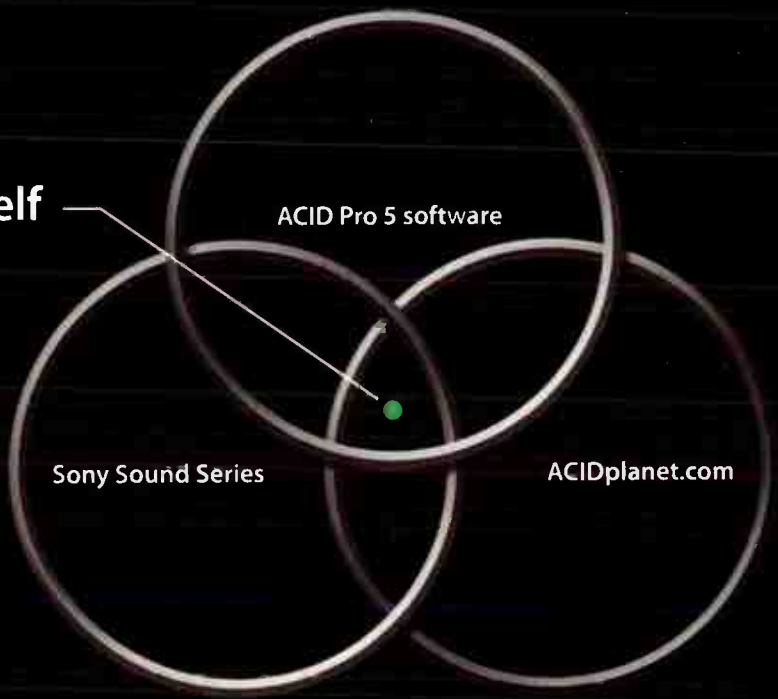

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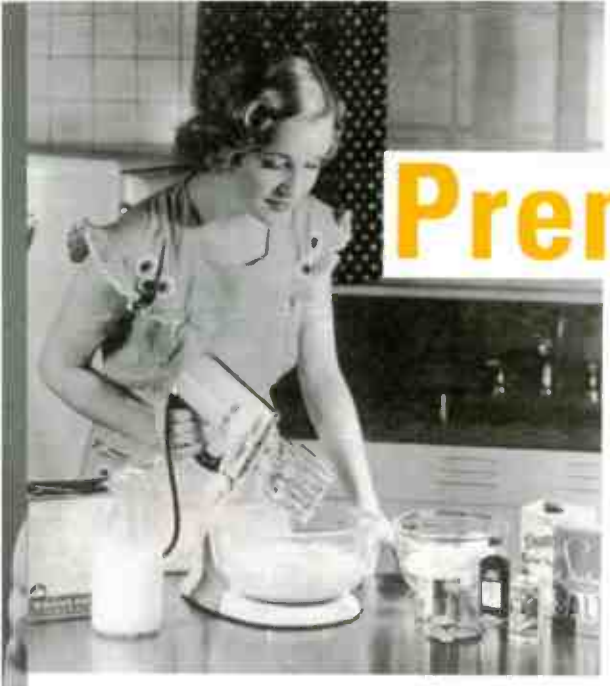

Premixes

Because of the track count limitations, pre-blending certain elements prior to the mixing stage is a normal thing to do. If 20 vocal tracks create a background stack, or three pairs of drum room microphones create the ambience sound, the session may become too heavy to play and monitor. It is then possible to take a pause in the production process, create premixes of these elements, and sum them down to a stereo mix, committing to a specific printed blend. While doing this is fine, losing the original individual components, or not including those components in further editing that takes place, will result in an inability to re-blend those elements during the mixing stage. Adding EQ and compression during the mix always changes the inner balances of any committed pre blend, and not having the source tracks for re-blending (now taking into account the current stage the production and mix are at) can cause a major problem. Try to always keep and include pre blended source tracks as an integral part of the session, and make them available for the mixer to re-blend upon need.

Tuning

While out-of-tune monophonic signals like vocals, trumpet, and bass can be successfully re-pitched (using software tools like Antares Auto Tune), out-of-tune polyphonic signals like guitar,

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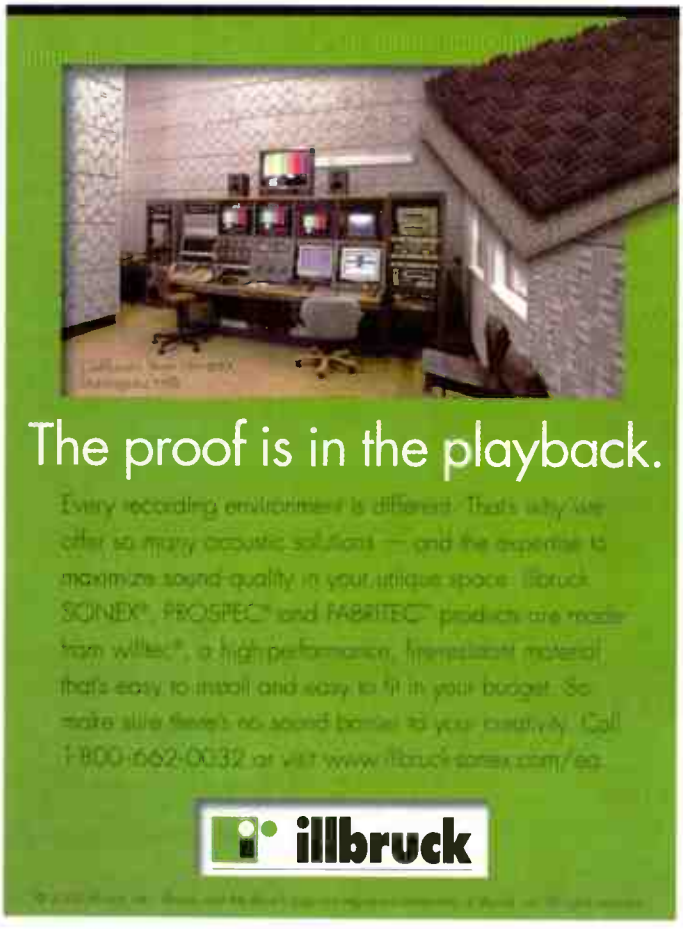
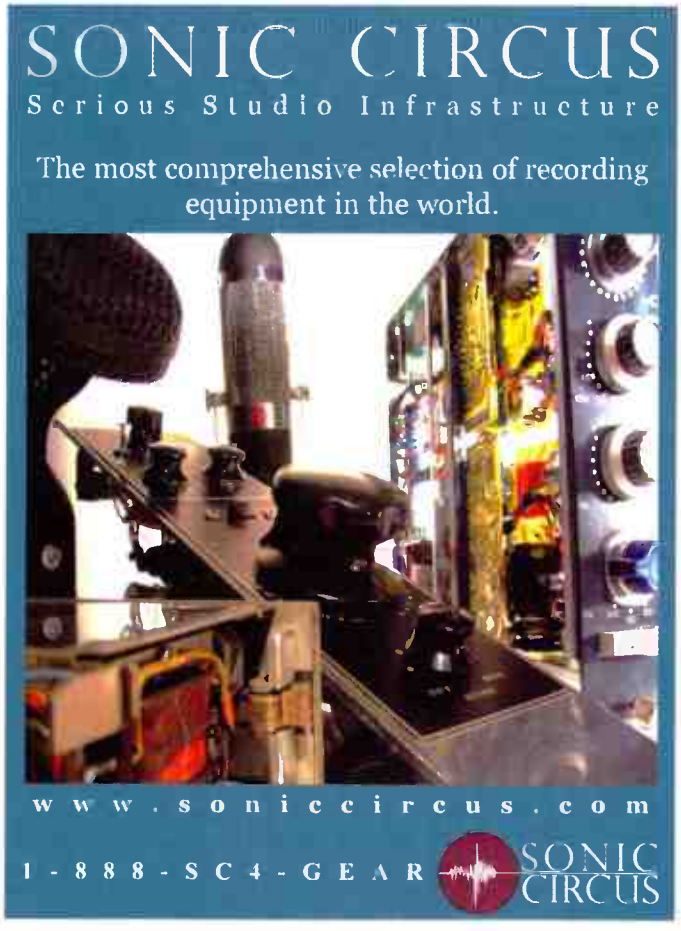
piano, and orchestra, cannot be re-pitched. There is no known cure for this illness, and it will irritate almost any listener. Keep a tuner handy all the time when recording guitars, make sure the piano has been tuned prior to the session, and make sure the Concert Meister visits the control room a few times during the session to recheck the tonal center of the recording. I can take a donkey and make it sound like Pavarotti, but when the guitar is out of tune or the piano is out of tune there is no cure for it.

Arrangement & Performance

A good musical arrangement usually mixes itself, while a bad one can result in days of non-successful fader moves and knob tweaking. Also, while it's possible nowadays to fix almost any pitch or timing related musical performance problem, science has yet to develop a tool that can deal with lack of vibe, groove, inspiration, and soul, manifested as artistic and production values. Of all the five points this is my most important one. This is my message to producers out there: Don't expect your productions to sound good if they're not arranged and performed with passion.





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Shootout at EQ CORRAL

One room, one mission, six designers, all battling it out to see: Who can make the average sounding room sound great?

by Mitch Gallagher

Armchair theories abound. Fact-based (partially) notions on how a studio should be treated to create the most accurate sonic response are legion. But you know, it's one thing when you're talking about a ground-up build-out of a space purposely designed or remodeled as a recording studio or control room, where you have free rein to make changes to the structure of the room — and a budget for getting things done. It's another thing entirely when you're in the situation most project studios face: converting an existing room in a home into a serviceable — nay, great-sounding — studio, without spending a bank-load of bank.

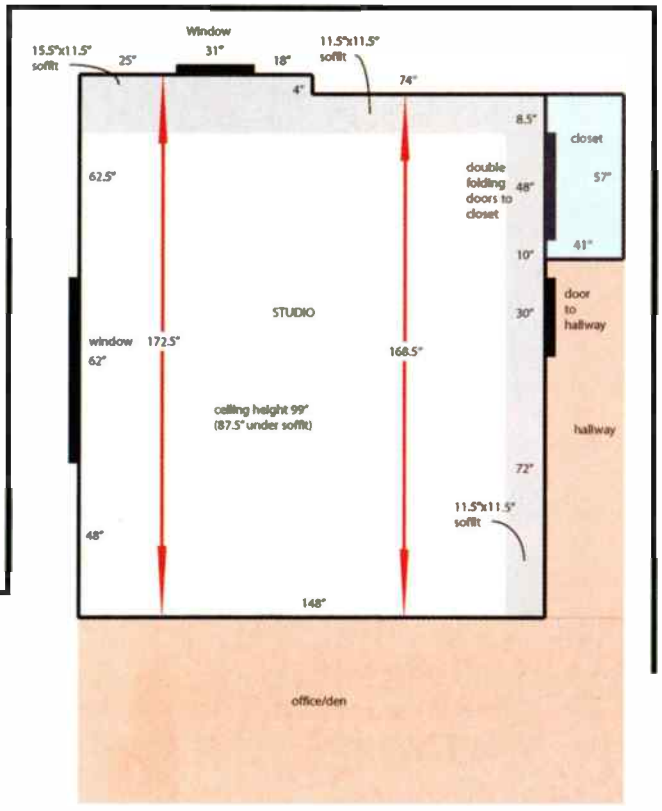
With that in mind, we presented the following real-world challenge to four companies that specialize in acoustic treatment solutions — Auralex, MSR (StudioPanel), RealTraps, and Primacoustic — and to two studio designers — Russ Berger of Russ Berger Design Group, and John Storyk of Walters-Storyk Design Group. Each provided an acoustic treatment design for the room, along with an explanation of what went into their plan.

THE ROOM

Our Case Room: a spare bedroom located in a walkout basement, beneath a two-story house. There's a major constraint to the treatment of the room, one most project studio owners face: We need to be able to return the room to a bedroom with minimal effort should the house ever be sold. Because of this, any acoustic treatment will need to be incorporated into the existing room. We can't move walls or perform major construction/modifications. We can add built-ins and/or shelves, and hang treatments on walls and from the ceiling.

The room has smooth finished plaster walls and ceiling. It has a concrete floor originally covered with an example of the most *gawdawful* green carpet ever foisted on the 20th-century public. The carpet has been (thankfully) removed, revealing the bare cement floor beneath. The floor will be finished with either paint or concrete stain, then covered with an 8'x11' rug with a separate rubber carpet pad. There is an 11.5" deep soffit that runs around two sides of the ceiling, reducing the ceiling height in those areas from 99" to 87.5". One wall of the room has a 4" offset. We want to be able to take advantage of not being in a cave — the natural light and green backyard view from the windows are important to the "feel" of the room. Soundproofing the studio with regard to the outside world and the rest of the house isn't an issue. All we're concerned with is optimizing the sound within the room itself.

The studio will be used for composition and as a control room when editing, mixing, and mastering. The room will be used for some tracking of solo vocalists and instruments, acoustic guitar, hand percussion, and so on, but most actual miking/tracking will take place in another part of the basement, with this room serving as the control room. The studio will be used primarily for stereo monitoring, but will be



This is the rough room diagram (not drawn to scale) that was supplied to our six designers. It shows the basic dimensions of the room, including some unusual aspects, such as the soffit running around two sides of the room, and the 4" offset in one wall.

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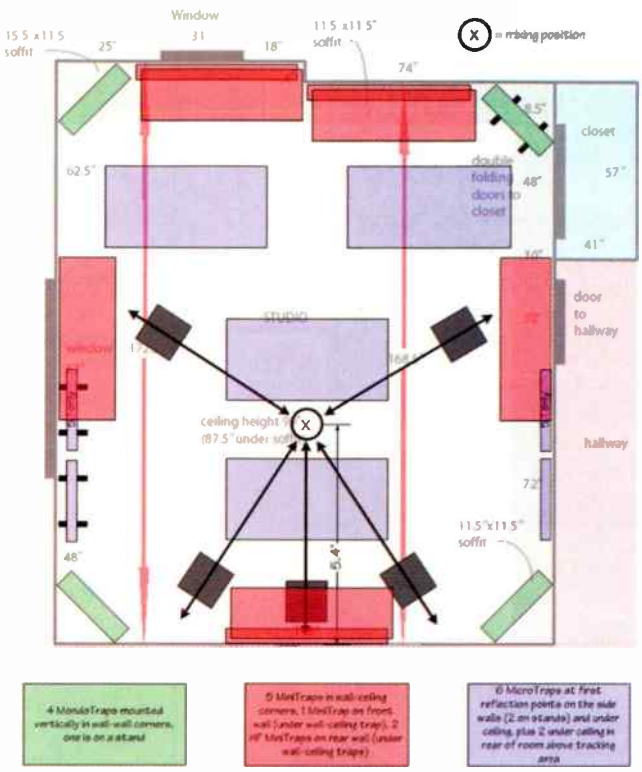
used for some surround (5.1) production and monitoring.

Note that we asked the designers to focus on the acoustic treatments necessary for the room. When you're planning your own studio, make budget allowances for HVAC, AC power and grounding, cable management, furniture, and other issues.

REALTRAPS

According to Ethan Winer, a primary feature of the RealTraps acoustic treatment solutions is minimal damage to the room from installation — the treatments can even be mounted to stands; whether those from RealTraps or basic microphone stands.

Ethan oriented the mix position so that it faces the room's blank wall, and recommends placing the five monitors on stands to minimize reflections off desk/console surfaces. He suggests finding the ideal frequency-response placement for the speakers using ETF or similar analyzer software. When tracking in the back of the room, he recommends rolling the carpet away from that area for best results.



The RealTraps design features bass trapping in each corner, trapping in the wall-ceiling corners, and first-reflection control on the sidewalls beside the monitoring position.

According the Winer, "It's always best to have the loudspeakers fire the long way down the room because that puts you farther from the wall behind you where the low-frequency peaks and nulls are most severe. I defined the listening position at 38 percent of the way back in the room when measured from the front wall. This distance gives the best compromise of modal peaks and nulls, to get the response as flat as possible independent of bass trapping. The listening position is shown centered left to right, but in practice you'll want to sit a few inches to either side — let's say four to six inches off center. This gets your ears out of the width mode's worst null, yet is not so far off-center it affects stereo imaging.

"The two biggest problems in all small rooms are the severely skewed low-frequency response and narrow-band modal ringing. Both of these are best solved by broadband absorption that's effective to as low a frequency as possible. Then — unless the room has many bare reflecting surfaces — only the first-reflection points on the side walls and ceiling remain to be treated.

"For bass trapping I specified a mix of MondoTraps ($299.99 each) and MiniTraps ($199.99 each). MondoTraps are used in the four wall-wall corners, and MiniTraps go in the wall-ceiling corners. I specified MiniTraps there because they're lighter and smaller than MondoTaps, and thus are easier to install, yet they still provide substantial absorption to as low as 40Hz. Since the left rear corner has a closet door, that MondoTrap will go on a RealTraps Stand ($79.99). I also added two HF MiniTraps ($199.99 each) on the rear wall to absorb those reflections because the wall is less than 10 feet behind the listening position. With such a short distance, without absorption those reflections would arrive less than 20 milliseconds from the original source and adversely affect imaging.

"For first-reflection control I used six MicroTraps ($139.99 each), with two on each side wall and two more overhead. If the room were used only for stereo you could get by with half as many MicroTraps. But with the addition of surround speakers there are more reflection points that must be treated. I specified MicroTraps for first reflections rather than HF MiniTraps because MicroTraps are smaller and lighter, yet they're still plenty effective down to the lower midrange. First reflections are mainly a mid/high frequency issue, so MicroTraps are perfectly adequate and they cost a little less. Another pair of MicroTraps is then used over the tracking area to avoid floor-to-ceiling flutter echoes and ringing."

PRIMACOUSTIC

The Primacoustic design kept the comfort of those working in the room as Priority One, while also keeping things cost-effective. According to Peter Janis, "Although we'll control the major acoustical concerns, we won't try to turn a simple rectangular room into a multi-million dollar studio. What we'll do is create a space that's reasonably neutral and will enable the end product to be played back with good results in a variety of rooms or spaces.

"All rooms suffer from the same problems. These include front-to-back and side-to-side flutter echo, strong primary reflections from adjacent walls and the ceiling, and of course excessive bass with resonant frequencies (standing waves) in the 77, 90, and 137Hz regions (based on the room dimensions).

"To treat these problems, we've opted for a London 15 Studio Kit ($850 list). This includes a Europa 83 flutter wall, two Orientique washboards, four Australis bass traps, and a Scandia scatter block. The London 15's components combine to achieve the 'live-end, dead-end' (LEDE) concept. For this room, the kit has been supplemented with two additional Australis bass traps ($200 list) for a total of $1,050.

"To control front-to-back flutter echo and standing waves, the Europa 83 ('1' in the diagram) is placed on the front wall above the work surface. This 36"x 96" wall combines a deep anechoic wedge design along with solid blocks to allow the user to create a unique and distinctive look. The Europa also reduces rear reflections from the monitors. Powerful side reflections and wash are controlled with Orientique washboards (3). These 36"x36" panels help eliminate side-to-side standing waves. To control bass, six Australis bass traps (2) are employed. These are stacked to enhance performance and placed in the three available corners. Although the deep 12" corner-trap 'solid block' design provides excellent bass absorption, high frequencies are also absorbed. The ceiling above the control work surface is treated with a Cloud-9 ceiling

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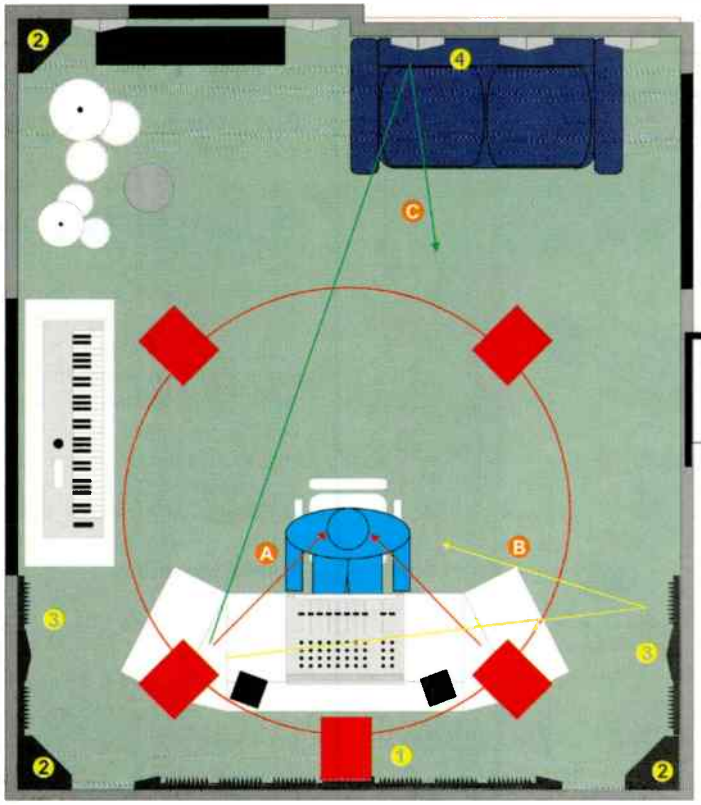


The Primacoustic design uses one of the company's acoustic treatment kits as a cost-effective solution. A/orange) shows primary source from speakers, B/yellow) shows side reflection, C/green) shows back-to-front flutter echo.

kit. This completes the dead end treatment and results in a wider sweet spot and dramatically increased imaging.

"For the live end of the room, the London 15 kit employs scatter blocks called Scandia (4). These are placed on the back wall to reduce front-to-back scatter echo and work with the Europa to reduce standing waves and room resonance. This 'soft diffusion' provides an affordable alternative to diffusers by allowing some of the energy to reverberate back into the listening area while suppressing the rest.

"We've added items to the room that are helpful for acoustics and required as comforts. A couch will help absorb bass in the room while also eliminating flutter echo from the bottom part of the rear wall. A bookshelf below the window will provide diffusion and storage space.

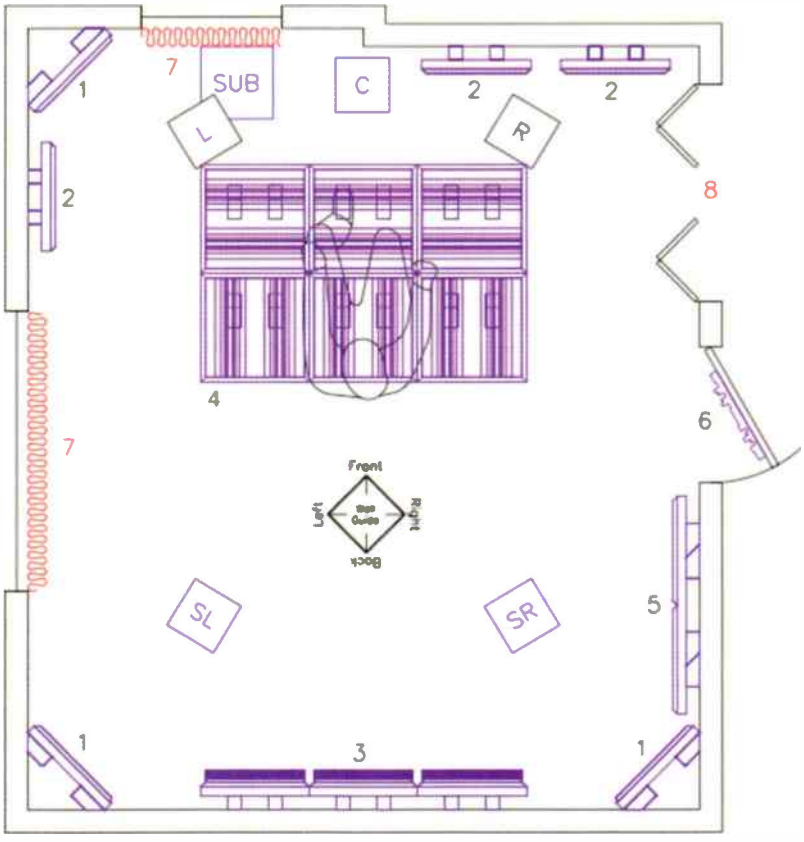
"The soffits that run across the ceiling at the back and side have been left untreated; they'll act as natural diffusers. If the room is too live, treating their front edge would be an easy add-on.

"In order to make installation and dismantling easier, we suggest backing kits. Glue the acoustic panels to the corrugated plastic panels, then mount to the walls or ceiling using finishing nails or tacks. This makes taking down the foam easy and doesn't leave you with a drywall repair mess! The cost for three backing panel kits is $100."

AURALEX

Jeff Szymanski of Auralex designed an acoustic treatment plan that manages the average reverb time in the untreated room. Szymanski says, "While reverb time isn't the best acoustical guideline for small rooms, it was deemed to be useful for this room in the absence of strong reflection problems from any specific surfaces. The measured average reverb time in the room was about 0.45 seconds. This is roughly double what you'd typically want in a studio control room environment. However, since the room is to be used for recording as well as mixing, we have suggested roughly 22% coverage with TruTrap Genesis materials. This type of treatment will control the main problems in the room well without killing everything. The average reverb time should be reduced to roughly 0.35 seconds.

"At 50-60Hz and above, the treatments outlined in the design should control the low-frequency problems quite well. 'Off-the-shelf' treatments won't sufficiently



The Auralex design is intended to control the average reverb time in the room for accurate monitoring, while leaving it live enough to serve as a decent tracking room when necessary.

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address the mode problems below 40-50Hz. For serious problems in this range (most notably build-ups in the 41-49Hz range), consider some larger custom traps (Auralex can help you design them), or you can try tweaking the response with some of the new room correction packages that are becoming available. The former is a better approach, but the latter could prove to be less cumbersome and less labor intensive (very low-frequency traps are challenging to build and take up a lot of space).

Referencing the numbered callouts in the diagram:

1. Two TruTraps mounted over the corners, centered at or slightly above ear level. Purpose: control low-frequency build-ups and cancellations in the room that originate in vertical corners.

2. One TruTrap mounted to the left wall, two mounted to the front wall, centered at or slightly above ear level. Purpose: minimize wall reflections and low-frequency anomalies.

3. Three TruTraps mounted to the back wall with two Q'Fusors mounted to the face of each TruPanel, centered at or slightly above ear level. Purpose: minimize low-frequency anomalies and diffuse high frequencies for a "live end" result. If surround mixing will predominant, the Q'Fusors are optional.

4. Three TruTraps mounted to the ceiling above the main mixing area. Purpose: minimize low-frequency cancellations/build-ups and high-frequency reflections. Two Q-Fusors can be mounted to each TruPanel if desired.

5. One TruTrap mounted to the right wall. The panel is turned 90 degrees and centered at ear level to control wall reflections.

6. Two Q'Fusors mounted to the door, centered at or slightly above ear level. Purpose: control reflections from door.

7. Heavy (min. 40oz./yard) curtains over the windows. The "fold" should be at least 4" deep.

8. The closet should be filled with insulation, clothes, or other porous material. Purpose: additional low- and high-frequency control. Experiment with the bi-fold doors closed and slightly open to determine best results.

The four TruTrap Genesis Systems required for this room have a total retail price of $1,316 ($329 each).

MSR STUDIOPANEL

Control of reverb time across the frequency spectrum was the goal of the StudioPanel design. Evan Rieley of MSR Inc., manufacturers of the StudioPanel acoustic treatment kits, says, "Acoustic treatments were specified to reduce reflection decay time to average suitable for a studio. All reflection energy should decay by 60dB within roughly 0.26 seconds for this volume of room (1,460 cubic feet). Decay time should be smooth across all frequencies; the devices in the StudioPanel kit cover the full frequency range to achieve this result.

"It's important not to over-absorb sound in the studio. StudioPanel Diffusers break up reflections and scatter the sound energy; this maintains 'liveness' and improves the surround field.

"The first reflections from speakers ('1' in the diagram) to listener position should be attenuated by 15dB or more or they will negatively affect frequency response and imaging. This can be achieved using either absorption or diffusion.

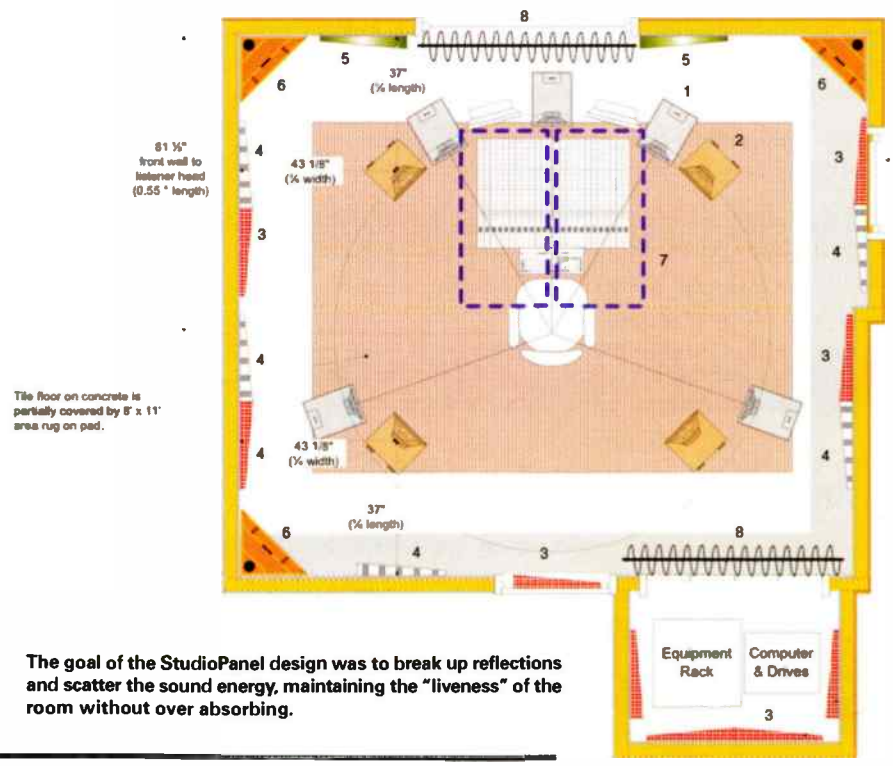
"The listener position shouldn't be located in places of standing wave dips or peaks. A simple method for finding the ideal position is to multiply the length of the room by 0.55 and place the listener there.

"Four subwoofers (2) correctly positioned in a room can cancel standing wave errors producing very smooth bass response. (See AES paper #5602 by Todd Welti for more info.) The four subs play the same signal and are in-phase. The signal is still considered 5.1; the levels of the four subs are adjusted to play at reference loudness.

"Absorber panels (3), which provide absorption down to 250Hz, are placed around the room to break up reflections. We also included absorber panels in the closet to absorb noise produced by the computer, hard drives, and outboard gear fans. The Absorbers are alternated with Diffusors (4) on the studio walls for even dispersion down to 500Hz.

"Bass resonances from standing waves are reduced by Bazorbers (5), which provide Helmholtz and tympanic absorption from 100–300Hz, and SpringTraps (6), which provide resonant bass trapping from 30–100Hz. These will reduce the 'boom' of the room creating an accurate place to hear bass in your mixes.

"Two CloudPanels (7), mounted to the ceiling above the mix position, break up floor-to-ceiling reflections, with absorption down to 250 Hz. ➤



The goal of the StudioPanel design was to break up reflections and scatter the sound energy, maintaining the "liveness" of the room without over absorbing.

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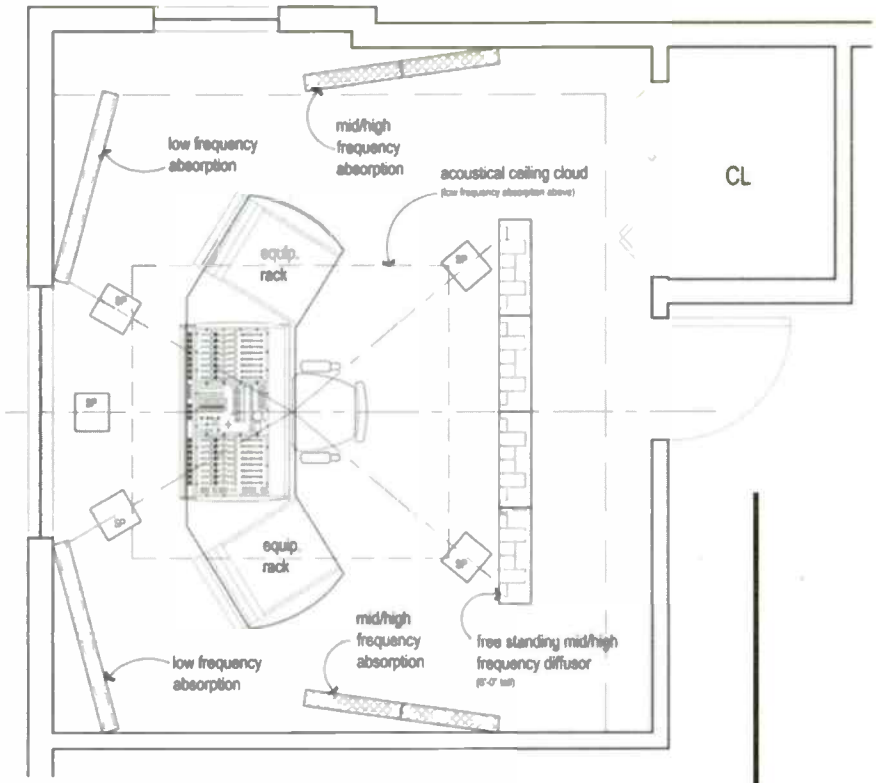


The WSDG design specifies a 6-foot tall free-standing mid-high frequency diffusor wall behind the mix position. This is combined with a ceiling "cloud" with low-frequency absorption above it.

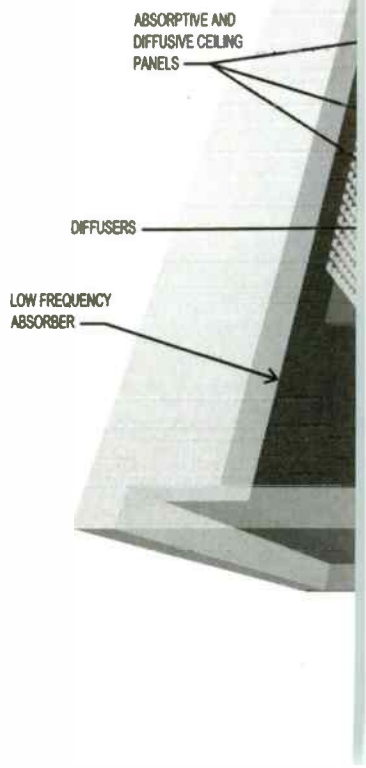
"We recommend covering the front window and rear closet doors with fairly heavy velour drape material (8), 32oz./yard, 62" wide by 80" tall. This will control reflections while maintaining the ability to use the window and doors. Draw the drapes for critical listening. The side window should be covered with 3/4" plywood before covering with acoustic treatments.

"The StudioPanel kit will also improve the quality of sound recorded in the studio. By controlling the decay time, smoothing the bass response, treating specular reflections and flutter echoes, and maintaining some diffuse ambience in the space, tracks will have improved sound and less 'room signature.'"

WALTERS-STORYK DESIGN GROUP

The Walters-Storyk Design Group went for an overall room design. John Storyk says, "There are a number points to consider for a design solution, starting with the user's orientation in the room. Most people will want to face the large window. More often than not, this is the best location for a large piece of glass with a great view. (We assume a view!) Although I don't like entering in the rear of a room, I feel facing the large window is the way to go. Once this

The RBDG design directly addresses the room's biggest problem — a fairly wide hole around 160Hz — by altering the front side wall width.



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has been decided, we need to look at the workflow/furniture.

"We've assumed a typical workstation — a 'U'-shaped workflow environment. We also assume nearfield monitoring. Whether there's a small console, a control surface, or combination of those options isn't critical in creating the acoustic environment.

"Acoustically, low frequencies are the most difficult issue to deal with in small rooms. No matter how mid- and high-frequency reflections are dealt with, low frequency is an issue all to itself and strictly a function of three considerations: listening position, speaker position, and room ratios.

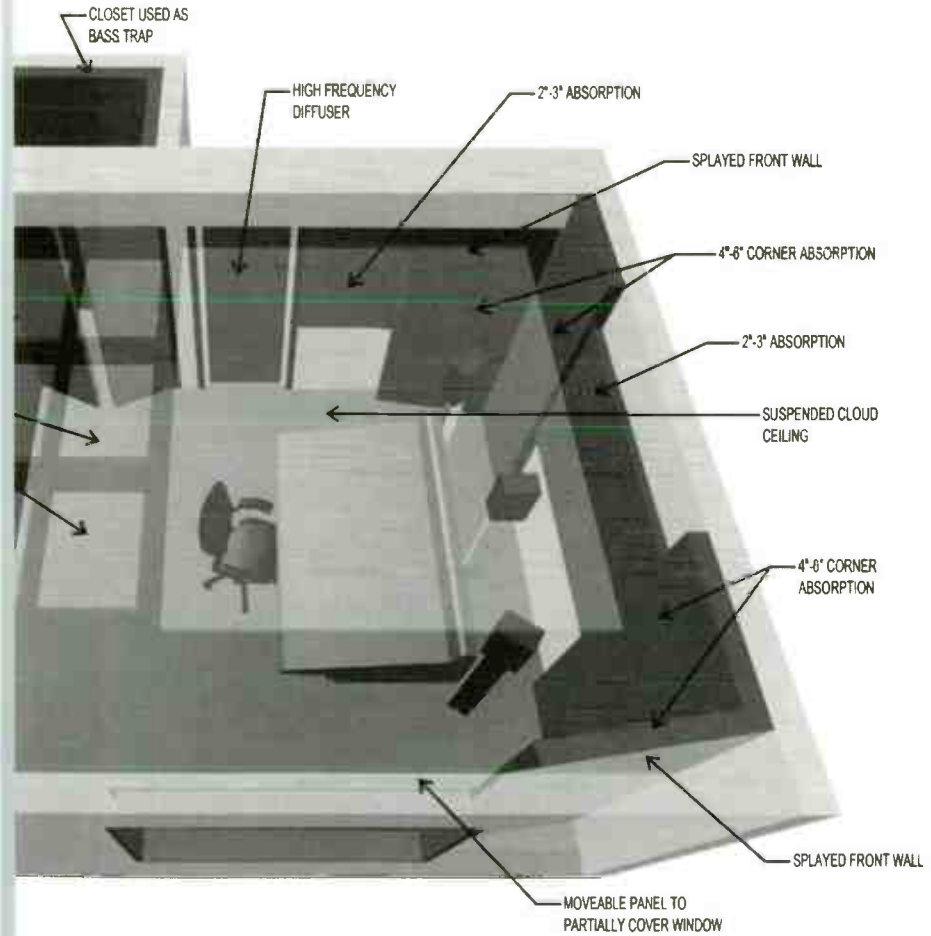
"We use software programs to determine the critical modal anomalies for the room. In this example, the room ratios aren't perfect, and they can't be changed. We'll add prefabricated low-frequency absorbers to the front corners, as well as above a suspended ceiling cloud. There are a few companies currently manufacturing these units (RPG, VPR, Pawel Absorbers from Switzerland, etc.). Another option is to fabricate custom low-frequency membrane absorbers (a bit tricky and more costly).

"Generally mid-/high-frequency analysis isn't that difficult. Ray tracing or reflection control analysis generates clear suggestions for the positioning of treatments. For this room, some side wall treatments augmented by broadband diffusion in the rear will do the trick. The rear room diffusion will spread out the 'sweet spot' a bit for the listener and improve stereo focusing. The ceiling cloud will handle mid- and high-frequency control for the vertical dimension.

"Here's how we implement the basic concepts architecturally: The rear wall diffusors could be simply set on floor — kind of like monolithic blocks. These will also help to define the stereo listening environment and create two small alcoves, which could be used as 'semi-iso' areas for recording.

"The ceiling cloud can be constructed as a wood or metal frame covered with fabric and filled with mid-density insulation or acoustic foam. The cloud would be suspended and might also be multi-purposed to accommodate task lighting (small recessed spots or track). Above the cloud would be the remaining low-frequency absorbers.

Put the speakers on stands — definitely not on the console bridge. Console or work desk reflections are a common problem in small rooms and we do not want them! ➤



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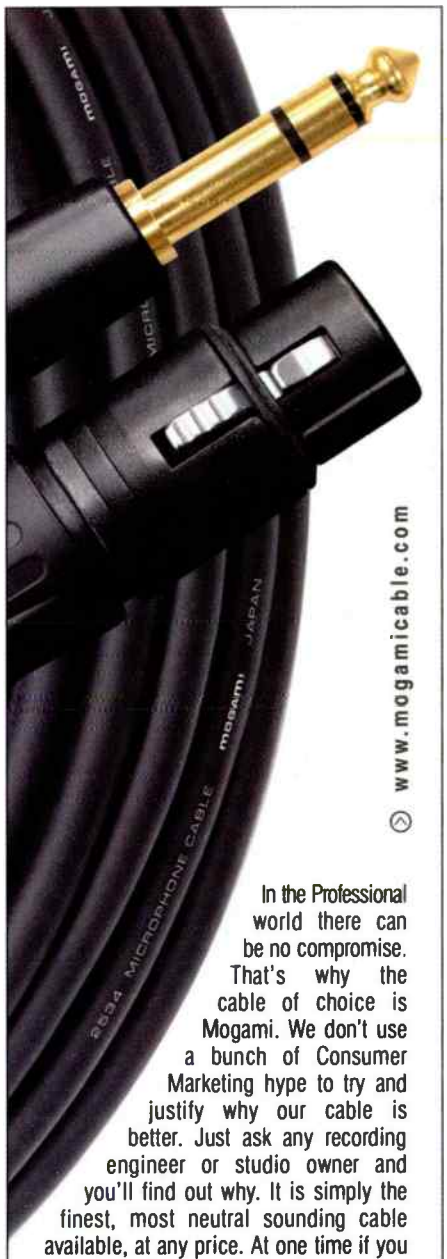

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"The more I think about the rug, the less I'm sure we need it. This depends a little bit on the extent of the ceiling cloud. The final decision would depend on personal taste. Some users are more comfortable working on carpet. Others don't like rolling chairs, etc., on a rug.

"Finally, get a great chair — this is going to be your home for lots of hours!"

RUSS BERGER DESIGN GROUP

The Russ Berger Design Group prioritized their design on several levels. Richard Schrag, a principal of the RBDG, elaborates: "The monitoring environment should be set up with the operator facing the blank wall — that is, with the door on the operator's left.

"As is, the room volume and ratios are far from ideal. Since we aren't allowed to consider options that might make the volume greater, the best we can do is adjust the room dimensions to optimize the modal response. The biggest problem with the existing room ratios is a fairly wide hole around 160Hz. The front side walls could be splayed to alter the width in this portion of the room.

"Locate the mix position around 6'-6" off the front wall, centered in the room. Speakers should be kept at least 2' off the front wall, and around 3' from the side walls. This puts the monitors pretty close to the mix position, but avoids some nasty problems that would crop up if they were closer to the boundaries.

"Put absorption (4–6" thick, medium-density glass- or organic-fiber core) in the front corners of the room, about 3' out from the corner in each direction, full height. This not only prevents corner reflections back into the mix position, it also helps control mid-bass resonances in the room. Avoid specular reflections and scattering from the surfaces forward of the mix position.

"Suspend an absorptive ceiling "cloud" (2" thick, medium-density glass- or organic-fiber core over 2–4" air space) above the front 2/3 of the room to help control reflections from the hard surface overhead.

"On the remainder of the front wall, and on the side walls back to the door and window, put absorption at 2" to 3" thick from just below seated head height (approximately 3' above the floor) to just above standing head height (around 7'). This will control reflections from the near surfaces back into the mix position.

"Cover the rear wall with a combination of mid-band diffusion in the center (using either manufactured treatments or bookshelves) and absorption with a deep air cavity (around 12" thick) toward the corners. The bad news is that this treatment should cover the small window. The good news is that the rear wall treatment can be used to visually eliminate the 4" offset in the rear wall.

"Make a removable, hinged, or sliding panel to cover approximately half of the large window for sessions when accurate monitoring is particularly critical. Otherwise, there will be a direct reflection from the left monitor directly back to the mix position.

"Use the closet to house the noisier equipment (CPUs, hard drives, power supplies, power amplifiers), and make it a bass trap. Replace the doors with wooden frames having 2" low-density absorption over pegboard, then line the interior of the closet with 4" absorption. This will reduce the equipment noise in the room, and at the same time terminate one of the room diagonals with absorption that's effective below 200Hz.

"Suspend a combination of absorption and diffusion above the remaining 1/3 of the ceiling. This will help make the rear portion of the room more uniform when the room is used for recording.

"Since the operator will end up between the door and the window, cover the door with high-frequency diffusion to eliminate flutter echo.

"So far, we haven't talked at all about the budget for these treatments or what they look like. If appearance isn't that critical, reasonable acoustical performance could be obtained by mixing and matching off-the-shelf products. On the other end of the spectrum, a completely custom approach to the room's aesthetic could incorporate specifically tuned acoustical treatments into a well-balanced finished appearance, tailored to your own tastes."

THE WRAP

One room, six different designs. Of interest are the many differences — and similarities — between them. Which will work best? The answer depends on the final budget and other factors, not least of which is personal taste. We'll show you how we ended up treating the room, as well as an "after" frequency response analysis in an upcoming issue.

So what are you waiting for? Improving the acoustics in your studio is the fastest way to improve your recordings and mixes. The better your studio sounds, the better your mixes will translate to other rooms and systems.

Most (if not all) of the principles used by the designers for their plans here can be applied to improving the acoustics in any studio or recording space. With just a small monetary investment, and slightly bigger labor investment, you can have a great space for creating music. Get busy! EQ

Extra special thanks to all six of our designers for taking the time to provide these room designs.

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The Art of Recording:

Comparing Preamps

Choosing the best preamp for every situation isn't as easy as it sounds

by Lynn Fuston

In the endless pursuit of sonic Nirvana, it seems that equipment comparisons are *de rigueur* for studios and engineers these days. Thirty years ago, there weren't that many options, but these days there are dozens (or hundreds) of competing candidates for each rack space. So how does an engineer go about comparing mic preamps, for instance?

I get asked that question a lot. Possibly because in the past four years, I've auditioned probably 100 preamps and have produced two preamp comparison projects, featuring multiple sources through dozens of preamps (*3D Pre CD* in 2000 and the *Preamp Summit* DVD to be released in 2005). Not only do I spend a lot of time comparing preamps, I extensively researched *how* to compare preamps by talking to preamp designers and considering different testing methodologies. But let's consider four ways to compare preamps: Cheesy, Easy, Obsessive, and Efficient.

CHEESY

Plug a mic into each preamp consecutively at similar gain settings and then run the signal through a limiter to match up the levels.

Believe it or not, I first came across this setup in a press release for a console manufacturer. But if you're truly interested in accurately comparing the sonic signatures of different preamps, this *isn't* the way to do it.

One of the most important criteria for conducting valid preamp comparisons is level matching. Unless the levels are matched to within 0.25dB, preferably to 0.1dB, the judgments that you make about the sound of each will be based on differing levels instead of the different sonic characteristics. Absolute level matching, which this procedure eschews, is critical for honest results.

Advantage: The hardest part is hauling all the preamps in from the car.

Disadvantage: It's almost meaningless.

EASY

Plug the same mic into several preamps at the same time, by using Y cables or a transformer splitter. Bring the preamp outputs back to the faders on the console to match up the gain, then A/B all the preamps while using the exact same performance.

I asked Paul Wolff, formerly of API and now designing Tonelux recording gear (www.tonelux.com), whether using a transformer mic splitter or a Y would degrade the signal. "Everything degrades everything, but to what extent? The differences are typically that the transformer will lose a few dB and sound a slight bit darker, but not much. The parallel (Y) will lose a few dB and sound a little thinner, but not much. I've never had problems multing a mic to two preamps.

"When I want to compare something and get to the differences quickly. I mult the mic to both preamps. The mic will change tone, but it will be the same change in both preamps. Then, I bring them into a *good* console, flip one out of phase, then null them. The sound that you hear is the difference between the two preamps. If there's perfect cancellation, then you have a match. If there's a slight thump, then one mic pre is a little richer in the low end, or one is a bit thin. To find out, engage the channel EQ and re-null the channel. (You may have to switch both EQs in if you can't get a null, which should also tell you that you have the wrong console!) With one channel set flat, adjust the other's frequency and boost/cut until you get a better null. ➤

Drummer Paul Leim and Lynn Fuston listen to drums recorded through 24 different preamps.

David Streit and Grant Carpenter (Gordon Audio) discuss the testing procedure over a wall of preamps.

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"Now remove the EQ, listen to them side-by-side, and see if you can hear the differences you found with the nulling. If you can't hear the differences, then your ears aren't trained enough. Actually, this is a good training exercise to improve your hearing. Now, if you could hear the difference, pick the one that you prefer and go make some money."

Advantages: Each preamp sees an identical performance. It's quick and easy to set up.

Disadvantage: Doesn't work well for more than two preamps.

OBSESSIVE

Set up a single signal path, with high-quality cable used for all preamps, skipping all patch panels and bays. Accurately calibrate all preamps to within 0.1dB using precision test equipment, and then have the talent sing through each preamp and record the results for comparison.

This is the technique we used for the *3D Pre* CD. After talking with dozens of preamp designers, I felt this was the fairest and most accurate way to do the comparisons. In a discussion with Dave Hill of Cranesong (www.cranesong.com), he confirmed that the interface between the mic and the preamp is critical. Multing a mic to several preamps won't give you the most accurate results. Preamps are typically designed to work with one mic, not ganged to several other preamps.

So for my tests, the mic, the distance of singer to mic (which was measured for every performance), the cabling, and every aspect of the recording chain was absolutely identical for each recording. The only thing that changed was the mic preamp.

For level calibration, we used a 1kHz tone piped through an Auratone on a mic stand as the sound source. The test equipment was accurate to 0.001dB. For our testing setup, there were only two variables. The preamp and the performance. We got around the performance issue by hiring one of Nashville's finest studio singers, Marabeth Jordan. Her performances were so consistent that many people didn't realize that each of the 33 performances were different.

Advantages: Truly accurate level presentation, identical signal path, what you hear is precisely the difference between the preamps.

Disadvantages: Time consuming, demanding, impractical for anything other than very intense comparisons.

EFFICIENT

A "real-world" method for comparing multiple preamps. It's fairly fast and unobtrusive to the session.

For most sessions, the level of accuracy and calibration described above isn't an option, and may not be necessary. So this is the technique I most often use: Have everything set up before the artist arrives — powered up and ready to go with all output cabling and patching in place. Have one mic cable run to the stack of preamps and each preamp coming back into an input on the console or DAW. (You can check with a tone and make sure each of the ins is identical

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in level.) Have the singer sing the song through one time and set the gain. Then dismiss the singer for a few minutes while you calibrate the other preamps. Since many preamps don't have fine trim controls, you may need to fine tune their outputs with the faders. Using a steady-state source, white noise, a stationary buzzer, or a radio tuned to inter-station noise, set each preamp so that the level on the console output meters is consistent. Analog meters work well because of their fine resolution. If you have digital meters, you can set them for peak-hold. *Note*: The accuracy of your calibration can't exceed the accuracy of your meters. So if their max resolution is 2dB, you may have to match the final level by ear.

Once the levels are matched, have the singer sing the same section of the song as many times as you have preamps. I suggest a short section so as to not wear them out. If the dynamics or range are greatly different between verse and chorus, use as much of the song as you need to adequately represent their voice during the song. Since the levels are already calibrated, you should be able to run through six preamps in as little as five minutes, assuming a 30-second audition on each. Most producers will consider the extra 5 or 10 minutes this takes as a worthwhile investment, since it will ensure the best vocal sound; plus many singers get an emotional boost knowing that someone cares enough to take the time and go for the best.

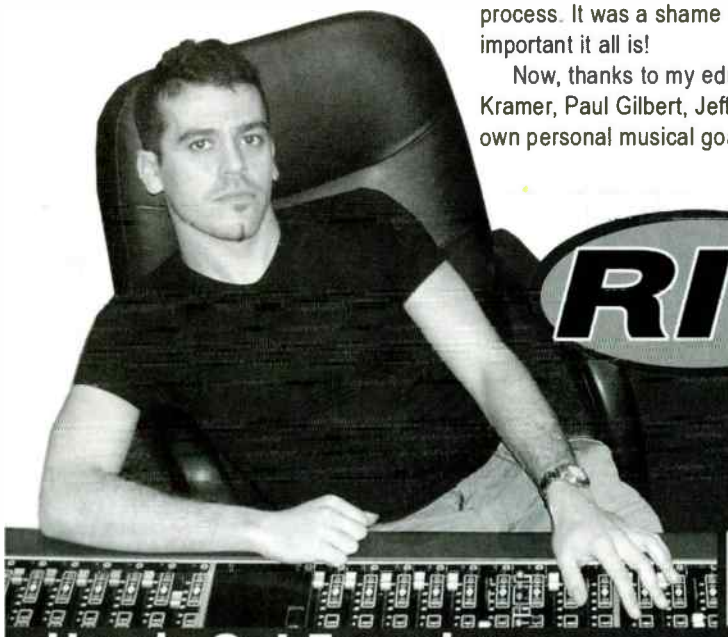
Picking out sonic differences often requires focused listening.

Advantages: Fast, easy to do in a real-world session.

Disadvantage: Not quite as precise as the Obsessive method.

Consider all these auditioning scenarios and see which works best for you. Preamps in the studio are like paint colors to an artist. It's hard to ever have enough. They're a major part of any recording and it's worth the time and effort to match to the mic and the performance. So happy preamp hunting. One word of caution from someone who's done this many times before: The more you try, the more you'll buy.

Lynn Fuston didn't ever aspire to be the "King of Comparisons." He just couldn't help it.



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Native Instruments Battery 2

A powerful drum sample module gets an overhaul with a capital "□"

by John Krogh

Type: Sample-playback software drum module
Price: $229, $119 (upgrade from Battery 1)
Contact: Native Instruments, www.nativeinstruments.com

Plug-in Formats: RTAS, VST, Audio Units, DXi
Supported Audio Drivers: ASIO2, CoreAudio, DirectSound, MME
Resolution: 24-bit/96kHz
Minimum System Requirements: Mac: G3 500 MHz with OS X, 256 MB RAM; PC: Pentium III/Athlon 400MHz processor with WinXP, 256 MB RAM; both: 4GB free hard drive space (sample library)
Tested With: dual processor 1.25GHz Mac G4, OS10.3
Sample Import: Kontakt/Kompakt/Intakt, Battery 1, LM4, AIFF, WAV, SDII, REX 1+2, Akai S1000/3000, Giga, SF2, EXS24, Halion, SampleCell
Maximum # of Outputs: 32 mono/16 stereo

When Battery first hit the streets a couple of years ago, it made a sizeable impact on the drum-programming community. Supporting a variety of sampler import formats, an interesting albeit limited set of lo-fi/sound design effects, a respectable collection of included kits, and a straight-forward, no-nonsense user interface, Battery provided groove addicts with enough fire-power to create all manner of live-sounding and synthetic beats. Time and technology have marched on, however, leaving Battery behind the curve compared to other drum synths and samplers. Naturally, this brings us to Battery version 2 (or simply B2), which boasts a number of improvements both large and small, along with a healthy dose of new drum sounds to get your creative juices going.

FROM THE TOP

Interface-wise, Battery uses the now familiar "matrix/cell" model, in which samples are assigned to cells within a matrix. There can be a maximum of 72 cells, each of which can be triggered by a single MIDI key or a range of keys. A cell can contain up to 128 samples, so it's possible to program highly dynamic velocity-switched and velocity-crossfaded drum and percussion hits.

New in B2, the matrix can be set up to show nine or 12

LOOP, MODIFY, AND ENVELOPE SETTINGS ARE REFLECTED IN THE SAMPLE WAVEFORM DISPLAY, PROVIDING USEFUL INFORMATION IN REAL TIME.

AMONG THE NEW FEATURES IN B2, THE MULTIMODE FILTER (ACCESSIBLE FROM THE FILTER MENU TAB) IS CAPABLE OF SERIOUS SONIC SHADING.

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columns. The number of rows can also be reduced from six down to one, which allows for very small kits and space saving kits with no more than nine cells. This may seem like a small thing, but having a smaller matrix is helpful when dealing with a smaller pool of samples, because with fewer cells, there's more space to display their contents.

The expanded library is a considerable improvement from the original content (which is included for backwards compatibility). There's a wealth of choice kits comprising "best of" samples from FM7, Reaktor, Limelite, Krypt, Absynth, and other synth beat boxes in NI's lineup. I was especially impressed by the selection of glitch and sound design-oriented kits such as Dusty Circuit. On the other end of the spectrum, the Jazz Brush and Multi-Mic kits are both superb for natural, realistic performances.

Several features have been ported over from NI's flagship sampler, Kontakt. Among them, direct-from-disk streaming. Instead of loading samples into RAM, they can be streamed off the hard drive, which means it's possible to load very lengthy samples without maxing out your computer's RAM. DFD is a nice touch, but not exactly necessary for a drum or percussion sampler, as drum hits are generally short and don't require much RAM. Still, there are some kits — the aforementioned Multi-Mic kit, for example, offers samples of each drum recorded from various microphones (overhead, close, room, and so on), and requires 261 MB, whereas the Multi-Stick kit, a complete acoustic kit played with six different kinds of mallets, requires a whopping 528 MB. Considering this kind of memory consumption, DFD may be your only option if you're computer is light on RAM.

Another feature taken from Kontakt's playbook is B2's new multimode filter, which is super-smooth and quite capable of serious sonic shading. Not only will you find the usual suspects — low-, high-, and bandpass with variable slope — but you'll also find phaser and vowel filters along with 1/2/3-band EQ with selectable Q. It gets better. Each cell can have its own filter choice. Just be forewarned: Engaging filters for every cell within a kit will put considerable strain on your CPU.

Groups of cells can be enabled and disabled for playback via MIDI controllers or MIDI notes similar to how different sets of samples can be selected within Kontakt or GigaStudio. This allows you to add more

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expressiveness to your drum parts — for example, you could play a snare with "hotrods" during a verse, then switch to sticks during the chorus. The included Multi Stick kit is a great example of how this feature can be used effectively.

The original Battery featured an FX Loop that allowed you to create stutter and drum roll-type effects from one-shot samples. Essentially, a sample loop could be defined along with the number of repetitions. FX Loop has been updated to include tuning and crossfade parameters for smoother repetitions. Modulating loop parameters is the sort of thing that tweakers in search of bleeding-edge rhythmic maneuvers die for, and leave mainstream musicians scratching their heads wondering why on Earth anyone would want to loop small portions of a one-shot sample.

Speaking of modulation, the Mod section has been beefed up. At the top of the list is an assignable LFO, and you're free to use any of the envelopes along with any MIDI CCs to modulate up to eight parameters per cell. There's room for improvement, though. Some parameters (such as loop tune and count) aren't available for modulation, and while there is a MIDI learn function, it doesn't extend to any loop-related parameters. What's more, none of the parameters are listed by name (at least not in Logic or Live, the two hosts I used with B2), so it's a bit of a guessing game when trying to modulate parameters not available from within the Mod section. This qualifies as a significant shortcoming in my book, and I'm hoping it's addressed in the very near future.

Replacing version 1's Shaper is a bonafide compressor. B2's isn't anything out of the ordinary: There are controls for threshold, ratio, attack, release, and makeup gain. But hey, a true compressor is mighty handy for punching up drums, so I'm not complaining. As with other synthesis and sound-shaping aspects of B2, the compressor can be disengaged to conserve CPU resources.

Rounding out the effects section is the Modify module, which includes controls for sample tuning, bit-depth reduction (instant crunch for even the cleanest of pristine samples), Hertz (a sample rate reducer that sounds not unlike a classic ring mod), and Sat (short for saturation, read "thickening agent"). All of these add up to a potent mix of lo-fi processors that can be applied per cell. Fun stuff.

WAX ON, WAX OFF

I never clicked with the original Battery, but B2 has made a believer out of me. The new modulation features, though not complete, afford a greater degree of sample manipulation and sound sculpting. I found new ways to manipulate my existing samples, twisting and torturing them until they were unrecognizable as percussion sounds. On the flip side, I was able to lay down convincing "live" grooves using the new acoustic kits. These are very well done, although not quite as detailed or comprehensive as some drum sources (check out my Reason Drumkits Refill review on page 96). Still, their contribution to B2's library is almost worth the price of admission.

I experienced few difficulties while working with B2, whether I was using it as a plug-in or in standalone mode. In fact, sample load times were surprisingly fast, even with 500 MB+ kits. I never waited more than a couple of seconds.

The only major frustration was the limited modulation routing options. I'm happy that the Mod section has been improved, but there really ought to be a way to modulate FX Loop paramoters via MIDI learn or directly by choosing them as Mod destinations.

THE SKINNY

As a sample-based drum and percussion sound module, Battery 2 is at the top of the heap. There are other software drum modules that have larger acoustic libraries, but that's not what Battery is all about. It's a combination of powerful synthesis features that can be applied to sampled kit sounds, whether they're derived from acoustic or synthetic sources. A lot of sonic damage can be done just with B2's sounds and feature set. Add to this a drum synthesizer such as Waldorf's Attack, Logic's UltraBeat, or NI's own Reaktor, and you'd have all of your drum and percussion bases covered. EQ

Strengths:

- Wealth of top-notch sample content
- Creative sound design possibilities
- Sophisticated trigger modes
- Easy-to-use interface

Limitations:

- Some critical parameters not available for modulation
- Limited built-in effects (no reverb, delay, and so on)

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Digital Performer 4.52

First the Red Sox, and now this . . .

by Craig Anderton

Type: Sequencing, arranging, looping, and digital audio editing software
Platform: Mac OS X
Price: $795 (upgrade from previous DP, $149; from Performer, $295; competitive crossgrade or upgrade from AudioDesk, $395). Includes bundled loop material.
Contact: www.motu.com

Minimum system requirements: G3, 256MB RAM, Mac OS X 10.2 or later; G4, 512MB RAM recommended
Copy protection: Serial number
Version reviewed: 4.52
Internal resolution: 16, 24 bit
Driver support: CoreAudio
ReWire mode: Host
Audio plug-in support: AU, RTAS, AudioSuite, HTDM, TDM
Virtual instrument plug-in support: AU, MAS, HTDM, TDM
Pro Tools compatibility: 24 Mix, 24 Mix Plus, 24 Mix^3, HD (1, 2, or 3), HD Accel
Audio import formats: SDII, AIFF, Apple Loops, WAV, Broadcast WAV, MP3, Acidized WAV, REX, RCY, QT and AVI movies, CDA, uLaw
Audio export formats: SDII (deinterleaved or interleaved), WAV, AIFF, AIFC, NeXT/Sun, MP3

"Hey, aren't you a Windows guy?"

No, not really. In 1995, I picked up my first Windows machine to replace the Atari I'd been using alongside my Mac IIci. In particular, I've followed DP for some time because quite a few friends use it, and it's easier to work in their chosen medium than convert projects.

I've always admired the program, but never had the same kind of "chemistry" as my DP-adoring pals. Besides, it didn't do some things I really wanted it to do — like deal with loops. And in my OMS-centric OS 9 world, FreeMIDI was like an uninvited dinner guest. But I could make DP work, it was stable, and hey, that was all that mattered. I didn't have to love it, just use it.

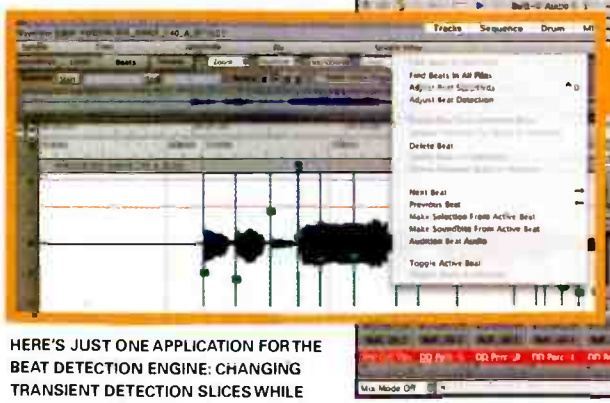
Fast forward a couple years. I'm getting pretty fluent in OS X. My aging G3 PowerBook has ceded its turf to a dual G5. Then DP 4.52 shows up, and all I can say is . . . well, you'll see.

THE CONSOLIDATED WINDOW

Forget about the cool tech specs for now; to me, this is *the* killer feature because everything flows from how well you flow with a program. MOTU has ended "window clutter," although you can use the old school DP interface if you want. A two-monitor setup or Cinema Display lets this feature really rock, but it'll work on 17" as well.

The Consolidated Window indeed consolidates all the various elements of a DP project into a single, flat, customizable interface. I particularly like the Tabs for accessing different views with a single click, and the ability to optimize different layouts for tracking, mixing, waveform editing, and so on. It's like the screen sets in other programs, but instead of collecting a loose bunch of windows into a single view, a bunch of views are integrated into a single window.

Still, given all the other improvements, is the Consolidated Window really the right lead item for a review? For a reality check, I called up long-time DP user Mitch Gallagher. Confirmed: Even a



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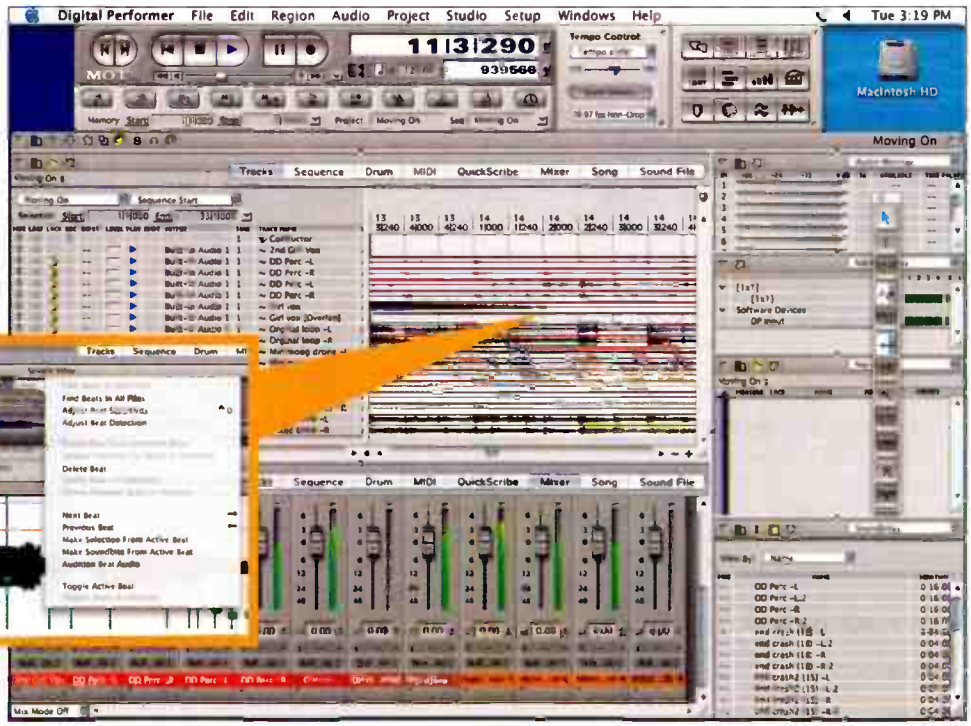

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Digital Performer 4.52

certified DP vet was totally smitten by the Consolidated Window.

THE USER EXPERIENCE

That's not the only thing that makes life easier. DP's documentation has an extremely lucid, helpful discussion on optimization, buffers, audio/MIDI settings, how programs react with computers, and so. The tone of the documentation is clear and totally straightforward. But the irony is that I didn't really need to read it much, as DP required virtually no effort to get working. My MIDI interface showed up, so did a USB audio interface, and latency was well under control. And (thank you!) there's no complex copy protection — enter the authorization code included with the manual, and you're recording.

I expect to spend time getting a program installed and ready to go, but with DP 4.5, I was laying down tracks (and importing OMF files exported from Sonar and Cubase) within minutes of opening the box. It was one of the more painless user experiences I've had with a major piece of software.

BEAT DETECTION ENGINE

This isn't just a feature, it's literally another engine in the program. This is what lets you bring in Acidized and REX files, quantize audio, conform drums to tempo, and even do the "elastic audio" tricks that Ableton Live pioneered. And when you look at a Sound File, you can alter the velocity of each "slice" as well as its timing — something even ReCycle doesn't do.

However, note that the experience varies from "plug and play" with simple rhythmic grooves, to "assembly required" for complex waveforms that don't have easily defined rhythms. As anyone who's tried to create acidized or REX files knows, beat slicing/detection is an art as much as a science. DP 4.52 provides the tools, but it will take you some time to become expert at this extremely powerful feature.

GOODIES FOR THE FAITHFUL

It's not a big feature for me, because I don't use Pro Tools hardware. But a lot of people use DP as a "front end" because of the various tools (like superior MIDI editing) that DP brings to the party. There are now a plethora of enhancements that relate to using Pro Tools hardware; check the MOTU website for details. For example, V4.1 provided DAE support, but now RTAS and AudioSuite join the plug-in support for AU — buy a VST-to-AU wrapper, and you'll be able to handle pretty much any plug-in out there.

SPEAKING OF PLUG-INS...

DP 4.52 bundles no virtual instruments, but reserve judgement about that until you read the conclusion. What *is* new in 4.5: The MasterWorks EQ, a five-band parametric with additional high and low cut filters. These aren't wimpy, either; the highpass filter can give a 36dB/octave slope, which is great for nuking subsonics and other low-frequency garbage. The EQ sounds "musical" too, but a lot of that is because you can create very gentle filter slopes as well as more extreme options. Another plug-in goodie is delay compensation (attention PowerCore/UAD-1/etc. fans). My only beef: It takes up *way* too much screen real estate.

And manufacturers, please steal this idea: Audio plug-ins don't draw CPU power unless there's audio going through them, which lets your computer "coast" a bit more. This applies to all plug-ins that ship with DP, as well as third-party AU types (not necessarily MAS, though). Then again, if your computer can't handle a ton of plugs, don't forget about the freeze function that was added a few revs back.

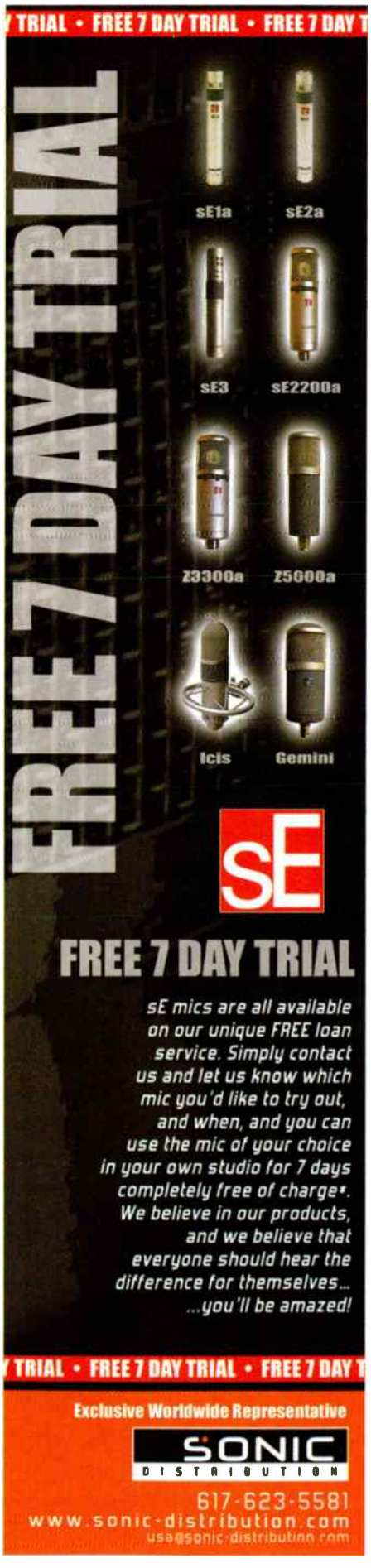
WHY WORD COUNTS SUCK

When this review hits the streets, the MOTU people are going to flip out: "But he didn't mention [this cool feature], or [this cool feature], or . . ." and they'd be right. Word counts are a cruel taskmaster. So a few quickies: 20 sends instead of four, pre-post switch, plug-in automation for TDM/HDTM/RTAS, mono/stereo/n-channel buses, smooth audio edits (fills in gaps with room tone — very cool), QuickScribe film cues view, scroll wheel support, instrument tracks, and . . . you get the idea.

CONCLUSION

Digital Performer is a deep program, so all we can do here is hit some highlights. That's no big deal, though, because you can get the details on the Web. Instead, let's cut to the chase.

Apple really stirred things up when they bundled a zillion plug-ins with Logic Pro 7 and set the price at $999. So where does that leave DP, which has no bundled soft synths? I decided to do the math and



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Digital Performer 4.52

check current prices. For that same $999, you can get DP 4.5, a helluva suite of soft synths and samplers courtesy of Reason (which rewires into DP like a champ), and even throw in an Arturia synth or some PSP Audioware plug-ins — and still have change left over for a sushi dinner.

You'll have to decide for yourself whether Reason with a spiffy synth like the CS-80V delivers more value than Logic's instrument bundle, but given that Reason is a great program in its own right and can develop beats suitable for use in DP, it seems that at the very least the value proposition is a draw — if not a slight advantage toward DP.

And a note to those still using StudioVision: I understand why, but it's time to move on. Overall, I think DP 4.5 is probably as close as you're going to get to what SV would be like today if it had been upgraded for the past several years.

The bottom line is that DP 4.5 really does, indeed, *perform*. I'm impressed that MOTU has managed to tie some legacy loose ends together into such a cohesive package. Previously, it always seemed to take a while to find what I was looking for; now everything flows a whole lot better.

Maybe I've just gotten more familiar with the program, but I think there's more to it than that. The cumulative effects of years of tweaks have sort of reached critical mass with DP 4.5. First they nailed MIDI, then hard disk recording, then audio-for-video . . . and now they've taken care of the loops 'n' remix crowd (as evidenced by little touches too, like Mute automation). Performer aficionados will be delighted, but for a prodigal Mac guy like myself, DP 4.5 is a powerful argument (along, of course, with OS X) for re-entering the world of the Mac. EQ

Strengths:

- Superb front end for Pro Tools hardware
- Deep, versatile Beat Detection Engine
- Tempo warping/quantizing
- Acid/REX file import
- Consolidated Window improves workflow
- Plug-in delay compensation
- Improved busing options
- Excellent EQ plug-in
- Numerous small enhancements

Limitations:

- No bundled soft synths
- No demo program available
- Masterworks EQ takes up lots of screen space

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SE Electronics Mics

Small, large, or huge . . . does size matter?

by Phil O'Keefe

Contact: SE Microphones, dist. by Sonic Distribution
www.sonic-distribution.com

GEMINI
Type: Cardioid, large-diaphragm, dual-tube condenser.
Price: $1,499

Capsule: 35 mm, center-terminated, true condenser
Frequency response: 20Hz–20kHz
Sensitivity: 20mV/Pa –34 ±1dB (0dB=1V/Pa 1kHz)
Polar pattern: Cardioid
Impedance: <200
Equivalent noise level: 16dB A-weighted
Max SPL for 0.5%THD @ 1kHz: 130dB

Z3300-A
Type: Large-diaphragm, multi-pattern, Class A FET condenser
Price: $599

Capsule: 35 mm, center-terminated, true condenser
Frequency response: 20Hz–20kHz
Sensitivity: 16mV/Pa - 36 ±2dB (0dB=1V/Pa 1kHz)
Polar pattern: Cardioid, omni, figure-8
Pad: –10dB
Low-cut filter: –6dB/oct @ 100Hz.
Impedance: <200 Ohm
Equivalent noise level: 20dB A-weighted
Max SPL for 0.5% THD @ 1kHz: 125dB

SE2-A
Type: Small-diaphragm, multi-capsule true condenser
Price: $399

Capsules: 20 mm true condensers
Included capsules: Omni, hypercardioid, cardioid
Frequency response: 30Hz–20kHz
Sensitivity: 10mV/Pa –40 ±2dB (0dB=1V/Pa 1kHz)
Impedance: <300 Ohm
Equivalent Noise Level: 17dB A-weighted
Max SPL for 0.5% THD @ 1kHz: 137dB

It's no secret that there's no shortage of low-cost condenser microphones being manufactured in China. Most Chinese-built condensers sell for far less than microphones manufactured in other countries, although the build quality and tone sometimes fall short for demanding users, and added features and extra accessories usually aren't included.

Many of these mics share similar characteristics — primarily due to the fact that most are being built by a handful of factories and then "re-branded" with the name of the import company. SE Electronics mics are different in that regard. SE and their distributor, Sonic Distribution, have stated that they will limit production in their Shanghai factory to only SE Electronics-badged microphones, and that they intend to offer mics that are up-market in terms of quality and features. To that end, SE has completely redesigned their entire mic line. We had a chance to check out three of their latest offerings.

SMALL. . . .

First up is the SE2-A, a small-diaphragm true condenser. This mic comes in a sharp-looking foam-lined, cherry-colored wood box. I was surprised to find a lot of extra goodies inside the box. In addition to the mic body and the expected cardioid capsule, there was a shockmount and a set of additional capsules — an omni and a hypercardioid. Very nice. There was no stand clip, nor was there a user's manual; just a warranty card.

The shockmount was quite a surprise. Unlike many shockmounts for inexpensive mics, the one included with the SE2-A is a classy unit. It's really easy to insert or remove the mic, and the mount does a good job of isolating the microphone from stand-borne vibrations. Now I understand why they didn't bother with a stand clip: with a shockmount this nice, who needs one?

The SE2-A did well in all of the usual small-diaphragm condenser mic applications, such as acoustic guitar and drum overhead. I especially liked it on hi-hats. With a cardioid capsule presence peak that starts at around 5kHz and is centered around 9kHz, and low-frequency response below about 200 Hz down a dB or two, the tonal vibe of the SE2-A is somewhat bright, but the sound is detailed and clear without being harsh. It handles loud sources just fine, which is a good thing, since there's no onboard pad.

A nice surprise is the off-axis response. When the SE2-A was used close-in on hi-hats, bleed from the snare was never a huge problem, and never sounded overly colored. I really liked this microphone.

LARGE. . . .

Next up is the Z3300-A, a large-diaphragm multi-pattern

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SE Electronics Mics

FET condenser mic with Class A electronics. This one came in a foam-lined, camera-style flight case, with a shockmount and, what's this? An extra elastic band for the shockmount? That's one of those "why doesn't everyone do this" type of features. It can't cost very much for the manufacturer to include an extra, but if you ever snap an elastic band at 3 AM while working on a recording, you'll certainly appreciate that SE Electronics included a spare. There was, however, no manual included.

The Z3300-A has a 100Hz, –6dB/octave low-cut filter, which is useful for taming low-frequency rumble. In combination with the shockmount, it did a good job of keeping one singer's heavy toe-tapping out of the recording. The mic also has a –10dB pad switch, as well as a 3-position switch for selecting the polar pattern. All three switches feel solid, with a reassuring "click" when repositioned. The Z3300-A has a nice solid build, and looks and feels like a well-built microphone should.

How did it sound? While the Z3300-A didn't have any overt "character," neither did it have any objectionable sonic issues. The bi-directional pattern was evenly balanced insofar as front and back side response, and side rejection was very good. Recording background vocals with two singers was no problem with this mic. Omni response was open and clear. Cardioid has, of course, proximity effect, but nothing excessively pronounced.

The Z3300-A did well on most everything I put it in front of . . . drum overhead, acoustic and electric guitars, male and female vocals, hand percussion, and more — it always handled the task in a pleasing and unobtrusive way, with good balance and detail. The highs are present, but not excessively so. I would go so far as to say that this mic compares very favorably with other well-known utility mics that cost up to twice as much, and is certainly one of the better-sounding Chinese-built mics I've heard. Well done!

HUGE. . . .

Finally, we get to the big boy. And I do mean *big*. The Gemini is one of the biggest large-diaphragm tube condenser mics you'll find. Weighing in at a stand-toppling 3 lbs, you're going to need a heavy-duty stand with a good counterweight to handle this mic. Like the Z3300-A, the Gemini comes in a camera-style, foam-lined flight case. Inside you'll find the power supply, shockmount, and mic and power supply cables. Once again, a spare shockmount elastic band was included, and the microphone itself is enclosed in a nice wooden box that fits inside the main case. Cool. With the Gemini, there was a manual included — a short, single-page affair lacking any specific frequency response plots or other performance-related details.

The shockmount is similar to the one included with the Z3300-A. The heavy mic has a tendency to cause the shockmount to droop, no matter how hard you torque down the set-screw. (SE Electronics tells us very early units had this problem, which has been

World Radio History

fixed on newer shockmounts. All defective mounts were replaced.) The mic attaches to the power supply via tuchnel connectors, which I prefer over the multi-pin XLR connectors used on some other tube mics.

While the Gemini lacks a pad, highpass filter, or polar pattern selection (it's cardioid-only), it does have features that are worth special note. Most notably, its considerable size is due to the fact that it houses not one, but two tubes. The first tube is a 12AX7 that functions as a traditional preamp, while the second (a 12AU7) functions as an output impedance converter. This is an interesting alternative to traditional designs, which SE says was intended to overcome the high-end roll-off common with tube products. Their goal with the Gemini wasn't to produce a "retro" or "vintage" design, but to create a mic with the lows and mids of a tube mic, combined with the highs normally associated with an FET design.

Sonically, the Gemini has a present, "in your face" tone, with nice warmth down low. I found it too bright and sibilant for most female vocalists, although it performed well on male vocals. It worked very well on upright bass and acoustic guitar, but its sheer size made placement an issue. While it may be too bright for some singers, the Gemini can help a singer cut through a dense mix with abundant and detailed top end, which may prove useful for some musical styles and vocalists.

There you have it, three very different mics at a range of price points, and suited to different applications. But why take my word for it? Sonic Distribution offers a 7-day trial period: If you aren't happy, you can send the mics back. You can't ask for more than that. And considering the range of mics SE offers, and their overall quality, rest assured something in the lineup will fit your needs and preferences

Strengths:

- Lots of included accessories
- Solid build quality
- Multi-purpose performance (SE2-A and Z3300-A)
- Excellent shockmount (SE2-A)
- Outstanding "trial-period" offer
- Unique output circuitry (Gemini)

Limitations:

- Gemini may be too bright for some tastes
- No pad or roll-off on Gemini or SE2-A
- Poor documentation

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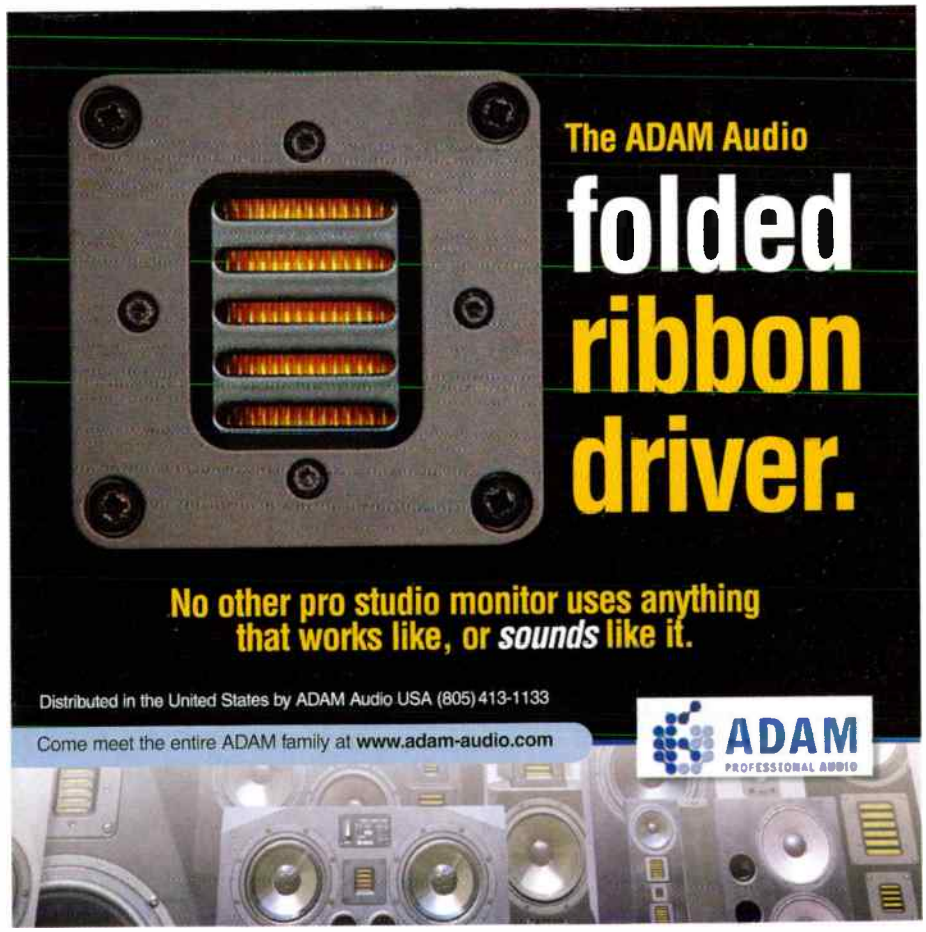

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Royer Labs SF24

Stereo mic jubilee

by Randy Poole and Mitch Gallagher

Type: Stereo active ribbon mic
Price: $3,795
Contact: Royer Labs, www.royerlabs.com

Capsule: 1.8-micron aluminum ribbon
Polar pattern: two figure-8 mics fixed at a 90-degree offset
Frequency response: 40–15,000Hz, ±2dB
Self noise: –18dB
Output impedance: 200 ohms
Maximum SPL: 130dB
Power requirements: 48-volt phantom power
Finish: Optical Black, optional 18k gold

"Life's the same, moving in stereo" . . . so said the Cars, way back in 1978. And it holds true today: Stereo audio rules the roost (despite surround inroads). But many of us are still capturing mono tracks, or creating stereo using multiple mics. For many situations, a single stereo mic might be a better tool. That's where Royer's SF-24 comes in.

The SF-24 is based on Royer's stereo SF-12 coincident ribbon microphone. It features a pair of figure-8 patterned capsules, positioned one above the other at a 90-degree angle. It uses a thinner (1.8-micron) ribbon than Royer's popular R-121 and R-122 mics, making it a bit more detailed and sensitive, but at the expense of slightly more fragility. But before you decide the SF-24 is "fragile," note that it's still rated to handle sound pressure levels as high as 130dB without problems — impressive for a ribbon. (For a review of the SF-12, see the September '00 issue. The mono version, the SF-1, was reviewed in March '02.)

So if the SF-24 is so similar — in fact, identical — to the SF-12, what's the point? There's one other detail: The SF-24 is an *active* ribbon, meaning that it has a built-in preamp, just like a condenser mic. (Almost all other ribbon mics are passive.) The built-in preamp provides one overwhelming benefit (among others, but this is the biggie): It isolates the microphone from the effects of preamp impedance. With a standard ribbon, the preamp has a major effect on the sound and output of the mic. Depending on the impedance, the preamp may not have enough gain to amplify the mic properly, or may add noise to the signal. With the SF-24 (like Royer's R-122 before it), these problems evaporate. The mic/preamp interface becomes transparent, and the output of the mic remains stable and clean regardless of preamp impedance.

IN USE

Cool, so you can plug the SF-24 into almost any preamp. Doesn't matter if the mic doesn't cut it sonically. Fortunately, the SF-24 shines in a variety of applications. On drum overheads, it has an open smooth sound. It's not hyped like many condensers, but sounds "natural." The SF-24 takes EQ nicely, without becoming harsh — a touch of 10k and a slight 300–400Hz cut resulted in a killer stereo drum sound.

The SF-24 was an excellent match for percussion in general. It rounds out hard transients in a pleasing way. On congas, for example, the SF-24 provided exactly the sound you'd want to hear for a recording.

Nylon-string guitar proved a perfect match for the SF-24; the mic is clean enough to handle high gain without adding noise. It has less proximity effect than other ribbons, so you can get in close without excess boom.

Woodwinds and French horn also worked well. These instruments can have annoying mids on certain notes, but the SF-24 translated them as nicely balanced. Trumpet and brass sounded fine, although the mic gave up on screaming high notes when placed five feet away.

Using the SF-24 on piano resulted in a wonderful stereo image, but required a lot of EQ to get the pizzazz — air and brightness — we were looking for. A string section recorded at Oceanway in Nashville sounded lush and broad — the stereo image was great. There was a slight lack of top and bottom, but the overall result was excellent.

The SF-24 is relatively compact and visually unobtrusive, although you'll still want a sturdy mic stand supporting it. The shockmount holds the mic well, but requires a firm shove to insert the mic. If the mic is inserted incorrectly, it's difficult to get out of the mount.

CONCLUSION

The SF-24's active preamp provides a huge benefit, removing impedance from consideration when choosing a preamp. The mic itself does a great job of capturing almost any source. The stereo image is excellent, the tonality is pleasing, proximity effect is controlled, noise is low, and versatility is high. Because it handles transients so nicely, the SF-24 is a great tool for digital recordings, providing a round, harshness-free midrange.

It's pricey at $3,795, but considering you're getting two mics in a stereo arrangement for the price, the value works out. For stereo recordings, the SF-24 has the goods. EQ

Strengths:

- Compact for a stereo ribbon mic
- Takes EQ very well
- Wonderful stereo image
- Works well in a variety of applications
- No impedance issues with preamps

Limitations:

- Pricey

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ADAM ANF10

Big things, small packages? Indubitably.

by Lynn Fuston

Type: Passive 2-way studio monitor
Price: $750/pair
Contact: ADAM Audio, www.adam-audio.com

Design: 2-way passive bass reflex
Woofer: 7" coated paper
Tweeter: A.R.T. folded ribbon
Frequency response: 50Hz–35kHz, ±3dB
Efficiency: 89dB SPL at 1w at 1M
Power handling: 60w (sin), 90w (music)
Crossover frequency: 1.8kHz
Shielded: yes
Inputs: binding posts
Dimensions (W x H x D): 7" x 13" x 11"
Weight: 22 lbs.

There are lots of small speakers. Compact size doesn't justify their existence. The biggest problem I have with small monitors is that they usually earn praise as long as one qualifier is applied: "They sound really good *for their size*." The other common qualifying phrase is "*for the price*." I don't like having to make either excuse for gear.

That said, the ADAM ANF10s are both small and inexpensive — the boxes they come packed in are smaller than my normal monitors. Their price is $750. That's per *pair*, not per speaker.

Two questions: Will I need to make excuses? And how close is the resemblance to the other ADAM siblings?

BYOA

The ANF10 is the first *passive* ADAM monitor, which means "BYOA" (Bring Your Own Amp). The ANF10s seemed very happy with my Harman-Kardon Citation 16A (175W RMS a side) amps. That's a lot of power for a small speaker. They only complained with very low frequencies at full power — and what 7" driver wouldn't cough with 40Hz at 175W?

ADAM monitors use Accelerated Ribbon Technology (A.R.T.) folded ribbon tweeters, a pleated diaphragm that squeezes air out instead of pushing it like a conventional voice coil. The ribbon on the ANF10 is a redesign of the one used on bigger ADAMs, with the same diaphragm but smaller magnets. The woofers in most ADAMs are made of a special material called HexaCone. The ANF10s use a 7" coated-paper woofer instead, with a smaller voice coil.

LISTEN UP

My first impression of the ANF10s was very positive. I set them up and put in a CD, listening at a moderate level while I worked. They're pleasant speakers to listen to. They seemed a little darker than my Tannoys, which surprised me, because the signature ADAM sound is clear and open on top. I discovered the directionality of the tweeter was responsible for that impression. I had the speakers sitting above ear level and the vertical dispersion of the tweeter is best at ear level, which is where most console-mounted loudspeakers reside. After living with them for a while, I noticed this trait often.

CRANK IT UP

With enough power, these babies will play *loud*. The bottom has a lot of output around 120Hz, so you feel like you're hearing more low end than the speaker is putting out. It's a faux-bass reminiscent of the NS-10, where you know there's nothing below about 65Hz but you can enjoy listening anyway. I found judging the mix level on bass guitar was easy with the ANF10s. Judging the bottom of a kick drum, on the other hand, was difficult.

I tried them with a sub-woofer, which I'd recommend The sub filled in the 20–65Hz range making the bottom easier to judge. The ideal environment for these speakers would be with an active sub with built-in crossover, relieving the ANF10s from handling the bottom two octaves (from 20 to 80Hz).

Excellent imaging is one of ADAMs' strongest points, and was evident with the ANF10s. The clarity was also very good. I heard overzealous de-essing on albums that I hadn't noticed before, and discovered panning details that I'd missed in the past. Noises and other problems were very apparent, which is a good thing in a studio monitor.

HONESTY

I'm impressed with the ANF10s. Their pleasing sonic character and the honest (sometimes too honest) presentation of mixes make them a good studio monitor. While you can use them without a sub, I'd recommend adding one, which turns them into a capable full-range monitor that's still affordable. My friend, George Cumbee of Classic Recording, echoed my sentiments after hearing them side by side with the $3K active monitors he normally uses. "Wow — I could actually *mix* on these!" I agree. There aren't any other speakers I've heard under $1,000 that I can say that about. EQ

Strengths:
- Great sound
- Can play loud
- Small and light
- Smooth midrange

Limitations:
- Narrow top-end dispersion
- Needs a subwoofer to sound its best

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DM-24 List $2,999.00

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Alienware MJ-12m 5500 Laptop

by Craig Anderton

Price: Configuration-dependent, starts at mid-$2K
Contact: Alienware, www.alienware.com

Strengths:
- Very powerful
- Non-proprietary parts
- Audio/video optimized
- Great industrial design
- High-resolution, widescreen display

Limitations:
- Limited battery life
- Some fan noise

Generally, we don't review computers. But an exceptional computer rates an exception.

You don't buy an Alienware laptop; you visit their web site, configure it from various options (at various prices), and they build it. Want max hard disk track count? Spec a 7200 RPM drive instead of 5400 RPM. Just be aware you're getting a "desktop replacement" machine, which trades off battery life, size, and cost in return for no-apologies raw power.

Every aspect of this computer overachieves. The wide-screen TFT display handles 1680x1050 pixels (as close as you'll get to a dual-monitor laptop display) and has a wide viewing angle. The onboard sound is decent, thanks to four speakers: two at the screen's base, two in the case front. The Intel 3.2GHz Pentium 4 Hyperthreading processor is not a lite version for portable use, and you can support it with up to two gigs of memory. The review model shipped with a DVD-RW drive and nVidia GeForce FX Go5700 graphics accelerator, which delivered stunning graphics. Of course, there are USB 2 and FireWire ports, but there's also S/PDIF out, a built-in mic at the top of the screen (away from noise sources), and an IR remote for controlling several aspects of the computer. Software-wise, you get a system restoration CD, Windows XP Pro, DVD playback programs, and an OEM version of Nero.

The chassis doesn't flex, the screen feels solid, and thermally, the unit runs surprisingly cool (the tradeoff is some fan noise). I wasn't about to "drop test" a $3,000+ computer I don't own, but I feel it would survive better than most. I like the keyboard feel, although I'm not a fan of Synaptics touch pads — happily, a mouse comes with the package.

Sure, this price range offers many choices for powerful laptops. But for audio and video editing, Alienware's audio/video powerhouse is, well, out of this world. EQ

Matrox Millennium P650+TripleHead Upgrade

by Craig Anderton

Price: $259
Contact: Matrox, www.matrox.com/mga

Strengths:
- Supports three analog monitors, two digital monitors, or two monitors + TV out
- Fanless operation
- AGP 8X card

Limitations:
- Max 1280x1024 resolution per monitor in TripleHead mode
- Poor 3D performance

If Star Trek was about music software, a typical conversation might go like this:

"Scotty, I need more power!"

"But I can't give ya any more power, Captain!"

(Pause) "Well then, can you at least give me a *much bigger monitor?*"

I use a Matrox Millennium G450 DualHead graphics card, but sometimes a *third* monitor would be nice . . . especially when a bunch of soft synths are open. The Matrox Millennium P750 ($235, for Win2000/XP/NT4 or Linux) with cooling fan can drive three monitors, but studios will likely prefer the DualHead Millennium P650 with TripleHead upgrade ($259 total), as it uses a large heatsink instead of a fan. 3D game performance for either is uninspiring, but they deliver the goods for 2D DAW apps.

There are two DVI (digital) outs with independent refresh, color depth, and up to 1600x1200 resolution. Cable adapters allow using up to three analog CRTs/LCDs. However, max resolution with three monitors is 1280x1024 per monitor, which also must run at the same refresh rate and color depth. The only time this might be an issue is if you're mixing LCD flat panels (which often run at 60Hz) with a CRT, as the CRT must then run at 60Hz as well.

You can also run one DVI as the center monitor with two analogs, but the same three-monitor limits still hold. Or, run two standard RGB monitors up to 1920x1440, one display up to 2048x1536, or two analog monitors (or one digital/one analog) along with S-video or composite TV — excellent for checking audio-for-video edits over a real-world delivery medium.

When you're looking for the "Desktop of the Gods," a triple-monitor setup based on the Millennium P650+upgrade is relatively inexpensive, and has enough performance prowess to handle anything your DAW can throw at it. Good stuff. EQ

World Radio History

Bornemark Broomstick Bass

by Craig Anderton

Price: $249
Contact: Bornemark, www.bornemark.se

Strengths:
- Get a quick shot of bass line
- Includes effects
- Useful articulation options
- Playable as sampled bass instrument

Limitations:
- Not the most inspired bassist in the world
- Limited pattern library

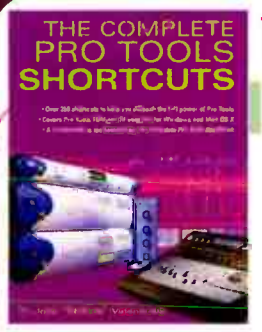
Virtual Guitarist, Groove Agent drums, and now Broomstick Bass (BB for short): Ladies and gentlemen, meet the "robot power trio." The BB plug-in (VST/AU/RTAS, Mac OS X/Win XP, shipped on DVD-ROM) lives to churn out bass lines in various styles. Choose one of 33 sounds from acoustic, electric, keyboard, or pedal bass, hit a keyboard key or chord to trigger, and away you go. Or more precisely, away *it* goes.

There are expressive articulation options, and even a souped-up metronome that can play an accompanying drum loop. The number of patterns is fairly limited (the pop category has the most with 25; many have between 4 and 8), although Bornemark promises more (and free!) patterns in the future. Interestingly, with Cubase SX/Nuendo, you can record the patterns in a MIDI track and edit them. However, you can't load your own patterns into BB.

Surprise: You can actually *do* something with the sound, thanks to processing (EQ, pitch shifter, compressor, chorus, and overdrive), glide, release, and so on. BB could use more overdrive types; the other processors are fine. Furthermore, in "manual" mode, BB is a cool little bass instrument thanks to the well-recorded (and often velocity-switched) samples.

Okay, the software works — does the concept? Yes and no. I started off thinking "cheesy preset one-finger home organ patterns," but a little tweaking and processing brought the patterns to life. Once that was squared away, some cool song ideas indeed started bubbling up from my subconscious. Some advice: Ignore the preset and instrument labels — experiment, because some *really* interesting chemistry happens when you use the "wrong" pattern with the "wrong" bass.

Bornemark doesn't oversell BB; they say it's there to provide inspiration and happily, it does. Just don't expect to replace The Real Thing.



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Seagate Pocket Hard Drive

by Mitch Gallagher

Price: 2.5 GB, $130–$140 street; 5.0 GB, $150-$170 street
Contact: Seagate, www.seagate.com

Strengths:
- Tiny and light
- Integral retractable USB cable
- Supports USB 1.0, 1.1, and 2.0
- Powered via USB connection
- Nearly silent

Limitations:
- Not recommended for data sharing between Mac and Windows

Whaddaya do when you have to schlep a project from here to there? Do you unplug your main audio drive from your DAW and gingerly transport it? Do you FTP or network the files over? Do you burn a CD or DVD? Lately, portable drives have become an option — there are solid-state memory sticks, or you could use Seagate's Pocket Hard Drive.

The Pocket Hard Drive lives up to its name. It's a sleek round disk, 3" across and 1/2" thick. According to my kitchen scale, it weighs just 2.2 ounces — including a 6" USB cable that retracts into the drive body. (The cable is invisible and held securely when retracted.) The drive case is said to provide shock protection.

2.5 GB and 5.0 GB capacities are available; the 1" drives used turn at 3,600 RPM, and have a 2 MB cache. USB 1.0, 1.1, and 2.0 are supported on Windows Me/2000/XP and Mac OS 9.2.2 or later (including OS X). No drivers are required for Macs; a CD-ROM is included with Windows drivers. Also included on the Windows disc is an application that lets you write- and password-protect the drive, and create partitions, including a bootable partition (if your computer supports USB booting). The drive is USB-powered, so no external power supply is required.

I received a 5.0 GB drive (actually 4.7 GB), which came formatted for FAT-32. I initialized it to Mac Extended format on my laptop, which took all of five seconds. The Pocket Hard Drives aren't intended for recording applications, but I had to try it out. I found I could get up to twelve 16-bit/44.1kHz tracks to play simultaneously using Digital Performer on my PowerBook, which has USB 2.0; you won't get the same results using USB 1.0 or 1.1.

In its main application, which is to serve as portable data storage, the Pocket Hard Drive works exactly as intended — but it could actually be used for a simple audio project if necessary. It's reasonably fast, definitely portable, seems to be pretty sturdy and forgiving of abuse, and it's cheaper than a USB memory stick. Unless your data stays in one place, a Pocket Hard Drive is a useful thing to have around.

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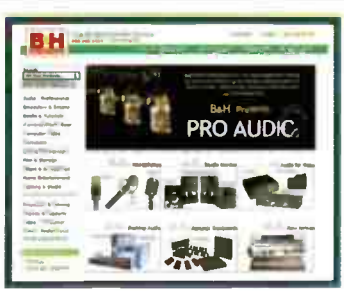

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Sounds

PROPELLERHEAD
Reason Drum Kits Refill

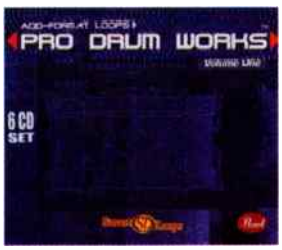
Contact: Propellerhead, www.propellerheads.se
Format: 1 DVD; Reason refill
Price: $129

Reason has established itself as the ultimate self-contained synth and beat machine studio ideally suited for electronic and dance production. But for programming ultra-realistic, live-sounding rock and pop drum tracks the included factory sounds have always come up short. So Propellerhead decided to change that, and created this monster refill packed with detailed, slamming kits comprised of coveted classics and studio favorites (Ayotte, Gretsch, Ludwig, Pearl snares and toms, DW and Yamaha kicks, and much more).

The samples were recorded at Atlantis studio, where choice analog gear (Neve console, Studer 2", Pultec EQ, and more) was pressed into service to produce a collection of drum sounds that absolutely drips with both vibe and fat tone. Each drum, hi-hat, and cymbal was sampled at virtually every velocity level, and with multiple sticking and alternate hands. Clever alternation schemes were set up using the NN-XT's built-in sample switching feature, so when you repeat a snare or ride cymbal, for example, each hit never sounds quite the same.

Bleed from multiple microphones is layered for each drum hit, so when a single key is pressed, samples from a variety of mic locations (close, overhead, and room) are triggered. As a result, it's possible to tailor the amount of room tone when using the multi-out kits (stereo kits are included for "load-and-go", too).

Don't have MIDI drum programming chops? No prob. A healthy set of MIDI drum performances ranging from useable to stellar are included. You'll also find a variety of REV7000 drum room 'verb presets and ReDrum kits. Bottom line: Reason Drumkits is a brilliant collection of highly playable, remarkably life-like kits and patterns that rival the sonics and dynamics of professionally tracked live drums. —JOHN KROGH



SMART LOOPS
Pro Drum Works Volume 1

Contact: Smart Loops, www.smartloops.com
Format: 6 CD-ROMs (44.1kHz/16-bit Acidized WAV; Apple Loops and REX editions are planned)
Price: $249

This set provides the tools to construct very realistic drum parts for a variety of common musical styles (including some fine reggae). *Construct* is the key word, because virtually all loops are one measure long; you won't find long loops that "breathe." What you *will* find is three thousand variations and fills, along with one shots, spread over two CDs and repeated for three different kits — hence the six CDs. The kits are Acoustic (slight EQ/compression), Trap ("small/tight" with minimal processing), and Thunder (processed for a large, present sound). Recording quality is clean, acidization is great, and the timing is *tight:* Frank Basile is the kind of drummer who puts drum machines out of a job.

However, the details-oriented approach demands patience when putting together a completed part. An intelligent naming scheme helps sort through the loops, but even so, expect to do a lot of auditioning and dragging. Your reward is a very realistic part, with a human vibe that belies its sample CD origins . . . give this set to two different people, and they'll likely come up with parts you might not think came from the same CD.

Bottom line: Pro Drum Works is not for casual, plug-and-play loopers, but for those willing to expend the effort to get a studio musician-quality part.

In addition to Pro Drum Works, Smart Loops offers several single CD-ROM loop collections: Dry Studio Kit, Bass Guitars, Electric Guitars, Phat to Phreaky (hip-hop/dance grooves), and Percussion Kit. Each comes in two versions — boxed with Acidized WAV, Apple Loops, and REX files ($59), or with the same files played at different tempos for non-stretching hosts ($39, order online). Both also have individual hits.

It seemed logical to review Percussion Kit as an adjunct to Pro Drum Works. The non-stretched version includes 306 one-measure loops (all offered at 95, 100, 115, 110, 115, and 120 BPM), along with 73 one-shot hits. However, the 100 BPM files are acidized, so this CD is really all you need for acid file-friendly programs.

There's a good mix of "standard" and fill patterns so you can construct pretty complete parts. Instruments include agogo, tabla, bata, cabasa, timbales, guiro, wood block, bongos, clave, and many more.

The files aren't normalized and recorded fairly low (and dry); they slide right into a mix, as percussion usually isn't mixed too hot anyway. Overall, for percussion loops that do the job and play well with others, Percussion Kit is both very useful and cost-effective.
—CRAIG ANDERTON

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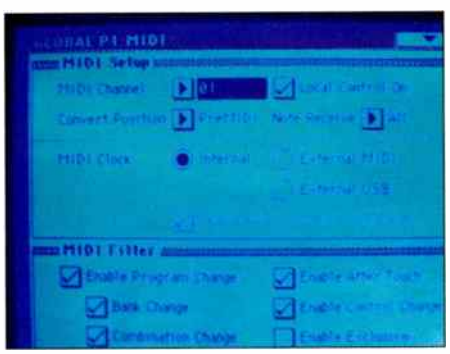
by Todd G. Tatnall

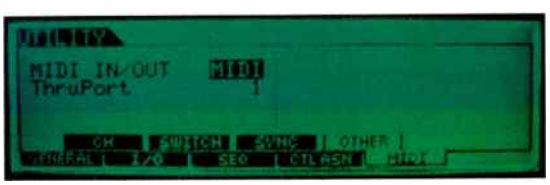
MIDI Troubleshooting

Over the past few months we've looked at ways to troubleshoot MIDI on Mac and Windows workstations. Beyond the computer, it's also important to make sure your MIDI hardware is set up and functioning properly. Most keyboards, synthesizers, and samplers have some common settings that need to be made to ensure they're ready to communicate with your sequencer and DAW. We'll use a few popular keyboard workstations as our examples: the Korg Triton Extreme, the Roland Fantom-X, and the Yamaha Motif ES.

Start by making sure the workstation is set to transmit MIDI notes and other commands when you play its keyboard. Most keyboard workstations are preconfigured to transmit on their MIDI output ports when keys are played. You may want to verify that the MIDI channel on which your keyboard is transmitting will work with your sequencer/DAW. On the Triton Extreme, you'd press the Global button, then Menu, and select MIDI on screen. There, you'd want to check the "MIDI Channel." You'll notice a "local control" setting on most keyboards. While it's normal to keep local control turned on, you may have better luck with MIDI and your DAW while local control is off.



The Motif includes similar settings for transmit channel and local control, found by pressing *Utility > Midi > Switch*. It also offers the option to send or receive MIDI through the standard MIDI ports or through USB. If you're not receiving MIDI from the Motif, be sure to check *Utility > Midi > Other* to verify that MIDI is being transmitted on the cable (USB or MIDI) you're expecting.



Most keyboard workstations are multitimbral — equipped to receive multiple channels of MIDI simultaneously — so that several sounds can be played from the same keyboard. In the case of all three of our example workstations, this requires that a specific mode be used. Because keyboard workstations are often used as stand-alone sequencers, it's generally convenient to use the same settings for internal sequencing to receive external MIDI from a computer or other sequencer.

In the Roland Fantom-X, you can simply press "Layer/Split," then select "USER preset 01 Seq: Template." In this mode, the Fantom-X will receive on all 16 channels.

The Triton Extreme and Motif ES are similar, in fact nearly the same. In "Song" mode on the Motif, and "Sequencer" mode on the Triton, the keyboard is ready to receive on all 16 channels. It's advisable to select an empty song or sequence, which ensures that all settings are at their defaults.

A few tips: On all of the example workstations, each track or part is set up to receive on the MIDI channel with the same number. For example: part 1 receives on channel 1, part 2 receives on channel 2, and so on. It's advisable to keep this setup to avoid confusion. Just select a sound (preset, voice, etc.) for each track or part. If you want to save all the keyboard settings (patch/program selections) for a particular project, you can copy or save that song (sequence) to an empty user setting on the keyboard. Then recall that saved file on the keyboard when you want to use it again with your MIDI system. EQ

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

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World Radio History

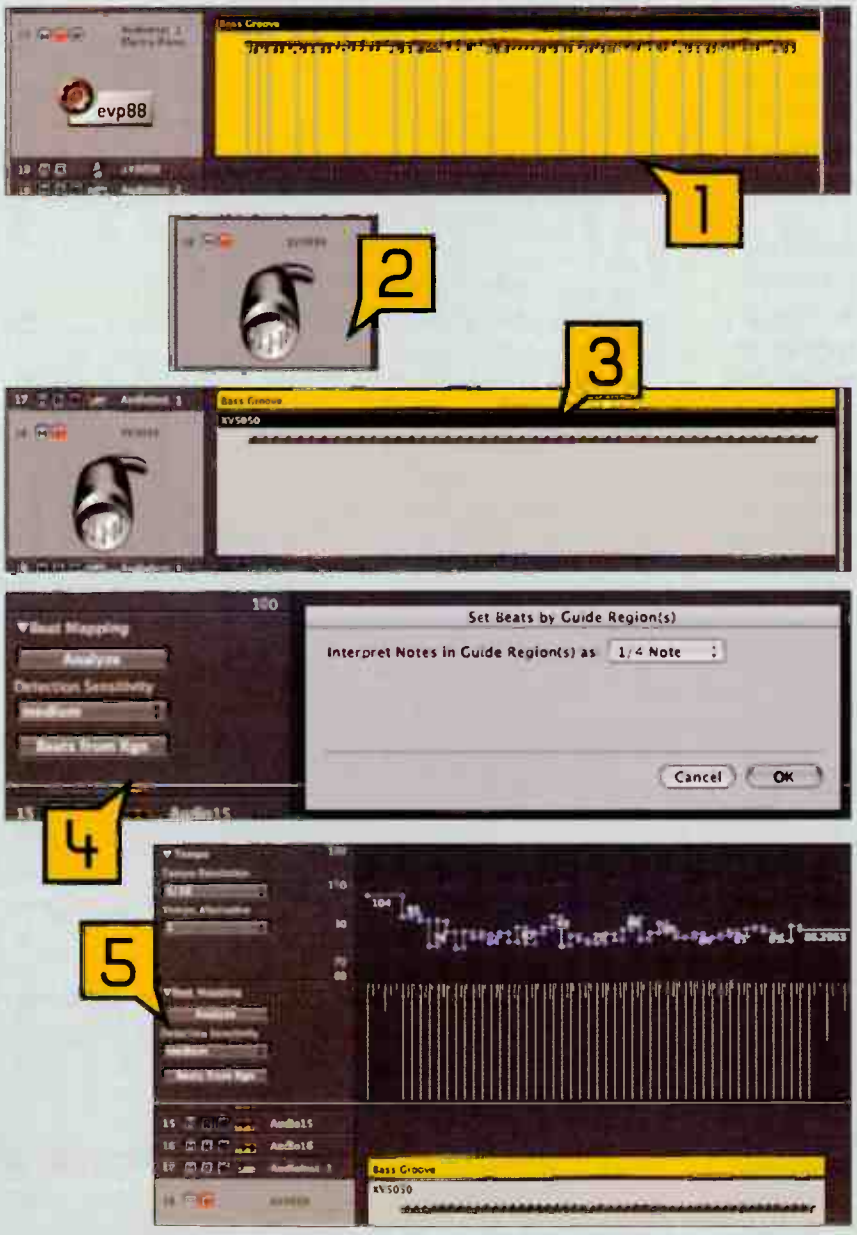
by John Krogh

Apple Logic Pro

Applying Beat and Tempo Maps to live performances

Objective: Use Logic Pro's new Global Beat Map track to create a bar/beat edit grid.

Background: Logic's Global Tracks includes a Beat Map, which can use an audio or MIDI track as a guide to create tempo and beat/barline maps that follow live and rubato performances. The Beat Map track also affects the Tempo track — the tempo is automatically "reclocked", so when you use BPM-synced effects, Apple Loops, and edit grid features (copying, pasting, cutting), everything stays locked in relation to the maps. An easy way to reclock is to tap along to a live performance from a MIDI controller, and then use the resulting MIDI track as the guide.



1. Record an audio or MIDI track without using a click. (Note: Try to play to your own internal metronome — you'll need to tap along with the tempo of the recorded performance afterwards.) Alternatively, you could load a stereo or multitrack drum performance, such as a Discrete Drums track or similar source.

2. Record-enable a MIDI track (either assigned to a hardware or software instrument). Don't worry about choosing a sound — we're just going to use the MIDI track to tap along in time with your performance.

3. Record the guide track by tapping along in time (quarter-notes, eighth-notes, or whatever subdivision you choose).

4. Select the newly recorded region, then open Global Tracks (View menu > Global Tracks), and click Beat from Rgn. Choose the appropriate subdivision from the dialog box that appears. Click OK.

5. The Tempo track should now show slight tempo changes for each beat, and the barlines and beat markers should line up with your performance.

tips

- If a beat or barline doesn't quite line up, you can either edit the MIDI guide track and re-do the beat map, or simply Ctrl-drag the lines from within the Beat Map track.

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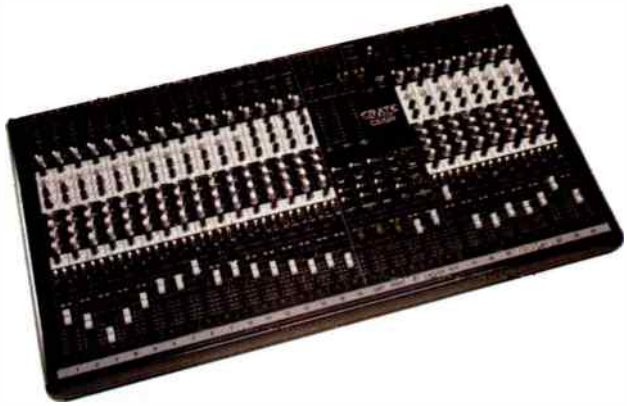

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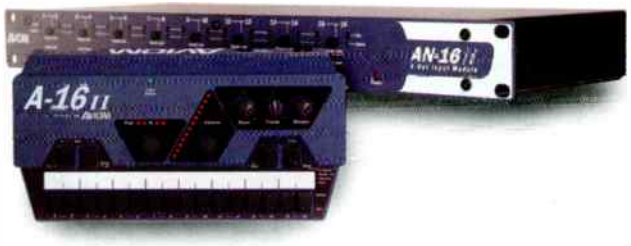

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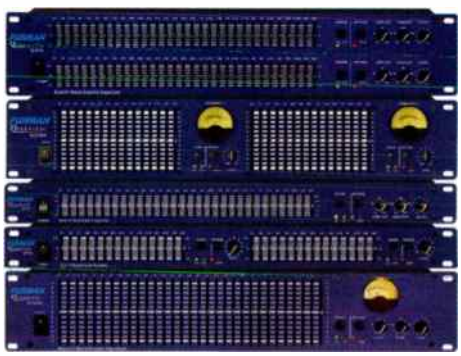

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World Radio History

by Craig Anderton

Cakewalk Sonar Producer

Remotely control your plug-in effects parameters

Objective: Use a hardware MIDI control surface (M-Audio Oxygen8, Peavey PC-1600x, Kenton fader boxes, et al) to vary effects parameters in real time, and optionally record this as automation data.

Background: In Sonar Producer Edition's console view, you can choose any four parameters from any automatable effect and control them simultaneously via on-screen sliders. However, you can also control these sliders via remote control devices that generate MIDI continuous controllers.

1. **Click on the FX button (console view, lower left toolbar) until it glows blue. You'll see the effects loaded in the effects bins, and four sliders will appear underneath the effects bins that contain effects.**
2. **Click on the effect you want to control.**
3. **If you want to reassign a slider's function, right-click on it, choose Reassign Control, then choose the desired parameter (in this example, Compressor Threshold).**
4. **Right-click on the parameter's slider, then choose Remote Control.**
5. **The Remote Control menu appears. Click on Controller.**
6. **Vary the hardware controller you want to use, then click on Learn. The Controller window will then show the hardware controller's MIDI controller number. Click on OK . . . done! Moving the hardware controller will move the corresponding console slider.**

tips

- You can assign multiple parameters to the same controller, even in different effects.
- To record a slider's moves as automation, right-click on the slider, select Arm for Automation (the slider becomes outlined in red), then click on the Transport's Record Automation button.
- To disable remote control, right-click on the slider and select "Disable Remote Control."

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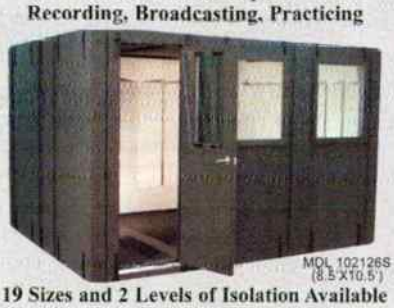
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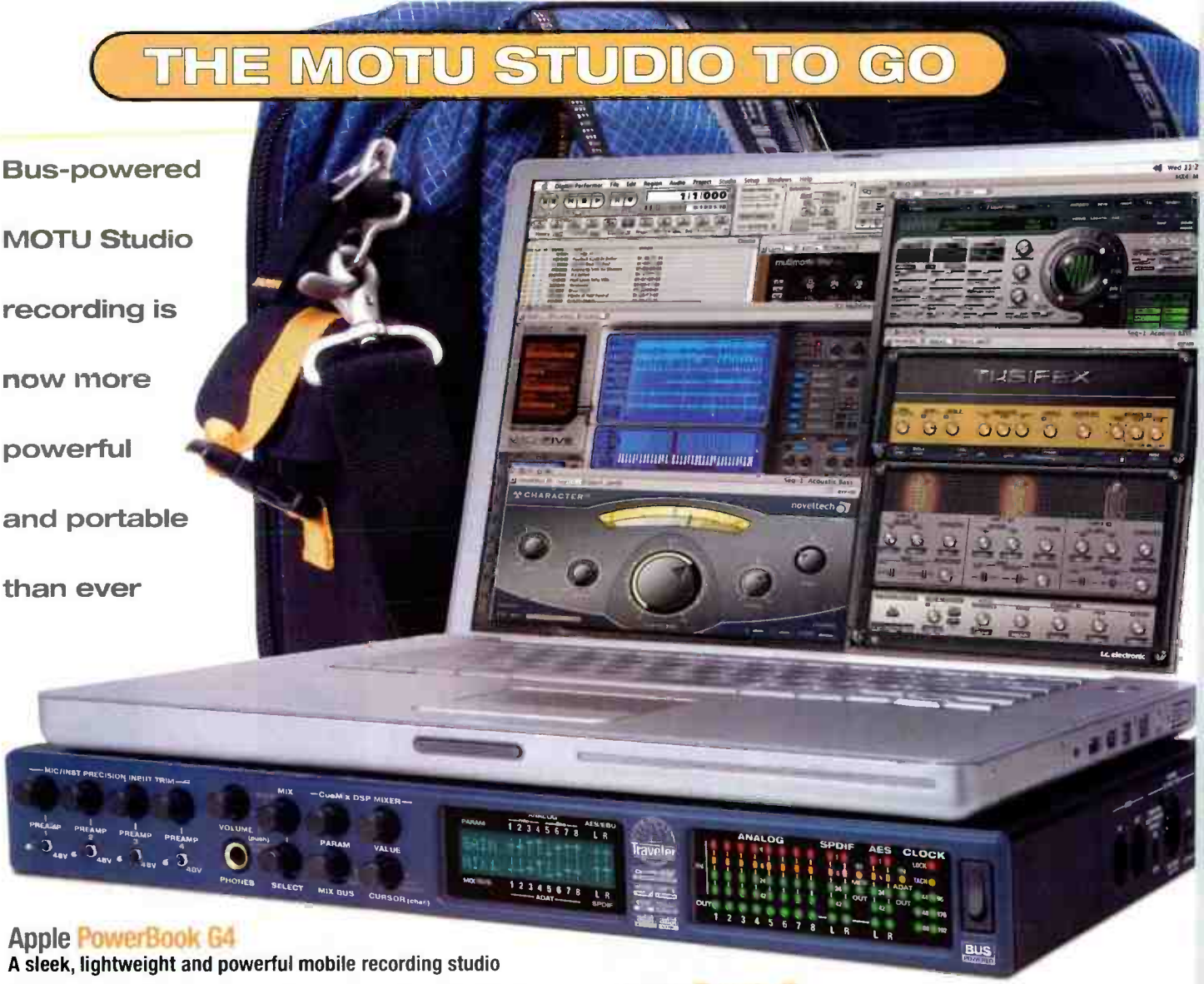
Category: ❒ Guitar Shows ❒ Instruments ❒ Parts/Accessories ❒ Duplication/Replication ❒ Websites ❒ Schools ❒ Instruction ❒ Software ❒ Songwriting ❒ Records/CDs/Videos ❒ Employment ❒ Other

World Radio History

THE MOTU STUDIO TO GO

Bus-powered MOTU Studio recording is now more powerful and portable than ever



Apple PowerBook G4

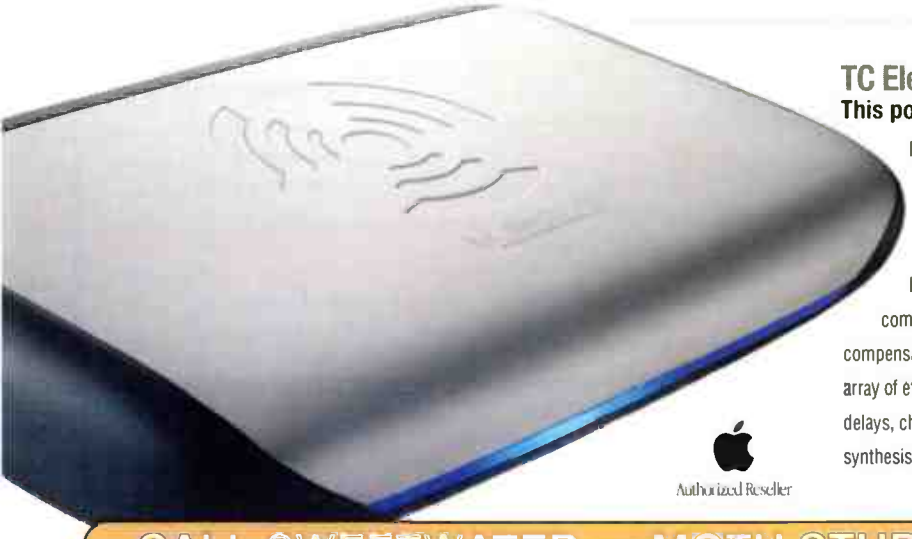
A sleek, lightweight and powerful mobile recording studio

Starting at just $1,599, the newest PowerBook family offers more. More power. More speed. More Digital Performer — as in more tracks, more plug-ins and more virtual instruments. Whether you prefer the ultra-compact 12-inch model, the coveted 15-inch powerhouse or the breathtaking 17-inch stunner, every new PowerBook G4 features faster PowerPC G4 processors, with speeds topping the charts at 1.5GHz. Want to create your own CDs and even DVDs? The new PowerBook models offer 4x-speed SuperDrives. The PowerBook G4 is the ideal platform for Digital Performer, the all-new Traveler, and a host of third-party plug-ins and add-ons.

MOTU Traveler™

Bus-powered high definition FireWire audio

The Traveler is the first bus-powered FireWire audio interface to offer four mic inputs and exceptionally high-quality high definition analog recording and playback. Just plug in the FireWire cable and power everything off the battery in your computer — you can operate you studio anywhere! At only 3.8 pounds and 14.75 inches wide by 9 inches deep, the Traveler slides easily into your knapsack or back, next to your PowerBook.



Authorized Reseller

TC Electronic PowerCore Compact

This portable processing powerhouse slides easily into you bag

PowerCore Compact is the perfect way to add a dozen world-class TC Electronic effects plug-ins to your MOTU portable studio, while freeing up your PowerBook to run plenty of native plug-ins and virtual instruments. That's because the 12 included TC plug-ins run entirely on two 150MHz Motorola DSPs in the PowerCore Compact, via convenient plug-and-play FireWire connection to the computer. And thanks to Digital Performer 4.5's new automatic plug-in latency compensation features, timing is sample accurate. The included plug-ins deliver a wide array of effects — all with TC Electronic quality and pedigree: classic reverb, mega reverb, delays, chorus, EQ, compression, guitar amp simulation, vocal processing, vintage synthesis, the renowned Master X3™, Filtroid™ and the innovative Character™ plug-in.

CALL SWEETWATER — MOTU STUDIO TO GO 800-222-4700

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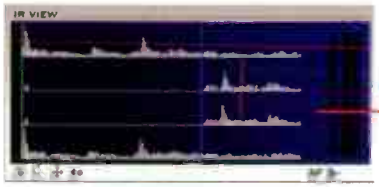
Audio Ease Altiverb V5™

Your first choice for convolution reverb

Altiverb broke new ground as the first ever convolution reverb plug-in, delivering stunningly realistic acoustic spaces to your MOTU desktop studio. Altiverb V5 continues to lead the way with cutting edge features. Altiverb V5's ever growing Impulse Response library provides the most diverse and highest quality acoustic samples on the market. Recent additions are shown below from the Altiverb Fall 2004 East Coast Tour. Version 5 delivers more seconds of reverb, more instances, and less CPU overhead than any other convolution reverb. And its new adjustable parameters are a snap to use! Altiverb takes full advantage of the Altivec™ processor in your PowerBook G4 or desktop Power Mac G4 or G5. THE must-have reverb for every MOTU studio.

- Highest quality samples on the market.
- Legendary concert halls and studios.
- Versatile damping and hires-EQ section.
- Click-and-drag 3D sound placement.
- 'Size' parameter shifts resonances and room modes.
- Gains and delays for direct early-reflection and tail.
- Waterfall diagram shows time-frequency behavior in 3D.
- Surround up to 192 kHz.
- Snapshot automation for mixing and post-production.
- Available for MAS and all other Mac plug-in formats

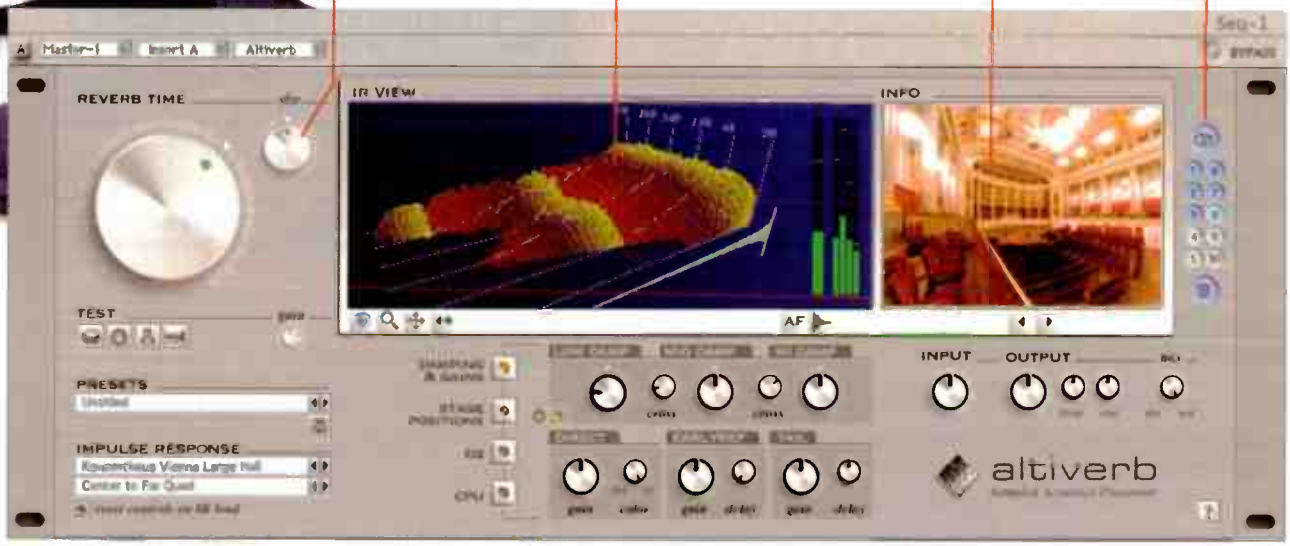


The new multi-channel waveform overview reveals crucial detail about gain levels and timing during the first tenth of a second of a reverb tail. The rotatable and zoomable 'waterfall' (3D time/frequency diagram) reveals even more about Damping, EQ and resonances.

A rotating VR (Virtual Reality) movie helps you feel the presence of each room.

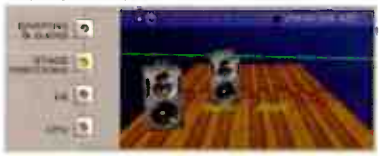
Snapshots let you automate complete preset changes.

The size knob shifts the frequency behavior of a room while adjusting reverb times.



CPU Control — Altiverb is the most efficient of all convolution reverbs.

Speaker Placer — Put the violins stage left, cellos stage right, and percussion in the back, all in stereo.



EQ — Use up to four bands of EQ, tailored for reverb tail adjustment, to fine-tune the sound.

Allaire studios Great Hall, Shokan, NY

www.allairestudios.com

Edison, NYC

Clubhouse Studio, Rhinebeck, NY
www.clubhouseinc.com

Mechanics Hall, Worcester, MA

www.mechanicshall.org — Photo by Steve Rosenthal

Forest Austerlitz, Netherlands

Sound on Sound Studios, NYC
www.soundonsoundstudios.com

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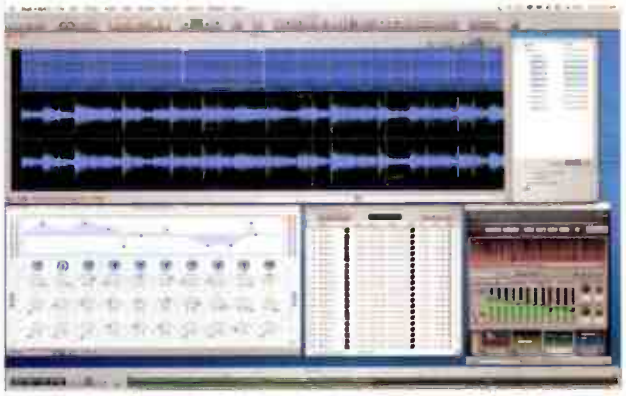
Focusrite Liquid Channel™

A Console Master Section Without the Console!

Every MOTU personal studio deserves luxurious outboard gear. And what better than a piece that delivers the sound of 40 classic mic pres and 40 vintage compressors in one box! The Focusrite Liquid Channel is a revolutionary professional channel strip that can replicate virtually any classic mic-pre and compressor ever made! Combining radical new analog pre-amp technology with special Dynamic Convolution techniques, the Liquid Channel fuses cutting-edge analog design with lightning fast SHARC DSP. Augmented by fully digital controls, the Liquid Channel provides unlimited possibilities with available FREE LiquidControl software, which allows for remote control of the Liquid Channel and future FREE pre and compressor replica downloads for unlimited additional sound expansion. The Liquid Channel provides the ultimate fluid vintage collection.

BIAS Peak 4.1 Mastering & Restoration Edition

Peak 4.1 plus SoundSoap Pro and SuperFreq. Imagine the world's most popular stereo audio editing, processing, and CD mastering program for the Mac, combined with unparalleled noise reduction and restoration technology — all at a jaw dropping low price. You get Peak 4.1 (including ImpulseVerb, Sqweez, Vbox SE, Jam 6, SFX Machine LT, and more), SoundSoap Pro (combines four state of the art restoration and noise reduction tools in a single plug-in), and the SuperFreq suite of mastering EQs all in one great package. Launch Peak directly from DP4 for more editing and processing power. Run SoundSoap Pro within DP4 or in Peak as an AU plug-in. For the very best in sample editing, batch processing, file conversions, loop creation, sound design, restoration, and Redbook CD mastering on OS X, pick up the Peak 4.1 Mastering and Restoration Edition today — the perfect mastering and restoration companion for DP4!



Native Instruments Absynth 3

Bend, mold, meld and morph sounds!

ABSYNTH was used extensively, together with Digital Performer, on the Matrix Reloaded soundtrack by electronica mastermind and Juno Reactor founder Ben Watkins. And now, this award-winning synthesizer hits the scene for the third time armed with a host of new and unique features. ABSYNTH 3 brings dozens of new features that greatly expand its already extraordinary sound spectrum. The powerful synthesizer now incorporates a new user interface with convenient one-window editing, envelope-controlled surround sound features, live audio inputs, real-time fractalization, unison mode, advanced envelope control, 2 new special effects and 256 additional presets. Combining FM and subtractive synthesis, ring modulation, a live stereo input, classic and granular sampling with the most advanced envelope control ever implemented, this unrivalled synthesizer will take you on the most outrageous sonic adventures. There's really nothing else like ABSYNTH 3.

Spectrasonics Stylus RMX

The power of groove production

Stylus RMX is the first product to offer the combined power of Groove Control™ with Spectrasonics Advanced Groove Engine (S.A.G.E.™) giving users dramatic new control over groove production. Dozens of new features include a completely redesigned interface, a new 7.4 GB core library of cutting-edge grooves and sounds produced by Eric Persing, and the ground-breaking, always changing Chaos Designer™. Real-time groove creation has never been so simple, and has never sounded so good! Kits and over 10,000 new single-hits, too. RMX is the ultimate Remix-oriented sound module for building millions of grooves.

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World Radio History

PreSonus Central Station™

A Console Master Section Without the Console!

Special limited time offer!
get a CSR-1 remote with your Central Station
for only $99! Save $50!

The PreSonus Central Station is the missing link between your MOTU recording interface, studio monitors, input sources and the artist. Featuring 5 sets of stereo inputs (3 analog and 2 digital with 192kHz D/A conversion), the Central Station allows you to switch between 3 different sets of studio monitor outputs while maintaining a purely passive signal path. The main audio path uses no amplifier stages including op amps, active IC's or chips eliminating coloration, noise and distortion enabling you to hear your mixes more clearly and minimize ear fatigue.In addition, the Central Station features a complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied for flawless visual metering of levels both in dBu and dBfs mode.

Mackie Control Universal™

Automated hands-on control for the DP4 studio

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

Mackie HR-series Active Studio Monitors

Nearfield monitors for your MOTU studio

Mackie's HR-Series Active Studio Monitors are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's wide, deep and incredibly detailed. Low frequencies that are no more or less than what you've recorded. High and mid-range frequencies that are clean and articulated. Plus the sweetest of sweet spots. Whether it's the 6-inch HR-624, 8-inch HR-824 or dual 6-inch 626, there's an HR Series monitor that will tell you the truth, the whole truth, and nothing but the truth.

Sweetwater SweetCare™

Your personal MOTU studio expert advisor

When setting up and maintaining a MOTU desktop studio, there are many considerations to factor in to your decision making. Both the hardware and software landscape are constantly changing, and it's hard to keep up with all of the advancements. That's where Sweetwater comes in. Your personal Sweetwater sales engineer offers much, much more than just a great price. They do the research, day in and day out, to ensure that you'll fine-tune your MOTU system to fit your exact needs.

Call now for your MOTU Studio To Go personal consultation: 800-222-4700

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World Radio History

Room with a VU

by Mitch Gallagher

STUDIO NAME: Studio One
LOCATION: Lansing, MI
CONTACT: www.studioonemichigan.com
KEY CREW: Dee Wells, lead engineer/producer; Aaron Hager, engineer; Jacob Bender, engineer/producer; Christian Wells, assistant engineer/duplication manager
CONSOLES: Mackie 24•8 VLZ, Yamaha ProMix 01, 01x/i88x
RECORDERS: Alesis ADAT LX20 [2], Fostex G-16 (with sync)
MONITORS: Genelec 1030, Mackie HR828, M-Audio BX 5, Sony MDR 7506 headphones, Audio-Technica M-40fs headphones [12]
EFFECTS: Ensoniq DP Pro, DP-2; Lexicon MPX 200, MPX-1; Line 6 Echo Pro, Delta Lab echo
MICROPHONE PREAMPS: Focusrite ISA 220, Trident S-20, TC Electronic Gold Channel, Demeter HXM-1, DBX 586, 386 (all with vintage Telefunken tubes)
MICROPHONES: Neumann U 87 Ai, TLM 103; Rode Classic [2], Blue Blueberry, Dragonfly [2], Ball [2]; AKG C 414 ULS [2], SolidTube, C 451 B; Audio-Technica AT 4050, AT 4033a [2], AT 4051, ATM 25HE, ATM 25 [3]
COMPUTERS: Pentium 4/2.3 HT, Pentium 4/3.0 HT, Apple G3/350, Maxtor and Western Digital Firewire external drives
DAW: EMU Paris 3.0 3-card system, MEC interfaces [2], ADAT card, 8 i/o expander; M•Audio Delta 1010 [2], Universal Audio UAD-1, Midiman Midisport 2x2
SOFTWARE: Magix Samplitude 7, Steinberg Cubase SX 3, Wavelab 5; MOTU Digital Performer 3
ACOUSTIC TREATMENT/GOBOS: Auralex
CABLE: Mogami, Blue, Planet Waves
STUDIO NOTES: How ya gonna keep 'em down on the farm? According to Studio One's Dee Wells, not easily: "After three years in a pole barn in my backyard, we were able to move our facility into an industrial space located near three major highways. The studio is a build-out inside the 3,500 square-foot warehouse. With floating floors and decoupled walls, Studio One boasts five rooms in Studio A." So while Studio One may have started life in a backyard barn, the studio's owners clearly had much more lofty ambitions in mind.

Because while the studio features acoustically refined room designs and loads of technology, client service is always at the forefront of how things are done at Studio One. "Coming from a background in retail, we understand the value of placing the customers' needs above everything. Doing this has worked well for us; in a market of under 400,000 people and with plenty of competition in place, we've been able to thrive by reaching out all over the state and the Midwest for business, and by doing our level best to make sure each customer will want to repeat their business with us. We have many groups and organizations that have done two and three full-length CDs with us . . . and they plan to come back again."

Studio One is also a teaching and learning facility. Dee continues, "In addition to offering limited classes and internships, we have set ourselves a goal to never stop learning. Obviously, in order to make the customer happy, we have to excel at what we do. So we're constantly listening and learning, trying to make our mixes the best around."

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

World Radio History

Listen to the XPERTS!

THE 01X

All the Hardware you need for your SOFTWARE based studio

Pro Audio Review :: **Aug. 2004**

PAR Reviewer's Pick 2004

The Yamaha 01X is the answer to all my needs for integrating everything I do with audio and music. Its bargain price makes it a no-brainer purchase for anyone who wants a DAW control surface, high-quality audio interface and, of course, a hardware digital mixer.

Macworld :: **Oct. 2004**

KEYBOARD :: **Jan. 2004**

After using the 01X for a few months, the coolest aspect is that it blurs the lines between a traditional digital mixer, control surface and audio/MIDI interface — it's all three.

Electronic Musician :: **Nov. 2004**

Electronic Musician 2005 Editors Choice

Considering all the functionality packed into the 01X's silver-gray front panel, its user interface is a miracle of modern ergonomics.

RECORDING :: **Dec. 2004**

Quality inputs and effects and the ability to integrate into your computer setup could make it the perfect centerpiece for your project studio.

REMIX :: **Dec. 2004**

The converters are great, and the subsequent digital signal processing is fantastic, including the EQs and, particularly, the compressors.

NEW LOW PRICE

See your authorized Yamaha dealer for details.

The 01X now features Studio Connections Recall

For more details go to www.studioconnections.org

www.yamaha.com | www.01xray.com

YAMAHA

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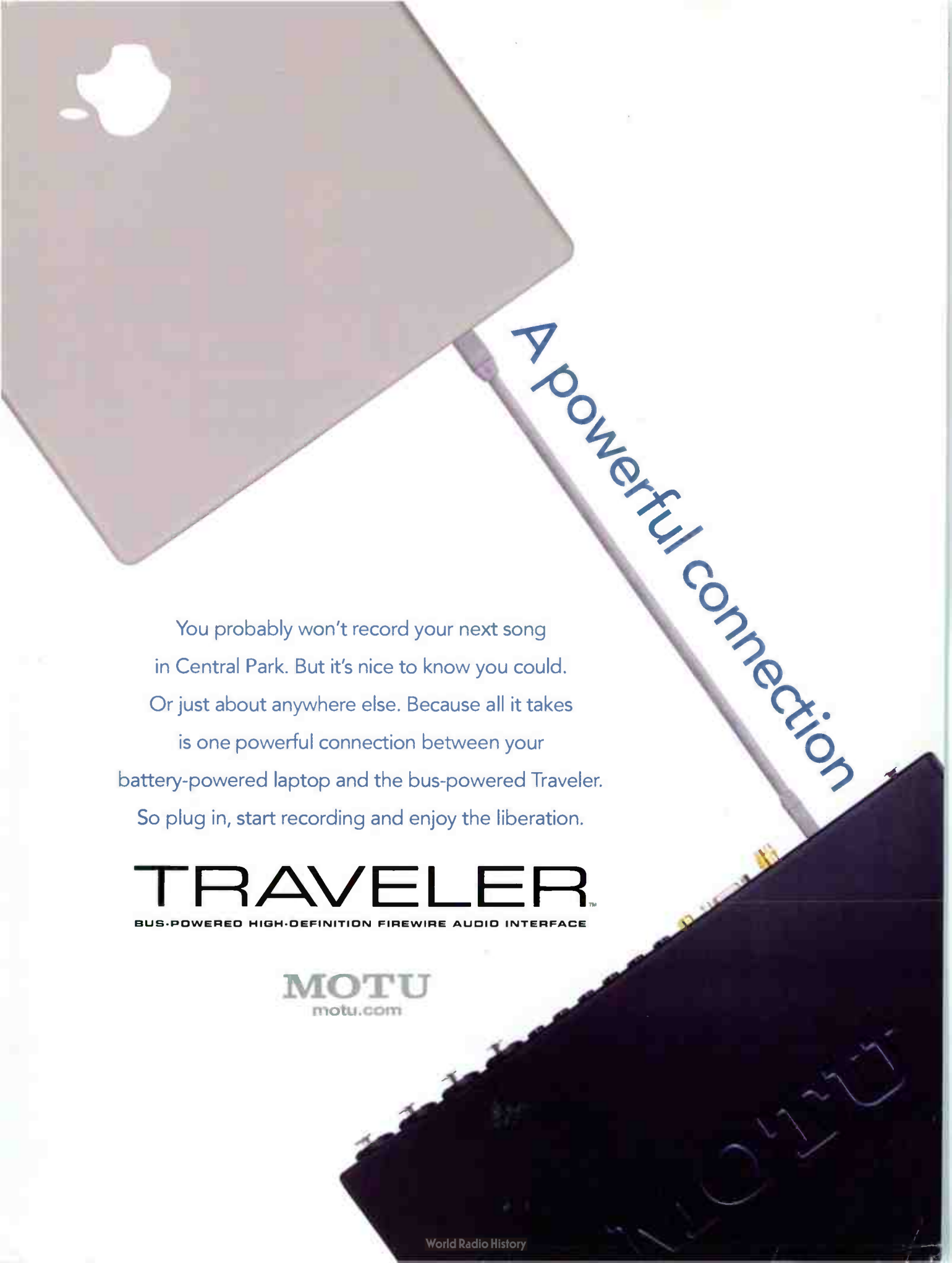

You probably won't record your next song
in Central Park. But it's nice to know you could.
Or just about anywhere else. Because all it takes
is one powerful connection between your
battery-powered laptop and the bus-powered Traveler.
So plug in, start recording and enjoy the liberation.

TRAVELER™

BUS-POWERED HIGH-DEFINITION FIREWIRE AUDIO INTERFACE

MOTU
motu.com

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