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How To Make
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AND Sound
Fabulous!

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HITMAKERS**



The Underdogs

FEBRUARY 2004

U.S.



A MUSIC PLAYER PUBLICATION



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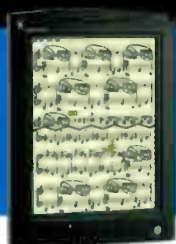
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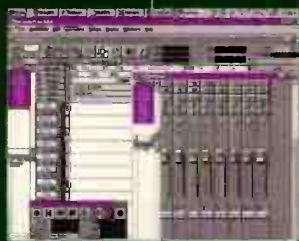
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FIREWIRE!

DM-24 with IF-FW I/O card

Now the DM-24 is also a *really* big 24-input computer sound card.



↑ DM-24 does **Pro Tools**

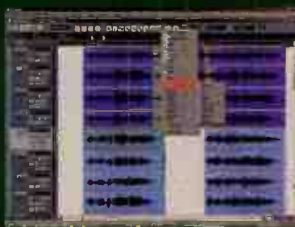
The DM-24's powerful internal DSP frees your computer CPU to run more processor-intensive plug-ins.

16 mic preamps, 16 balanced mic/line inputs on XLR and TRS jacks and 16 inserts.

Studio-quality compressor and 4-band parametric EQ on every channel. Gate/Expanders on channels 1-16.



↑ DM-24 does **Performer**



↑ DM-24 does **Nuendo**

HUI® control for Pro Tools®, Performer™ and Nuendo® includes external control of level, mutes, pans, track arming and aux sends.

Powerful built-in automation with LED ring encoders for hands-on "analog" adjustments of digital parameters.

Twenty-four inputs, twenty-four outputs plus MIDI for control and timing data. All thru a single FireWire cable betwixt your computer and the DM-24 digital mixer.

NEW!

IF-FW FireWire® Card

Co-developed with SaneWave™, the TASCAM IF-FW I/O card includes two FireWire 400 ports plus MIDI In and Out.

The DM-24's V2.1 software adds over 20 new features including 5.1 surround panning and virtually unlimited signal routing.

100mm touch-sensitive motorized faders.

60 input channels during mixdown.

- 3 internal processors with reverb by TC Works™, spatial effects by Tascam and mic/speaker modeling by Antares™.
- 24-bit/96kHz compatible with 32-bit floating point internal processing
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Along with all the other way-cool features that make the DM-24 an incredible DAW controller.

Fire up a demo at a TASCAM dealer or visit our web site for more info.

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50th
anniversary

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DJ AND
PRODUCER

PERSONAL
CREATIVITY

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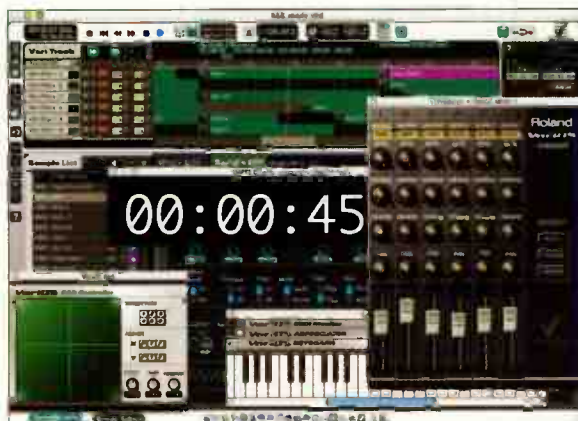
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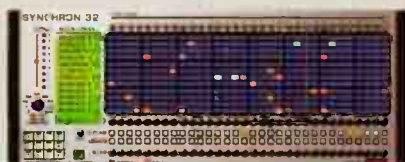
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On the cover: Toys in the Attic Studio; Lexington, KY. Digital manipulation by Doug Gordon.

project5

SOFT SYNTH WORKSTATION



“Highly Addictive” – EQ, June 2003

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

“Project5 is meant for those trying to create the in-sounds of now where the groove is king”

– DJ Times, November 2003

“Its instruments and effects are phenomenal”

– Computer Music, May 2003

“There's something about Project5 that just makes music happen”

– Sound on Sound, June 2003

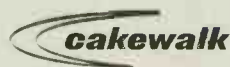
“There's no need to wait any longer, Project5 has arrived”

– Keyboard, June 2003

Experience the addictive qualities of Project5: available at music retailers world wide.

Visit www.project5studio.com for more information and to download the demo.

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





CLASSIC ALBUMS

Addictions? We all have 'em, whether we choose to admit it or not. I'll come clean and confess that I have a few. Too much AM caffeine, for one, but of relevance to this magazine is my insatiable desire for documentaries. I simply can't get enough of that behind-the-scenes stuff, and that's one of the reasons I love this gig so much — being a fly on the wall at a session for a killer album, or prying behind closed doors of a hot new product in development.

If you share this type of interest, you owe it to yourself to check out an excellent series of DVD documentaries called *Classic Albums*. From Netflix.com, for example, you can rent *Classic Albums* episodes of Stevie Wonder *Songs in the Key of Life*, U2 *Joshua Tree*, The Who *Who's Next*, Jimi Hendrix *Electric Ladyland*, The Grateful Dead *Anthem to Beauty*, Fleetwood Mac *Rumours*, Meat Loaf *Bat Out of Hell*, The Band *The Band*, Phil Collins *Face Value*, Steely Dan *Aja*, and more.

In each installment, key musicians, producers, and/or engineers from the original records reunite in the studio, dust off the old multitracks, and bring up the faders one by one, track by track, and discuss the making of the album. Incredible lessons in recording, mixing, and production. . . . In the *Aja* documentary, for example, Fagen and Becker solo the tracks that made the final cut, and plenty that didn't. Interviews are also conducted with some of the session musicians on the record, such as Bernard Purdie, Chuck Rainey, Dean Parks, Michael McDonald, Larry Carlton, and others. Engineer Roger Nichols appears as well.

Speaking of Mr. Nichols, we'd like to bid him a fond farewell, as he recently signed off from his *EQ* columnist post. For years Roger shared an incredible wealth of studio knowledge and inspiration. We're grateful for his contributions, and wish him all the best in his future endeavors wherever his muse may take him.

—Greg Rule

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The BAND STAND

Name one of your favorite "classic albums"



Greg Rule, Executive Editor
Critics gave 'em hell, but Toto set a platinum pop standard during the '80s that was unsurpassed. The multi-Grammy-winning *Toto IV* was their masterpiece, with Jeff Porcaro laying down pockets so deep you couldn't see daylight. The sounds, arrangements, hooks, grooves . . . stellar.



Mitch Gallagher, Editor
I was a 12-year-old, out sick from school, when my mother appeared with the gift to end all gifts: the just-released *Kiss Alive*. I played it on our woodgrain console record player, and was hooked. From that moment on, I was a music junkie. Ace, Paul, Peter, and Gene (and Mom), it's your fault I ended up in this business!



Craig Anderton, Editor at Large
My favorite depends on my mood at any given moment. It could be Miles Davis, Hendrix, Bach, Django Reinhardt, Buddy Holly, Procol Harum, the Sex Pistols, Ed Gerhard . . . or any of hundreds of others. Music is too limitless to be limited!



John Krogh, Technical Editor
Without a doubt, the record that kick started my desire to make music was Prince's *Purple Rain*. It might not be conventionally "classic" like a Beatles album, but *Purple Rain* pushed production in new directions, and still sounds great today.

Raise

Expectations.

Focused. Instrumental. KSM.

There's more than meets the eye to the new instrumental KSM studio condenser microphones from Shure. There's performance, heritage and versatility. The dual-pattern KSM141 switches from cardioid to omnidirectional with the turn of a dial. The studio-workhorse KSM137 powers through percussion and soars with the solos.

And the KSM109 rounds out the KSM instrument line with incredible price performance. These microphones feature transformerless preamplifier circuitry, extended frequency response, and incredibly low self-noise. They provide the technology, so your studio can provide the sound. The KSM line of instrument studio microphones. Only from Shure.

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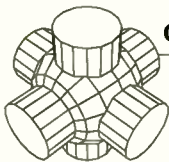
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SHURE

It's Your Sound[®]

Punch-In

Tips & News You Can Use
BY CRAIG, GREG & MITCH



Gadgetphile

Belkin Voice Recorder

The Belkin Voice Recorder (\$59.99) turns your dockable iPod into a personal recording device. Snap the omnidirectional mic onto the top of the iPod, and record memos, lectures, interviews, or conversations. Audio is saved as mono WAV files (16-bit/8kHz). The recorder also has a 16mm built-in speaker for on-the-spot monitoring, and for use as a travel alarm clock. The recorder works with iPod software version 2.1 or later, and requires no software installation; support is already built into the iPod.

Contact: www.belkin.com. Also available from the Apple store, www.apple.com.



Bookworms

The Complete Guide to Digital Audio

From Muska & Lipman Publishing comes one of the most attractive and user-friendly guides to computer recording we've seen. *The Complete Guide to Digital Audio*, penned by Chris Middleton, covers digital audio from hardware to software, sampling to recording, mixing to mastering. An overview of the major DAWs is presented, as are production tips, a section on audio for videogames, and a slew of "jargon busters."



News

New-Format Watch

Last month we presented a list of new DVD-A releases. And now, in the other corner, is a trio of notable SA-CD debuts:

■ **John Hiatt**, *Bring The Family*

■ **The Who**, *Tommy*

■ **Elton John**,

Goodbye Yellow Brick Road



THE REWIRE MYTH

ReWire, the ultra-cool protocol (developed by Propellerhead Software and Steinberg) that allows running two ReWire-compatible programs in tandem, has gotten a bad rap about sucking computer resources. But it ain't so. ReWire is simpatico to CPUs; it's the process of running two high-power audio apps at the same time that stresses your computer. So it doesn't have to work so hard, consider the following:

- Increase your audio interface's latency a bit (e.g., from 4 to 8ms)
 - Avoid ultra-high sample rates
 - Turn off any DSP functions that aren't being used (like EQs or other plug-ins you left on accidentally)
 - Use a host's "freeze" function to "disconnect" virtual instruments from the CPU.
- Optimizing the CPU usage of each program will lead to a happy, productive ReWire experience. Let's hear it for virtual patchcords!



CHEAPO CONVERSION: THE SEQUEL

Reader Don Wade sent us the following: "In your tip for 'Cheapo Balanced/Unbalanced Line Conversion' (10/03), you correctly point out that you can often use a simple patchcord for conversion. However, while the diagram shows a circuit that will work for an electronically balanced output (as much equipment today has), it will not work for a transformer-balanced output that is floating with respect to ground, as often found on older pro gear.

"Of course the converter as shown won't damage this type of gear, but

Forum Exchange



CD of the Month

Missy Elliott

This Is Not a Test, Elektra

Missy Elliott is one of the most innovative and consistent producer/performers in hip-hop, and she's ringing registers once again with her latest on Elektra, *This Is Not a Test*. As she's done before, Missy and her ace production team put on a clinic in deep, infectious rhythm programming, quirky sound design, and sing-song hip-hop hooks. Check out the booming, "synth bass" kick drums on the opening two tracks, or the sheet-metal grooves on "Wake Up." But not all is bump and groove. The Clark Sisters contribute gorgeous vocals to the R&B ballad "I'm Not Perfect." Other guests on the disc include Jay-Z, Monica, Elephant Man, and others. Producers include Craig Brockman, Nisan Stewart, Soul Diggaz, and Timbaland. At presstime, Missy learned that she had been nominated for five Grammy awards.

EQmag.com Posts of the Month

■ **Rubber Lizard:** I must be missing key information in my understanding of word clock. I have a Hammerfall Lite card. It is the word clock master. A Yamaha 01V digital mixer is slaved, receiving WC through its ADAT optical input. Now I'm upgrading my Hammerfall so it won't be Lite anymore. It adds another set of ADAT lightpipe and BNC connectors for word clock. My question is, what are these BNC things for? Anyone using this card is using ADAT lightpipe or S/PDIF, both of which already carry lightpipe, right? I look on the back of my Alesis QS8 keyboard and there is a BNC in addition to lightpipe. What is it for?

Halljams: The BNC connectors are probably the best way to run word clock from one device to another. That's what they are for. I would recommend getting a WC cable under 15 feet (a good one) and using those connections for your word connection instead of through your light pipe ADAT connection. If you get two cables, you can choose at any time which will be the master and which will be the slave. Sometimes converters sound better or different with different clock sources. Bob Katz recommends always using the clock that came with your converters, as it is most likely optimized specifically for the converters. If you are using the mixer (01V as a front end) to convert the audio from analog to digital, you should be using its clock as master. But do some experiments with drums and acoustic guitars to see which way sounds best. You may be surprised at the differences.



you'll need to ground pin 3 to get any output (this gives the full voltage out). Be careful, though, because if you ground pin 3 with an electronically balanced output or a transformer out with a center tap ground connection, you will be shorting half the output to ground, possibly damaging the output stage or causing distortion. It's a good idea to check what kind of output stage your gear uses so you can make the proper adapter."

Thanks, Don. And of course, remember that there are a variety of commercially available direct boxes and transformers designed to do balanced/unbalanced line conversion.



VOX FIX

The situation: You've completed the narration for a major project. The client loves it. Then two weeks later, you're told that there has to be a change in the copy. No problem. Your studio's automated, you just punch in the new lines, set the automation on autopilot, and generate another mix.

But even though you've used the same mic and recalled the preamp and EQ settings, your voice doesn't sound quite the same as it did originally. Is there a fix? Yes!

Use a "curve-stealing" program, like Steinberg's FreeFilter. Take the original vocal as a reference, the new vocal as the destination, and impress the spectral characteristics of the old vocal on the new one. Vary the amount of "morphing" (i.e., how much of the original spectral response is impressed on the new signal) for the best results.

tip

ALESIS MASTERLINK NORMALIZATION

It's generally a good idea to use a CD's full dynamic range; here's how to get the highest possible level on your CD without using the MasterLink's compression or limiting.

- Assemble the Tracks in a Playlist.

- Normalize each Track.

- All Tracks now use the maximum possible dynamic range. However, normalizing all Tracks will probably unbalance the "flow" of levels among Tracks, with some seeming louder than others. This is because a Track's average level, not the peak level, has more effect on how loud it sounds.

- Identify the louder tracks, then use each Track's Level parameter to reduce their levels as appropriate until all the songs flow well in terms of overall perceived volume.

Also note that if you normalize a song, then do any DSP operation (EQ, Compressor, Limiter), the DSP will probably change the level. Either turn off normalization, or re-calculate the Track to make sure the normalization is working with the current data.

In case you wonder about the difference between the level set for the entire Track, the gain applied in the compressor, and the gain applied by normalization, it's all about gain-staging. The Track level shown on the top line of the Playlist Edit mode is the first in the chain. If you raise or lower this, it will affect what the compressor "sees," effectively lowering or raising the threshold where the compressor starts to work. The normalize setting is the last in the chain, so it can make up for any gains or losses in the compressor, EQ, and limiter before it.



Candid Camera The Zone

The EQ staff enjoys hearing from readers, and we had to crack an extra large smile when this pic arrived from the folks at The Zone studio in Atlanta. Here we see staff producer/engineer **Billy Hume** getting the squeeze by **David Banner** (left) and **Bonecrusher** (right). Hume remixed Banner's "Like a Pimp." Bonecrusher was at The Zone to work on the follow up to his Arista/Break 'Em Off disc *Attentun*. The Zone has been busy enough to warrant expansion; the latest addition is the G Room — a Pro Tools suite used for pre-production, editing, and mixing. Need to track in Hotlanta? Phone the Zone at 770-279-1227.

News

Blue Contest Winner

Announced in our August '03 issue, the Blue Microphone **Silly Summer Songfest** is now a wrap.

Dr. Demento chose the top **three winners** (listed below). "A big thank you goes out to all of the contestants," says a Blue spokesperson. "There were so many great entries that narrowing the field down was a truly daunting task — countless hours in front of the boom box and lots of calls out for pizza & beer — but also a lot of fun. For all the laughs, and occasional groans, we are truly appreciative." Keep your eyes peeled to Blue's site for downloads of the top ten finalists' ditties, as well as limited-edition CDs available from select Blue retailers.

And the winners are:

- **First Prize:** "Wanda the Dancing Cook" **Tex Brashear, Silver City, NM**

Baby Bottle Microphone w/ Pop/Shock & Blueberry mic cable

- **Second Prize:** "Pizza of Love" **Stephanie Szostek, Westminster, CO**

Ball Mic and Blueberry mic cable

- **Third Prize:** "One Blue-Eyed Diner" **Kent Ippolito, Fredericksburg, VA**

Three Blueberry mic cables

- **Runners Up (in alphabetical order):**

Blue Mic T-shirts

Elise Beller, Berkeley, CA

Sal Clemente, Somerville, MA

Jason Dunn, Grand Junction, CO

Laura May Elston, Toronto, ON Canada

Noah Hirt-Manheimer, Ridgefield, CT

Roy Janik, Austin, TX

Black Jwell, Montreal, QC Canada

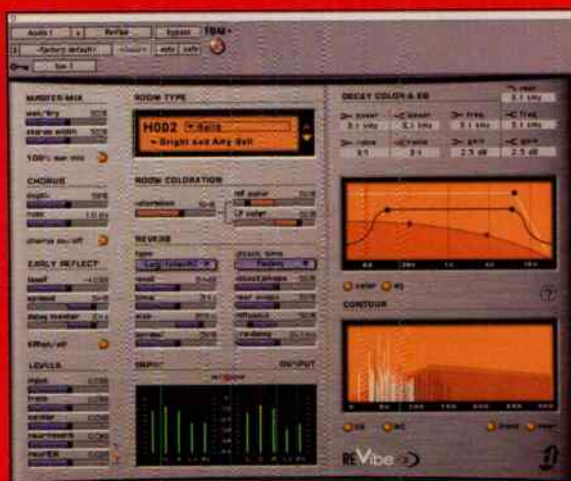


PRO TOOLS | **HD** ACCEL

ACCEL

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audio workstation on the planet.

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ReVibe room-modeling surround reverb plug-in

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TDM plug-ins, including the new ReVibe™
room-modeling surround reverb plug-in



For more information on Pro Tools | HD Accel and ReVibe, visit www.digidesign.com.

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Accelerate your success.

tip

HOW HIGH IS HIGH?

Sure, the ad says that a piece of gear has a "high impedance instrument input," but exactly how high is high? Here's an easy way to find out.

1. Patch any steady tone generator into the input of the device you want to test.

2. While listening to the device's output, turn up the input level as much as possible short of distortion.

3. Insert a 10 Megohm potentiometer in series with the "hot" lead connecting the tone generator to the device (see diagram) and set it to 0 ohms.

4. Monitor the device under the test's output with an AC voltmeter, and note the reading in volts.

5. Increase the potentiometer's resistance until the output voltage reads exactly one-half of the voltage in step 4.

6. Disconnect the potentiometer and measure its resistance. This potentiometer's resistance is approximately equal to the input impedance. However, note that this measurement technique works only with resistive impedances (like typical all-electronic input stages), not reactive impedances (e.g., impedances that have coils involved, like transformers).

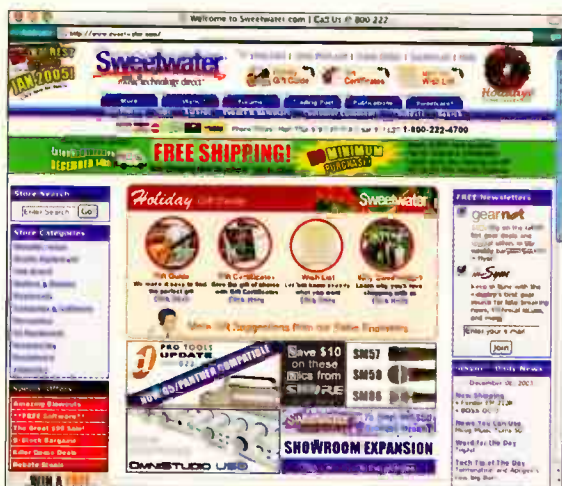


News Industry blotter

A special salute to mega-retailer **Sweetwater Sound** on their 25th anniversary. You may or may not know that Sweetwater Sound got its start back in 1979 as a 4-track recording studio.

"At that time, we were recording albums, as well as composing jingles for area retailers," states the company bio. Frustrated by the lack of retail support at the time, Sweetwater branched out. "We thought there had to be a better way of doing business. So we put together a company based upon the kind of sales, service, and product support we had been looking for in a retailer."

Today, Sweetwater is a retailing powerhouse, with well over 100 major brands in its portfolio. The company has been recognized by *Music Trades* as the fastest growing music retailer in the country for two years in a row, and was once listed in *Inc.* magazine's "America's 500 fastest growing companies." Visit Sweetwater online at www.sweetwater.com.

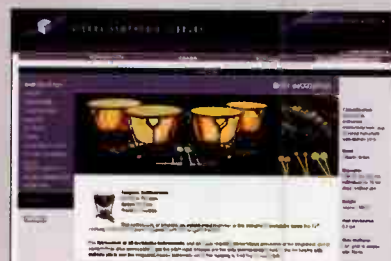


Surfboard

As we peruse the inner recesses, nooks, and crannies of the web, we're constantly flagging sites, news items, and useful tidbits that we feel will be of interest to you. Such as:

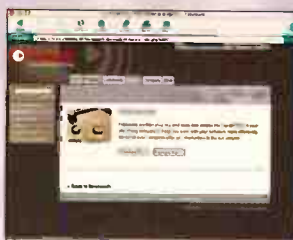
www.vsl.co.at

Need an education in orchestral instruments? Go to the Vienna Symphonic Library site and click on "Instruments." The amount of information it contains is staggering: instrument ranges, construction, playing techniques, history, notation, and much more for brass, woodwinds, strings, and percussion — quite a resource.



www.steinberg.net/en/support/downloads/freeware

If you're looking to add new instruments, effects, and sounds to your virtual studio, it's hard to argue with the price of goods at this URL: free! And from Steinberg, a respected name, to boot. For both Mac and PC, the site is packed with expressive tools, including the oh-so-cool Karlette tape-delay plug-in.



www.ishkur.com

Confused about the variations and mutations of modern electronic music? What's the difference between hardcore, techno, goa, breakbeat, downtempo, psychedelic trance, EBM, and all the others? *Iskur's Guide to Electronic Music* is, according



to the Disclaimers page, a "non-technical, irreverent critique of modern dance music. Its purpose is to entertain before it informs." But inform it does, thanks to the sonic examples that encapsulate particular styles. And the commentary definitely has its moments.

Eventide rolled out their new 40-rackspace exhibit called the Wall Of History recently at the grand opening of the new Guitar Center Superstore in New York City. "This tribute to Eventide's history is especially meaningful as Eventide Clockworks was founded in Manhattan on West 54th Street in 1971," says Ray Maxwell, Eventide's Vice President of Sales and Marketing. Accompanying the History Wall was Eventide's Timeline Poster, which detailed when each product was introduced, along with all of Eventide's "world's first" distinctions, such as the first-ever pitch-shifter and the H910 Harmonizer effects processor in 1975. Also on display was the first multi-effects unit, the SP2016. For more, log onto www.eventide.com.

Convolution Reverb with Classic Controls

A breakthrough in parametric control
of convolution based sampling reverb



IR-1

is for any DAW user who needs superior reverbs and ambiances. IR1 is a sampling reverb which has flexible classic controls of the key reverb parameters. Unlike other sampling reverbs only IR-1 allows you to change all the traditional reverb parameters. IR-1 comes with an extensive library of over 60 carefully sampled impulse response files that recreate both the acoustics of real spaces and the sounds created by classic electronic devices, all with unmatched clarity and accuracy.

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Revolution of Control - The first sampling reverb that allows classic parameters to actually effect the convolution.

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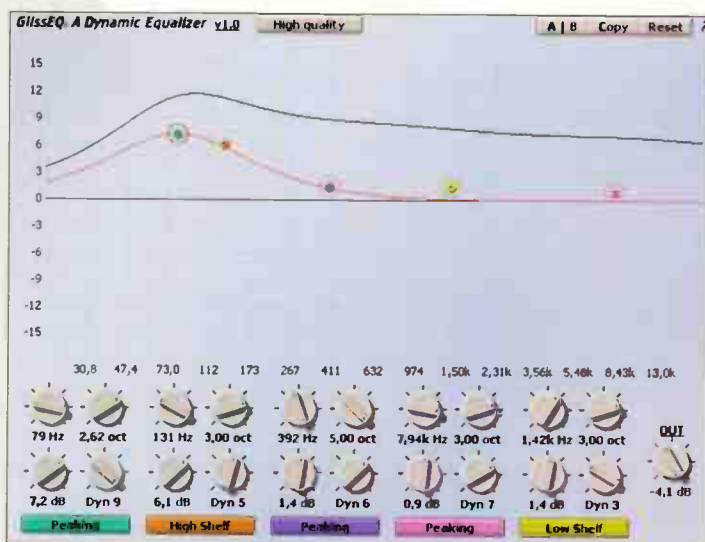
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Voxengo GlissEQ

Analog-style EQ plug-in

Voxengo's GlissEQ (\$59) is an analog-style EQ plug-in for PC VST that features "dynamic equalization performance," which adjusts filter gain according to the program material you are filtering. GlissEQ requires Windows 98 or later and features five filter bands, five filter types, A-to-B comparisons, highly optimized assembler DSP, stereo-to-stereo processing mode, and 64-bit internal precision.

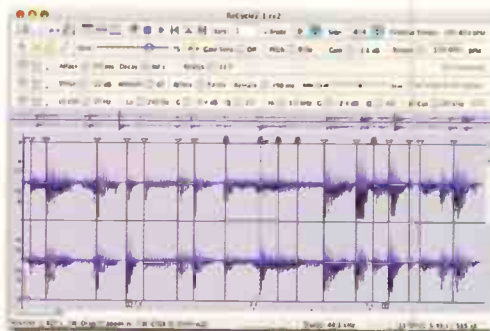
Voxengo, www.voxengo.com

Propellerhead Recycle 2.1

Loop sequencing toolkit

Propellerhead's Recycle is now a bundle of groove tools that includes Reason Adapted — a streamlined version of Reason that includes Dr. Rex, the Rex2 file player, a mixer, effects, and the NN-Xt and Reason samplers — and Reload for importing Akai samples. In addition to offering full Windows XP support, **Recycle 2.1 (\$229; free upgrade from version 2.0)** is optimized for OS X, and features multiple undos and 24-bit resolution.

Propellerhead, www.propellerheads.se



TerraTec Producer Sine HP 48

Stereo headphone amp

The single rackspace **Sine HP 48 (\$139)** is a 4-channel headphone amp featuring four independent stereo amplifiers and four independent back panel input jacks that can power up to eight sets of headphones. The unit features volume controls for each channel, a status LED, an external power supply to prevent internal overheating, and flexible routing capabilities.

TerraTec, www.terratec.com



MindPrint En-Voice MK II

Tube recording preamp

The En-Voice MK II (\$749) channel strip is a tube-driven preamp with a USB interface and a switched mode power supply that protects it against fluctuating current and power surges. It features a new low-noise preamp with balanced inserts and an advanced compressor with eight attack/release presets for common signals. Other features include instrument and line inputs, microphone input with switchable 48-volt phantom power, 3-band parametric EQ, a low-cut sidechain filter, and a Tube Sat control to dial in various saturation levels.

MindPrint, www.mindprint.com



Groove Tubes Brick

Tube mic and instrument preamp

Based on Groove Tubes' ViPRE technology, **the Brick (\$499)** is a stage and studio tool that functions as a microphone preamp, an instrument preamp, a line driver, and a direct box. Highlights include phantom power, true transformer output, available gain of 55dB, three high-impedance instrument inputs, a low-Z mic input, and the ability to handle dynamic, condenser, and ribbon mics.

Groove Tubes, www.groovetubes.com

B&H Pro Audio Sourcebook

Product and technical guide

The Pro Audio Sourcebook (free) is a two-volume, 1,580-page resource packed with product and technical information on and about all things pro audio, and it's free for the asking. Volume One starts with an introduction to wired mics and moves on to coverage of processors, mixers, multitrack recorders, workstations, power amps, studio monitors, and more. Volume Two is devoted to the latest in computer audio hardware and software systems, MIDI equipment, plug-ins, sample libraries, studio furniture, racks, stands, cables, converters, patchbays, and phew, you name it. Did we mention it's free?

B&H Pro Audio, www.bhphotovideo.com



PreSonus Central Station

Studio control center

The Central Station (\$699.95) is a passive studio control center that features three sets of monitor outputs, two headphone outs, three analog inputs (two balanced TRS, RCA), two digital inputs (S/PDIF, TOSLINK),

D/A conversion up to 24-bit/192kHz, 20-segment digital LED input meters, and an omni-directional condenser talkback microphone to facilitate artist/engineer communication. To minimize noise and maximize signal integrity, the single rackspace unit is equipped with 28 sealed silver relays that utilize a minimal signal path so the audio doesn't pass through extraneous electronics.

PreSonus, www.presonus.com



URS Classic Console EQ Bundle

EQ plug-ins

The Classic Console EQ Bundle (\$TDM \$899.99; Native \$549.99) features the URS A series and URS N series EQ plug-ins, which are digital emulations of the vintage API 550B and the Neve 1084, respectively. The bundle also includes such features as total reset automation, true phase alignment (when used on a stereo bus in dual mono mode), input gain adjust, gain clipping LED, and a phase reverse switch. The TDM version includes TDM, RTAS, and AudioSuite support for OS 9 and OS X, and the native version supports RTAS and AudioSuite on OS 9 and OS X, with Windows and Audio Units versions to be released soon. Both plugs are available separately for \$499.99 (TDM) and \$299.99 (native) each.

Unique Recording Software, www.ursplugins.com



Cycling '74 Sustained Encounters

Audio source library

Cycling '74 announced the debut of their new "Cycles" series of audio source libraries, which are made up of sound effects, ambient sound, rhythmic loops, and incidental music for use by musicians, sound designers, and media producers. The first volume in the series, **Sustained Encounters (\$99)**, consists of long, evolving environments and unfolding atmospheres culled from sound library pioneer Ron MacLeod's private sonic reserve. Each volume comes with both a high-capacity DVD-ROM and a standard audio CD, and includes 24-bit/48kHz and 44.1kHz WAV files.

Cycling '74, www.cycling74.com

WE APOLOGIZE in advance for every **CLASHING BASS NOTE**, slightly **OUT-OF-TUNE GUITAR** and sloppy, **LATE KICK DRUM** you'll **FINALLY HEAR** through our **ULTRA-ACCURATE** monitors.



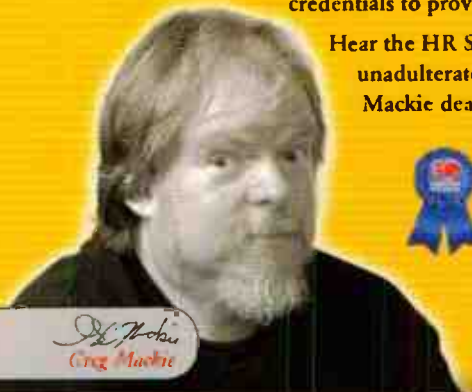
Monitors are the only part of your studio that you actually hear. So despite all the creative names and interesting new monitor designs out there, the most important thing for you to consider when selecting studio monitors is how truthful they are to the music you're creating. And this is precisely why Mackie HR Series Active Technology™ monitors are a professional standard worldwide.

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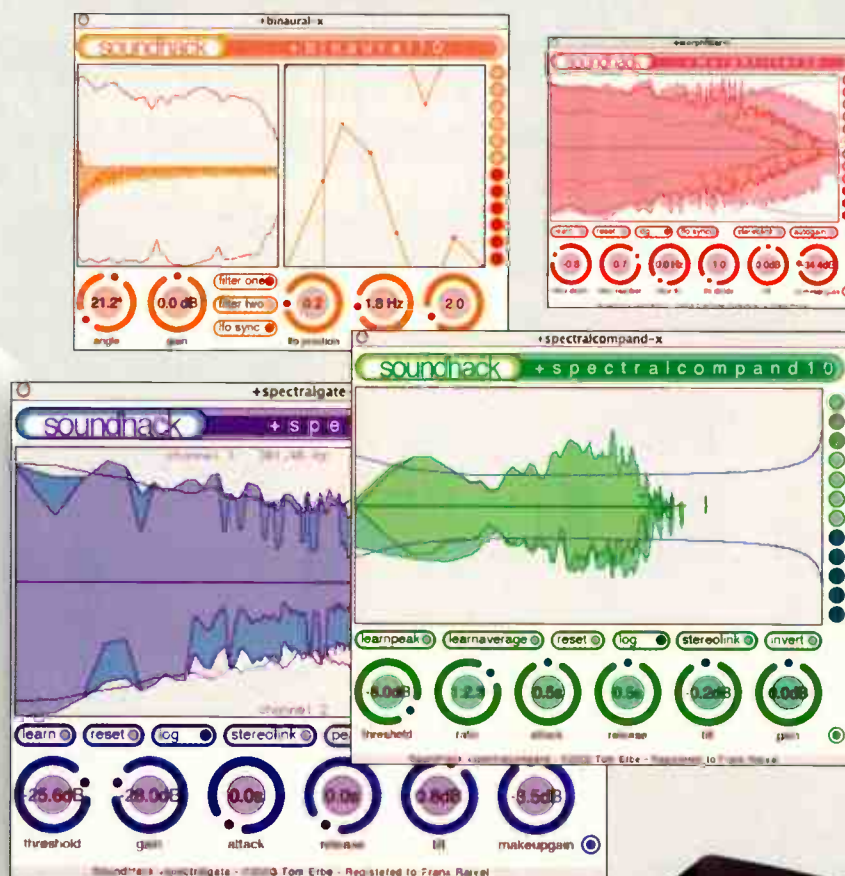
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• info@mackie.com

MACKIE.
www.mackie.com

SoundHack Spectral Shapers VST plug-ins

Spectral Shapers (\$150) is a group of four VST and AU plug-ins based on the SoundHack sound design tool. All four plug-ins — +Spectralgate, +Spectralcompand, +Morphfilter, and +Binaural — are realtime spectral filters that emphasize the reshaping of the timbre of sound. Each works as a group of 513 coordinated filters that perform with both macro- and micro-sonic focus.

SoundHack,
www.soundhack.com



M-Audio Studiophile SBX Subwoofer

Designed as an affordable, pro-quality solution to stereo and surround sound monitoring, the **Studiophile SBX (\$499.95)** delivers a frequency response of 30–180Hz and utilizes M-Audio's Stereo Bass Management System, which splits the signal at the variable crossover frequency and routes everything below to the sub and everything above to the satellites. The SBX features a 120-watt dedicated power amp, an 8" low frequency driver with a mineral filled polypropylene cone, high temperature-tolerant voice coils, and damped rubber surrounds. Connections include XLR and 1/4" balanced/unbalanced inputs, and XLR outputs.

M-Audio, www.m-audio.com



Steinberg ID Software controller

Developed in tandem with Nuendo 2.0, the **ID Controller (\$TBA)** promises unprecedented levels of integration with Steinberg's media production software. The ID features dedicated buttons for a host of editing, transport, and mixing functions, as well as user definable layouts and function keys that provide quick access to just about any parameter. Controls include 12 touch-sensitive 100mm motorized faders, an ASCII dual function key-board, 380 backlit buttons, 40 endless encoders with button function, a 50mm track ball, and a high-end aluminum-anodized jog dial.

Steinberg,
www.steinbergusa.net



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The most trusted professional digital audio editor moves forward with version 7. Incorporating new features and functions, nothing's more powerful or comprehensive.

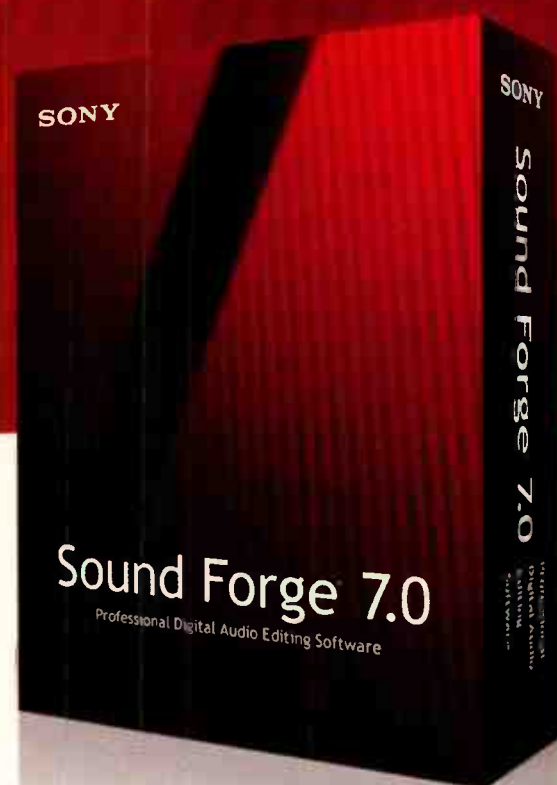
Sound Forge® software is the established leader for 24-bit, non-destructive two-track digital audio editing and mastering. It's the best application available for audio recording, real-time editing and processing, and streaming media creation. Sound Forge software offers over 40 built-in effects and processes, saves to all popular audio formats, and includes the acclaimed Acoustic Mirror™, Wave Hammer®, and Spectrum Analysis tools. Over a decade ago, Sound Forge software revolutionized the audio industry through its effectiveness and ease-of-use. Now it further raises the standard of performance you require from a digital audio editor.

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World Radio History

Soundminer 3.1

Audio file manager

Soundminer 3.1 (\$995) is a Mac-based file management system that features multi-channel ReWire support for Pro Tools and Nuendo systems. Version 3.1 supports all major audio formats, and features instant cataloging from local and network drives, built-in clip editors, spotting, batch transfers, native plug-in processing, and more. At the heart of this new version is the Soundminer ReWire Engine, which allows on-the-fly bit depth and sampling rate conversion of up to eight discrete 24-bit/192kHz audio streams.

Soundminer, www.soundminer.com



Trident LS101

Nearfield monitor speaker

The new **LS101 (\$799 per pair)** is a high-quality monitor featuring two 5" low-to-mid drivers, a 1" dome tweeter, and dual gold plated speaker terminals that allow for bi-wiring. The design features a magnetic screen built into the cabinet to shield speaker magnetism from close-proximity computer screens, which is a bonus for DAW users lacking studio space. The LS101 has a frequency range of 30Hz–22kHz with a low distortion rating, and a power handling capability of 50 watts RMS at 4 ohms.

Trident Audio, www.oram.co.uk



Mackie UAD-1 v. 3.3

OS X-compatible software

Mackie and Universal Audio announced the release of **Version 3.3 software (Free to registered UAD-1 owners)**, which features OS X support for the UAD-1 DSP Powered Plug-ins card. The beta version (the final version should be released by the time you read this) is available at both companies' websites, and will support OS X on all Mac platforms, including G5 processors.

Mackie, www.mackie.com, Universal Audio, www.uaudio.com

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The fact of the matter is that all the major music technology retailers, including Sweetwater, get the same great deals and charge the same low prices, so other companies will gladly agree to match a price that is within pennies of their normal price anyway.

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The Vibe Studio

SPACE TO CREATE

Your studio is your life-blood.
Shouldn't it feed your creativity?

How many hours a day do you spend in your studio? How many a week, month, or year? For many of us the number is amazingly high. In my case, since my studio triples as office and practice space, I probably average at least 12 hours a day in there, week after week, month after month. If you're a full-time studio owner, musician, composer, producer, or engineer, you're likely putting in a lot of studio time. Even if you're a casual "hobbyist," the number of hours spent in the studio can really mount up.

But as important — if not more important than the *amount* of time you spend in the studio is the *quality* of that time. Are the hours spent there productive? Do you leave feeling exhausted, or excited about what you've accomplished? Does your studio inspire or does it drain your creative juice? The question is, does your studio have *vibe*?

I've had a lot of studios over the years, ranging from small MIDI composing stations in the corners of 1-bedroom apartments to spare bedrooms to corporate office spaces to my current space, a 400+ square foot open room. As I've moved from room to room, I've tracked with interest the effect the environment has had on my creativity and productivity. Some were definitely better than others at providing a place where I could realize my creative visions. I've taken a similar interest in the "feel" of the many commercial studios I've worked in and visited — which ones felt good, which seemed inspiring, which were closed in and draining, which had the elusive "vibe."

But what gives a studio this elusive quality? What is it that makes one room feel good

and another turn you off? As you'd expect, acoustics are a major part of it — if the room doesn't sound good, you won't be at your best. Ergonomics and room setup are critical — all the required gear must be functioning, easily accessible, and logically positioned and connected. The final element is the most difficult to nail down: the decor or interior design. Too often we settle for simply stacking our gear in a white-walled room, ignoring the effect the space might have on us. Maybe we'll hang a poster of our favorite musician on the wall and display a few requisite knickknacks — but it takes more than a lava lamp to give a studio vibe.

Part of the reason this element is hard to articulate is that what works is different for each of us. Some prefer a high-tech approach, while others go for soft comfort. Some don't mind being surrounded by equipment and instruments, others prefer a clean, minimalist approach. Other things factor in, too, such as colors, lighting, furniture, and decorative accessories.

Take a look at your studio; try to see past the gear racks, computer monitors, and speakers. Does it look as good as it sounds? Is it an attractive space in which to live your creative life? Does it make you want to get down to work?

To help you increase your studio's vibe, we've collected pages of tips and techniques for improving your studio's look, feel, efficiency, and acoustics. With just a little effort, your room can become your creative partner, providing you with a place to work that takes your inspiration to the next level. Grab a paint brush, curtain rod, and slip-cover; we're about to give your studio *vibe*. —Mitch Gallagher

ERGONOMICS DESIGN ACOUSTICS BUYER'S GUIDE

Hot Tips: Maximize Your Room

TIPS AND TECHNIQUES TO HELP YOUR STUDIO BE ALL THAT IT CAN BE

Compiled by Mitch Gallagher



Your studio is an extension of your creative self. In order to maximize your creative productivity, you need to maximize your studio as well — make it efficient, ergonomic, pleasant, and comfortable. Any effort you put into streamlining your gear, de-cluttering, beautifying, and improving your space will result in increases in productivity, creativity, and inspiration.

As editors of everyone's favorite audio/recording magazine, we're privileged to visit countless studios. Like you, we also spend uncounted hours working in our studios. Here's a collection of good ideas we've seen or come up with for making your studio the most efficient, productive place it can be.

DRIVEN TO DISTRACTION

These days, most engineers and musicians spend hours staring at computer screens. This can be very hard on your eyes. It's essential to remember to blink often (really!) to keep your eyes lubricated. As an even better way to keep your eyes fresh and rested, place something visually distracting behind the monitor. A window works, an interesting piece of art may do the trick, or I find that something with a bit of motion — a TV (with the sound off, of course) — can be a great aid in keeping my eyes moving and refocusing. If your eyes feel tired after a long session, find ways to visually distract yourself; it works! —MG

REACH FOR YOUR WALLET

Storing sample CDs in CD binders (also called CD wallets) not only saves space, but it's easier to flip through the binder than read the spines of CD or DVD cases. For example, the Fellowes 320 CD Wallet packs 320 CDs, or 160 CDs and 160 booklets, in a space that's only 12-1/2" x 12-1/2" x 5-3/4". If you don't need that much capacity, there's the 224 CD Wallet and 128 CD Wallet. They're available at most office supply stores; check the web for who's got the best deal. www.fellowes.com —CA



CLEAN SWEEP

Most studio owners are pack-rats — we keep everything, on the chance we might need it someday. The last time I moved my studio, I realized there were pieces in the racks that hadn't been powered up in over *five years*. I had cables for computers I got rid of 10 years ago! I went through with a fine-tooth comb, placing each item in my room into one of four categories:

1. **Never use, can't sell.** Trash it now! In most cases, broken/damaged/inoperable stuff fits here. If you haven't fixed or replaced it, you probably don't need it very much.
2. **Don't use, but someone else might.** These items go up for sale or trade.

3. **Use occasionally.** Remove these items from the studio, and store them nearby. Be brutally honest — when was the last time you *truly* put the piece to use? If it was more than a year ago, consider getting rid of it.

4. **Use all the time.** These items belong in the studio where they're easily accessible. —MG

RESERVED SPACE

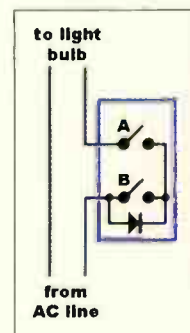
There are some small items I reach for constantly — certain adapters, tape measure, screwdrivers, SPL meter, etc. To keep them handy, I have a rackmountable drawer (QuikLok, Middle Atlantic Products, and Raxxess are some sources) in one of my racks. Warning: *Don't* let this turn into a catch-all "junk" drawer. Reserve it for items you use on a daily or near-daily basis. —MG

DIMMING THE NOISE

Although mood lighting sets a good vibe, dimmers often emit loads of RF noise. But you can get one level of dimming, with less noise than usual dimmers, by inserting a rectifier diode (like Radio Shack #276-1144) in one leg of the AC line going to an incandescent lamp. Please note that this circuit will not work with fluorescent lights or anything that uses a transformer.

CAUTION: You're dealing with potentially lethal voltages, so you better know what you're doing! Make **SURE** the circuit breaker is OFF for the line feeding the light and its associated switch.

One way to implement the dimmer is to replace a single light switch with a dual one (e.g., Leviton Decora #5634-WSP), wired as shown in the diagram. Note that this switch assembly includes a jumper between one side of each switch; leave this jumper in place. Switch A is the on-off switch, Switch B sets dim (switch open) or bright (switch closed). Incidentally, using the dim position also extends a light bulb's life dramatically. —CA



INVEST IN REAL ESTATE

I have three computers in my studio. At one time I had them connected to a KVM switch, which allowed me to use one monitor and one keyboard/mouse with all three. But I've come to realize that screen real estate is critical. I still use the KVM switch for the keyboard and mouse, but each computer has its own monitor. (I've gone to flat-panels to minimize footprints.) The main DAW computer has a big screen, while the PC (mainly used for Acid and GigaStudio) and a second Mac (used as a server, for backup, burning discs, and miscellaneous tasks) have 15" screens. —MG ➤



JOIN A GROUP

Some studios seem to install rack gear randomly. I prefer to group rack pieces by function: All my synths/MIDI interfaces are in one rack, mic preamps are together in another, as are processors, interfaces/recorders, and so on. Having a scheme in mind makes it easier to find and use what you want, and to run cabling. —MG

SNAKE OIL

Once you've settled on the lineup and placement of your main studio components, and have everything wired, snake those cables. You can pick up some flexible (and affordable) tubing at OfficeMax and other such outlets. In studios where



cabling is visible, a couple of snakes will look much cleaner to you and (most importantly) your clients than piles of tangled spaghetti. If you don't want to bother with tubing, pick up some Velcro or elastic band-type cable wraps to get things in order. —GR

PATCHWORK

For maximum studio routing flexibility, a patchbay can't be beat. But it's easy to over-do it. At one point I had every connection in my studio routed to a patchbay — five of them, in total. Eventually I noticed that I rarely used most of those connections. I reduced the patchbays to the number of points I really needed, and routed everything else direct. The result? Reduced noise, fewer cabling problems, and way less cable spaghetti — with no reduction in flexibility. —MG

THE POWER OF IMAGE

You're going along in a nice groove, creating a dandy rhythm part, and fully exercising the right hemisphere of your brain (the side that does the creative and intuitive thinking). And then . . . your computer locks up. Now you have to go into troubleshooting mode, so driven by panic, you automatically switch hemispheres so your left side (the one that does the linear thinking) kicks into gear.

You find the problem, restart, reload the program, and try to get back to where you once belonged. But the groove is gone! Why? Because you're still stuck in left-brain mode.

What you need is to reboot not just your computer, but your brain. Images are very good for stimulating the right side of your brain and getting back into that more intuitive mode. Sometimes a cool screen saver will do the job, but also consider thumbing through a book of beautiful images, such as landscapes, satellite views of the earth, or an art museum's "greatest hits." (I have a NASA CD-ROM of images from the Hubble telescope that kicks right-brain butt, and the www.nasa.gov site is a treasure trove of images, all available free of charge.) Next time you're stuck in a left brain rut, contemplate the images for a few minutes and see if it doesn't create the right vibe to get your right brain humming again. —CA



BROTHER, WHERE ART THOU?

Many studios are decidedly disorganized. One of the best ways to bring organization to studio chaos is to label things: patch points, cables, CDs, tapes, storage boxes, switches, connectors. For flexible labeling needs, one of the leading options is the Brother PT line of label printers. I recently had a chance to check out the PT-1400, and I was blown away by all it could do.

The PT-1400 is a large, hand-held unit. The front-panel is covered with keys (QWERTY, numeric, and a few function keys) and a good-sized LCD screen. You type in the label text, hit print, squeeze a lever, and out pops your finished label. Simple, right? But you can do so much more. You can print vertically and/or with multiple lines of text, rotate text for creating labels to wrap around cables, or use a mode for printing "flag"-type cable labels (where the label wraps around a cable, then the ends stick together to create a "flag"). "Port" labels format text to fit under a connector, while "Panel" labels are designed to stretch across a piece of gear, labeling connectors and controls in-between. Different text types and sizes, various characters and symbols, even bar codes are supported. You can specify margins, print the text inside a box on the label, and center, right-, or left-justify text. It's possible to print multiple copies, store/recall labels you print often, and much more.

Different widths of label tape are available, ranging from 1/4-1", in a variety of colors. You can also get extra-strength adhesive tape, flexible ID tape, tamper-evident tape, and fabric iron-on tape. The unit operates off six AA batteries, or there's an optional AC power supply.

At first glance, the PT-1400 may seem like overkill. But once you put the unit to work, its ease of use and flexibility make it highly effective. It's not cheap — \$169.95 — but it will handle anything you throw at it. If you're trying to organize your studio, the PT-1400 is worth it just for cable labeling alone. —MG



ONE-SIDED ARGUMENT

I place my computer keyboard and monitor off to one side at 90° to my control surface and speakers. This lets me focus on the computer screen when editing and doing "visual" work, and allows me to focus with my ears when I'm performing mix

STUDIOPHILE

The experts speak

"I choose the tools that best help me convert my ideas and imagination into music. That's why I'm using M-Audio's new Studiophile BX8 reference monitors. They sound absolutely brilliant—even after an exhausting 18-hour writing day. And what I hear in my studio comes across exactly as I intended, wherever my mixes go."

Jeff Rona (film composer; "Traffic," "Black Hawk Down")

"I'm surprised and excited by the tonality of the BX8s. Unlike most speakers I've checked out, they have a nice open middle quality to them—along with the bonus of a smooth low end and not-too-shiny top. I added M-Audio's subwoofer and was really impressed with what it contributed to the mix."

David Laibin (Grammy-winning producer; Paul McCartney, Sugar Ray)

"I have to go between analog and digital all the time and the BX5s have become my workhorse."

Tony Howard (Grammy-nominated engineer/producer; Jay-Z, The Roots)

"Little package, big presentation. I wouldn't work a session without them."

Steven Surfan (Grammy-nominated engineer/producer; BT, Mariah Carey, George Benson)

"Music broadcasts differently on different networks. So this week, the final test of the music created and mixed on M-Audio monitors was listening to it on air. "Will & Grace" (NBC), "Good Morning Miami" (NBC), "Reba" (WB) and "Less Than Perfect" (ABC) all sounded great."

Jonathan Wolff (TV composer; "Seinfeld," "Will & Grace")

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FENG SHUI IN THE STUDIO

Feng Shui — the ancient Far Eastern art of placement — is purported to provide endless benefits to its practitioners. Arrange your home/office/room in the correct way, they say, and you'll see increases in wealth, romance, health, just about every aspect of your life.

No, I'm not suggesting consulting a *bagua* before placing your monitors, or putting a water feature in your studio's north zone to improve your profitability. But some *Feng Shui* concepts can be borrowed and applied to your room.

■ **Orientation** — Take a look at how your room is laid out. Where are the doors and windows? Some people are uncomfortable working with their back to a door. Others can't get anything done with an outside window directly in front of them. Consider alternate layouts, drawing your room on graph paper and arranging its contents in different ways.

■ **Flow** — In *Feng Shui*, the energy flow through a room is critical. In a studio, it may be the flow of traffic that's of concern. How do you, your clients, and studio visitors move through the room and around furniture, workstations, and gear? Are you constantly dodging guitars and racks? Can you walk in without tripping on cables or stubbing your toe on an amp?

■ **Materials** — *Feng Shui* considers the balance of materials in a room to be important. For maximum studio vibe, consider softening some of the hard/high-tech edges with fabric, drapes, cushions, and pillows. Mixing up materials will help the acoustics and make the room feel more comfortable.

■ **Clutter** — To *Feng Shui* believers, clutter equals negative *chi* (energy). In the studio, clutter can mean wasted time, dust (bad for gear), and difficulty relaxing and concentrating. Make a serious effort to organize and control clutter. Your studio will look better, you and your clients will feel more relaxed, and inspiration will come more easily. —MG

moves. Editor-at-Large Craig Anderton takes this approach one step further: He sets up two parallel tables, 5' apart. The computer monitor and keyboard go on one, mixer and speakers on the other. In addition to improving concentration when performing visual versus listening tasks, he finds that having speakers behind him cuts down on ear fatigue when doing non-critical work. If he needs to listen more carefully, he just turns his chair around. —MG

EYE CANDY

They may not be for everyone, but some slick-looking trophies and wall plaques can impress clients. There are several public awards programs you might want to enter, such as the AXIEM Awards (Absolute eXcellence in Electronic Media, www.axiemawards.com) and the Telly Awards (www.telly.com), both of which have audio categories. —GR



TURN ON THE POWER

Is there a more valuable studio tool than the power screwdriver? If you don't have one, run — don't walk — to your nearest store

and purchase one. It will easily pay for itself the next time you rearrange your rack gear. You don't need a big honking construction-grade drill; a compact unit provides plenty of power. —MG

WATER: NOT JUST FOR PLANTS ANYMORE

One of the most important aspects of singing is a well-lubricated throat. If you spend a lot of time in the studio, consider putting a water cooler in there. It's a good idea to keep yourself well-hydrated anyway, but singers in particular will appreciate having a convenient supply of pure water. —CA

CONTAIN IT

Organizing cables, adapters, and miscellaneous "stuff" can be a nightmare. I went to my neighborhood Wal-Mart and purchased a stack of plastic boxes with snap-on lids in different sizes (priced from 88 cents for a shoebox



size to under \$3 for a large bin). I gathered each type of item in a box: short 1/4" patch cables, medium-length MIDI cables, mic stand clips, XLR adapter cables, etc., then applied labels. The boxes stack nicely, allowing more efficient use of space. —MG

WIDE OPEN SPACES

Is there anything worse than crouching behind a dimly lit rack, barely able to move, trying to get a cable plugged in the right jack? It may seem like a waste of space, but leaving plenty of room to maneuver behind racks, and providing adequate light back there, whether a flashlight or small lights mounted inside the racks, is well worth it. —MG EQ

A final tip — last but not least — turn to page 38 of this issue for a rundown of studio furniture and acoustic treatment material that's sure to give your studio a vibe injection.

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D16XD

The Vibe Studio

Studio Designer's Challenge

BALANCING AESTHETICS AND FUNCTIONALITY

by Mitch Gallagher



Project and home studios are often located in basements and spare bedrooms, which have numerous limitations. For many studio owners, major reconstruction and remodeling aren't an option — surface treatments, furnishings, lighting, color, and equipment are about all that may be changed.

Despite this, many personal and project studios rise above their limitations and become comfortable, inspiring places to compose and record music. *EQ* had an opportunity to sit down with Beth Walters, Interior Designer with the Walters-Stork Design Group. Beth, along with her husband, acoustician John Stork, has designed an incredible array of studios of every price point and size. Our discussion revealed myriad suggestions and techniques that an interior designer might use to create a vibrant, relaxing, inspiring studio space.

ROOMS

Many small studios are faced with low ceilings — what techniques do you use to make the ceiling seem higher?

In designing a room we must consider things that are seen and not seen. A technique we often use is to create perimeter fascias and soffits around the room where HVAC ducts can be run. This gives you the opportunity to create interest in a ceiling; it gives you opportunity for indirect lighting that can dramatically change a room and it gives you the opportunity to change colors on the different planes. (It also preserves ceiling height and creates cavities for effective acoustic treatments.) You can then decide to color the high ceiling a darker color, use a lighter one on the lower soffit and add an accent color to the acoustic treatment (such as a suspended ceiling "cloud") that will probably be added to the ceiling area above the mixing position.

Studios are generally filled with high-tech gear. Are there materials and techniques you recommend for "softening" the feel of the room?

I think that lighting greatly affects mood and can "soften" the room. You can

either create mood with indirect lighting as in the soffits I described before or introduce direct or "task lighting" where you need to see.

Remember that the spill of the lighting will create the level that will be comfortable, and lighting only what needs to be lit will create the ambience. Use the "bare maximum" for lighting.

Recommended techniques for maximizing storage space in a limited area?

Simply stated: You can never have too much storage. Almost everyone underestimates how much room they really need or how much stuff they're unwilling to part with.

If you're putting in a new door, remember to leave enough space behind where the door opens for a thin cabinet or bookshelf. This can be especially effective in a sound lock. Add a shelf high around the room. This can be incorporated into your acoustic treatments. If you need equipment racks, have a symmetrical layout of racks, even if it means having more rack space than you need right now. You can always convert these rack units into effective drawers. By deepening the racks, you can also double load them — again creating additional rack space and storage capacity.

Are there techniques for making a small room feel more spacious and open?

Eliminate as much clutter as possible and keep your color scheme monochromatic —



Studio On The Hill, Bronx, NY, is a good example of a small room. A wrap-around desk keeps most things at eye level, creating a sense of order. Notice the soffitting

using shades of one color. Once a person called our office and asked what they should do with their 20' x 20' basement space. Our quick answer was: "Make a closet." This would eliminate clutter and of course eliminate a serious potential standing wave problem.

What makes a studio feel comfortable and relaxing for long hours of work?

Good ergonomics, soothing lighting, coordinated colors and a great chair. We all know how much gear we can collect, but there are other things that we might consider using as a focal point in our room. How about a piece of art? Some really nice pillows on a seating area (get rid of the black leather sofa!)? And, of course, you must have a really good chair. The Hermann Miller Aeron has been around for years and in my opinion is still the one. It's classy, and it lasts.

Are there particular room layout/ergonomic principles that you recommend



This view of Studio On The Hill shows how storage and the vents were incorporated into a corner of the room. We mixed our favorite Hermann Miller Aeron chair with an IKEA leather couch.

(gear arranged in a "U" shape, mixer facing/not facing a window, etc.)?

We're always asked this. Room layout is *always* a personal thing. There's really

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World Radio History



no right or wrong way to work. Most people want to be able to get to almost everything easily and quickly (kind of like of an airplane pilot). The problem arises when there's too much equipment for this to happen.

Make sure you can wheel your chair easily to critical listening positions. Put the most important items closest to the acoustic centerline of the room. When you have positioned everything where it feels correct *then* make the acoustics work. Symmetry is the single most important design element you can introduce in arranging a room.

Facing the window or not depends on your personal preference. Some producers will only look forward when working with talent — end of story. If there's a great view from your studio, make this work for you. For Carter Burwell, in New York City, the view of lower Manhattan was absolutely a requirement in organizing the primary listening position of the room. Again, when the window decision has been made, *then* make the acoustics work. Remember glass isn't a bad thing in a studio environment. What *is* bad are reflections from any surface that will cause harsh acoustic responses, such as comb filtering. Almost any piece of glass can be made to work acoustically in your room.



This is Carter Burwell's project studio, located in an apartment. Note the windows and the wrap-around ergonomic work area. It's not a particularly large space.

LIGHTING

For acoustic and other reasons, many studios don't have windows, or end up covering them up. Is there a way to compensate for this lack of natural light?

You can emulate natural light with inserts in the ceiling that look like sky-lights. Up-lighting (cove lighting) is also

very useful. Always be sure to lamp the fixtures correctly with bulbs that are close to natural daylight temperatures. There's a strong trend toward having natural daylight in studio environments, and there's rarely a situation where the acoustics can't be designed to accommodate a window.

What type of lighting is best for setting a "mood" in a studio?

A mixture of direct and indirect lighting will create mood. You can use colored-sleeve fluorescent lighting in indirect lighting designs, while low voltage halogens give off sharp direct work light where you can adjust the width of the focus of the beam of light. There are also down-light fixtures that, when used with the correct bulbs, can help create a wonderful work environment.



This shot toward the rear of Lower East Side Studios shows how to incorporate a residential feel with a professional postproduction control room. The lighting and furnishings are definitely residential.

Are studio lighting requirements different for personal, band, and commercial spaces?

Absolutely. General (ambient) lighting as well as task lighting requirements are very different. Spaces that need overall lighting, such as large studios (think musicians reading music scores) are going to need a minimum of 80 foot-candles. High ceilings will make this a challenge. People looking at computer screens or plasma screens will require a totally different lighting scheme in a room — lower levels and more targeted fixture locations. Be aware of glare. One trick we've learned is to cross-focus "over-console" task lights.

What lighting mistakes do studio owners often make?

The single biggest mistake is not paying attention to the lights. For most people, lighting is an afterthought. Get some advice, choose the fixtures carefully, make sure that they're properly matched with the dimmers (this is what usually makes noise in a studio), and think about maintenance.

COLOR

How do you go about selecting a color scheme for a studio?

The beginning of the design process has us in a meeting with the clients where they're asked what they like. It should always start with that! Some clients are very specific. Often, I ask which is their favorite room in their home. Is the studio to have a residential or a commercial feel? I have them look through magazines and books so they can show me things they like. Whether it's a photograph, a piece of art, a couch, a room, a texture, or another room that we've done, I ask them to flood me with reference material. I can then organize this information and get a good sense of what direction to go in. A design palette is built!

I remember creating Cotton Hill Studios in Albany, NY, where the owner showed me a very small painting from Santa Fe — a painting whose colors he was very fond of. The painting had very bright colors. You wouldn't want to live with them in great amounts. It would have been too distracting, yet, we were able to incorporate them into the scheme of the entire facility and the painting still hangs in the sound lock! The client's collection of Indian art hangs in the rest of the facility and brings a signature to the studio. Not



The strong red in Cotton Hill Studio's control room and the blue on the acoustic panels in the studio were colors found in a favorite piece of American Indian art.

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Studio Designer's Challenge



only do all studios look different — they *should* look different!

What considerations play into the decision?

You have to be careful not to color things because you think the color is trendy. Use a color because it relates to something or ties into the entire spirit of the room. Think about the studio being used five or ten years from now.

Is color selection different for a personal space than a commercial space?

In dealing with a personal space, almost anything goes. In a commercial



The color palette used for Mach 2 Studios in Milan, Italy shows how an unusual mix of colors can work very effectively.

space, other considerations may enter your decision-making: image of the company, variety of clients, extensive wear and tear, etc. I also like to get a sense of the surrounding spaces. Now, that doesn't mean that we use the same colors, but there should be some connection to the building that the studio lives in. For instance, in creating the color scheme for Electronic Arts Audio Production facility in Vancouver, Canada, I looked at the image of the firm as well as the general color palette of the entire building. A



Electronic Arts Audio Production shows that the use of color can be a statement. By coloring the different planes of the ceiling clouds with rich jewel colors, a very warm atmosphere was created.

color scheme using a variety of colors, including some purples, was developed. The engineers would never have thought of this — the rooms became quite special!

Are there color schemes you can use to create a certain mood?

There absolutely are color schemes I can use to create a mood! We had an engineer who wanted to feel like he was working underwater. A huge hand-painted piece of fabric was used for the ceiling cloud (above the mixing position); blues, greens, wavy, yet serene. A fish tank was placed in the rear of the room where his couch was and once again the room took on a definite signature.

Are there ways to finish and color things like acoustic treatments to make them become part of the room, rather than big "things" stuck on the walls and ceiling?

The color of the woods, carpet, paint fabrics, diffractals, bass traps, lighting fixtures, and laminates should all be coordinated. In a small space this is extremely important because no one element is going to dominate.

Mounted room accessories (whether they're decorative or acoustic) will usually feel better if they're placed on a level line, rather than in a haphazard fashion. Your eye stops jumping around.

CLUTTER

How do you recommend small studios deal with the inevitable clutter problem?

If you can splay acoustic treatments and equipment away from the walls it gives you the opportunity to incorporate storage behind them. Raise some equipment up and put storage below. Order extra racks and install drawers in them. Maybe the whole room can be oriented on a different axis where you will end up with storage space in the front or on the sides that you didn't realize you had.

What methods do you use to hide the multitude of cables that must run throughout a studio (given that in many home/project studios, running them through walls, etc., likely won't be an option)?

This is always a tricky subject. For small rooms, the most successful solution is to house the cables within the studio furniture. The few wires that have to leave the central furniture piece can either be worked into sidewall treatments, perimeter wire raceways (wood or metal), or an



The control room at Electronic Arts Audio Production has played rear walls that incorporate storage, both an equipment closet and a rack unit

occasional wire run on the floor (covered with wire mold).

Another trick is to have a platform in the front of the room. This allows the wires required for front speakers, amps and video monitors to be placed in a trough with a removable cover.



Scott Freiman's personal studio shows how the third floor of a residence can work as a home studio. The view from the window is of the Hudson River with sunset views. Note the wrap-around console desk.

Is there a way to de-emphasize large pieces of gear, such as monitors on stands, guitar amplifiers, keyboard stands, etc?

Generally speaking, a 500-pound gorilla weighs exactly that much! Try to order a 400-pounder. . . . EQ

For further information on Beth Walters and her design work with the Walters-Storyk Design Group, visit www.wsdg.com.

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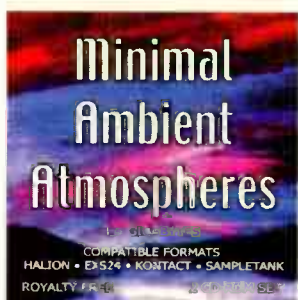
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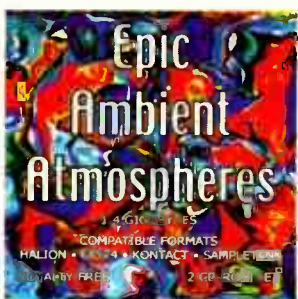
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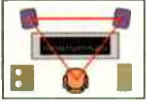
World Radio History

The Vibe Studio

Room Acoustics: Good or Bad Vibrations?

YOUR ROOM IS PROBABLY SABOTAGING YOUR SOUND

by Ethan Winer



Recording and mixing music is (or at least, should be!) a lot of fun. And if you produce your own music, it's even more fun to hear the ideas take shape and begin to sound like a "real" recording. But most of us encounter frustration somewhere along the way. Perhaps you have an impossible kick drum that sounds like cardboard no matter how you EQ or compress it. Or maybe you just can't get the bass to sit nicely in the mix regardless of what you do. When you finally manage to get what you think is a good mix, as soon as you play it in the car or on a friend's stereo, your heart sinks as you realize how poor it sounds compared to your favorite commercial recordings.

WHAT'S WRONG WITH MY ROOM?

All acoustic problems are caused by reflections off the walls, floor, ceiling, and objects inside the room. At mid and high frequencies, reflections can cause echoes and excessive ambience that confuse stereo imaging and make it difficult to tell how much reverb and echo you're adding electronically. In severe cases, midrange reflections also cause *ringing*—new tones that resonate when excited by similar frequencies in the music. Low frequency reflections create standing waves that skew the frequency response and make bass instruments sound muddy. You might have the finest loudspeakers in the world, but they're of little value if the room itself creates numerous

peaks and dips throughout the entire low end. Nulls as deep as 25dB and more are not only common, but also typical (Figure 1).

This graph shows the low frequency response measured in a typical 16x10x8 foot untreated control room. A pair of Mackie HR-824 loudspeakers were placed against the front wall with the tweeters at ear level, and the measuring microphone was placed precisely at the mix position. Note the peak/dip pair at 110 and 122Hz where the response varies a staggering 32dB across a range smaller than one musical whole step. No wonder you can't distinguish bass notes! Now imagine trying to create an accurate mix under those conditions.

In my experience, room acoustic problems are often the main limiting factor on the sound quality obtainable in home studios. Unfortunately, too many people consider everything *but* acoustics when they have trouble making a mix sound the way they'd like. There's no denying that audio gear with rows of lights, knobs, and switches is a lot sexier than boring acoustic panels and bass traps. But acoustic treatment will influence your sound more than the relatively small differences (comparatively speaking) among various mic preamps, sound cards, and onboard compressors.

Of course, not everyone recognizes the need for acoustic treatment. Part of this is based on the legitimate concern that the music won't be heard in a treated room anyway. However, this is definitely a case where two wrongs do not make a right. There's nothing you can do about the room in which your music will be heard, but you *can* do something about the room in which it is mixed.

The important point to remember is that all rooms have a unique frequency response, so if for example your room lacks deep bass, your mixes will contain too much bass because you

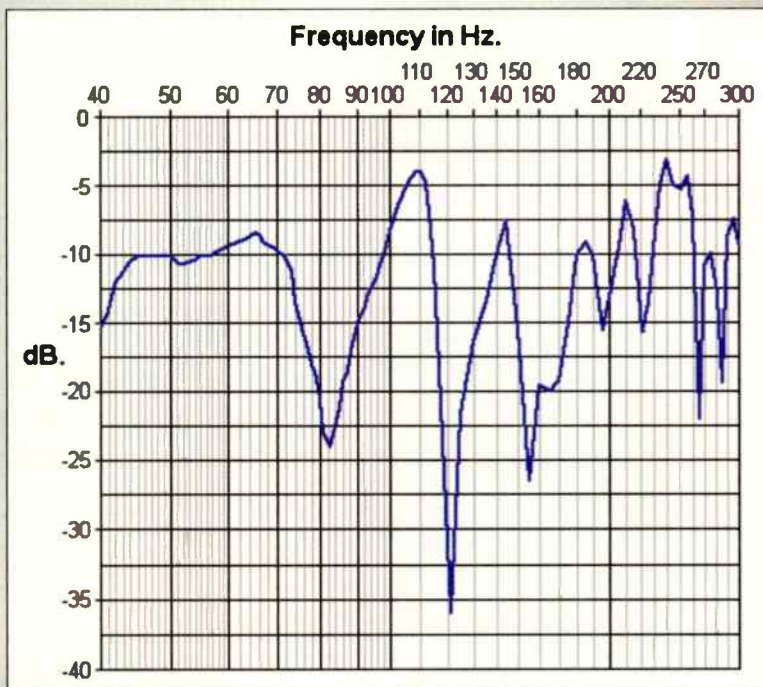


Fig. 1. The horrendous frequency response shown here is typical in the small rooms often used for home studios.

The good news is that many of these vibe-killers can be solved by understanding and fixing the acoustic problems that exist in all rooms. I'll begin by describing the most common troubles caused by poor acoustics, and then explain some ways to correct them.

Introducing Nuendo 2.0 - The professional solution

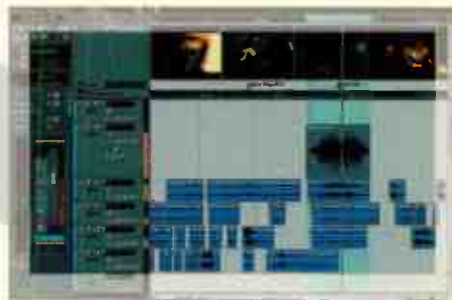
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The Viba Studio

Room Acoustics: Good or Bad Vibrations?



will attempt to compensate for what you hear. If someone plays your mix in a room that has too much bass, the error will be exaggerated, so they'll hear way too much bass. The only way to minimize problems at the listener's end is to make your own room as accurate as possible. Therefore, any errors the listeners hear are introduced by their own rooms, rather than having a combination of errors from your room and theirs.

Besides improving the accuracy of your entire system, proper acoustic treatment makes recording and mixing more

TOP TEN SMALL ROOM ACOUSTIC IMPROVEMENTS

Anton, start the drum roll please as we examine the ten most common ways to improve a room, including several that are free, and a warning about some popular approaches that don't work.

Orientation: Assuming you're in a normal rectangular room, orient your mix position so the speakers are facing the long way into the room, as shown in Figure 2. The two most important goals are maintaining an equilateral triangle having left/right symmetry within the room, and placing yourself as far as possible from the surrounding walls. Having the mix position slightly forward of the halfway point yields the flattest low end response, and the ideal speaker height puts the tweeters level with your ears.

Speaker placement: Once the basic placement of your loudspeakers and chair are correct, you can try the speakers at different distances from the front wall to see which yields the smoothest sounding bass response. If your room is small, you may have no choice but to put the speakers flat against the wall. That's perfectly acceptable, and many active monitors include switches to compensate for this placement, which tends to boost bass somewhat. But if you have some space to work with, placing the speakers a few feet in front of the wall often improves the response by making it flatter in the bass range.

Decouple your speakers: Sound travels through solid materials faster than through air. So when loudspeakers are sitting on a desk, low frequencies can transmit from the speaker's enclosure through the desk and floor and arrive at your ears before the waves in the air. If the secondary path is strong enough, the phase shift caused by this time delay contributes to low frequency response errors. One solution is to buy speaker isolation pads made for just this purpose. You can optionally make pads from rigid fiberglass or even kitchen sponges — the kind that become stiff when dry work best for this.

Mid/High frequency absorbers: There's a significant difference between materials and products that absorb from 300Hz and up and those that are effective at lower frequencies. One common treatment that helps a little is heavy blankets or thick bedding hung on the walls. However, these materials absorb only the highest frequencies; what almost all rooms really need is *broadband* absorption. Treating only the high frequencies may actually be worse than having no treatment at all.

The reason why so many studio designers specify panels made of acoustic foam and rigid fiberglass is because they absorb to a lower frequency. For a given thickness, rigid fiberglass absorbs to about an octave lower than foam (for example, typical foam that's two inches thick is useful down to 500Hz; rigid fiberglass of the same thickness absorbs well to below 250Hz). Fiberglass is also fireproof. The downside of fiberglass is that it must be

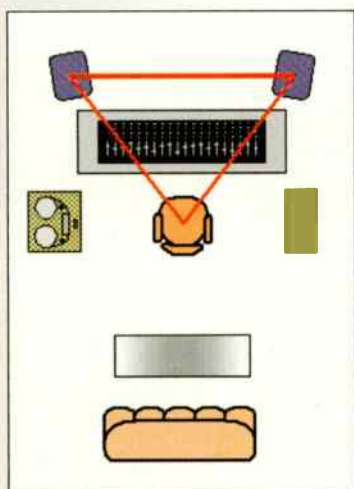


Fig. 2. For the flattest low frequency response, face the loudspeakers the long way into the room, and orient your mix position to form an equilateral triangle between the back of your head and the loudspeakers.



The RazorBlade from Primaacoustic is a quadratic diffuser; it spreads a precise series of different wells across a wall plane, and is designed to break up and scatter acoustic energy from 350Hz to 10kHz.



Auralex Acoustics Studiofoam Pyramids, LENRD bass traps, and T'Fusor diffusers installed at Perfect Sound Studios.

effortless. It's a revelation the first time you hear every note articulated clearly by an electric bass, and are able to discern even tiny changes in EQ and effects settings. It's a change on at least the same kind of level as switching from cheap speakers to studio monitors.

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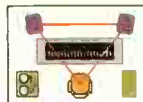
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The Vibe Studio

Room Acoustics: Good or Bad Vibrations?



covered with fabric to prevent the fibers from escaping into the air. In either case, though, don't make the common mistake of covering the entire room with thin material. This makes the room sound creepy and lifeless, yet boomy at the same time.

Reflection free zone: One common cause of poor stereo imaging involves early reflections — echoes that arrive within 20 milliseconds of the direct sound from the loudspeakers. Instead of sounding like echoes, early reflections fuse with the direct sound to create "comb filtering" effects, and therefore obscure clarity. Worse, if sound from the left

Many people believe that bass traps should be tuned to specific frequencies, based on the room dimensions. But this doesn't take into account the fact that severe peaks and nulls exist in all rooms at all frequencies. Therefore, the best bass traps for all rooms are those that absorb the entire range of low frequencies.

Diffusion: Diffusion minimizes the damaging echoes and comb filtering effects caused by reflections off nearby walls, though it's used most often in larger rooms. Diffusors range from small, lightweight plastic panels that resemble a city skyline, to large expensive Quadratic Residue Fractal designs. If the room and budget are both small, simply placing absorber panels on troublesome surfaces makes sense. But when money is no object and you want to retain as much liveness as possible, diffusion is very useful.

Room EQ: Trying to use equalization to correct low frequency room problems simply does not work. The peaks and dips shown in Figure 1 are very localized; if you move even two inches away the response changes drastically. So while EQ can help a little to reduce mid and high frequency response deviations, it is inappropriate for the more damaging low frequency errors. As the old saying goes, "equalizing a room with poor acoustics gives you an equalized room with poor acoustics."

Egg cartons and non-acoustic foam: These do not work either. Egg cartons are far too thin to be useful, and non-acoustic packing foam lacks the porous "open-cell" structure needed to absorb sound waves.

Styrofoam panels: You've probably seen these lightweight, inexpensive panels at home supply stores. They're about an inch thick, and often pink. Unfortunately they have no useful acoustic properties, other than the fact that they make strange noises if you hit them with a baseball bat.

IN SEARCH OF EXCELLENCE

I visit many audio newsgroups and web forums every day. And every day I see people who are dissatisfied with their mixes ask what gear they should buy next. The solution always remains elusive because they're not treating the fundamental problem, which is that they can't hear what their gear really sounds like anyway. The differences between 0.01% and 0.001% distortion, 44.1kHz or 192kHz sample rates, or jitter that's 120dB below the music are fairly insignificant compared to mixing room frequency response variations that are often in excess of 30dB.

I hope this brief overview of acoustic treatment inspires you to treat your room; you'll be astonished how much your mixes improve when you can actually hear what you're mixing. **EQ**

Ethan Winer has been keen on acoustic treatment since he built his first bass trap in 1977. He now heads up RealTraps in New Milford, CT — visit him at www.realtraps.com. Special thanks to studio design guru Wes Lachot for generously sharing his expertise and advice.

CHECK IT OUT

Having spent much of my life working in the kind of large, professional studios that are becoming an endangered species, I've heard what a good room should sound like. But if you haven't had that experience, it's pretty easy to prove to your own satisfaction whether your room is introducing anomalies or not.

One simple test is to play various low frequency sine waves, then walk around the room listening for places where the tones get louder and softer. Frequencies between 60 and 300Hz reveal the problem well. You may be shocked to hear the sound almost disappear in some spots, yet be heard at full volume in others. The wider the variations in level, the more desperately your room needs treatment.

Another eye-opener (okay, ear-opener) is to take a sound level meter, like the one Radio Shack sells, and place it in your mixing "sweet spot." Now feed a variable frequency oscillator into your mixer, sweep it, and observe the meter. Again, it's a shocking experience; the level will likely vary all over the place. As with the listening tests, the greater the variations, the greater the need for acoustical treatment. —Craig Anderton

speaker bounces off the right wall into your right ear, or vice versa, imaging suffers. The solution here is to place 2x4-foot absorbing panels in selected locations on the side walls and the ceiling. Place one panel vertically on each side wall halfway between the loudspeakers and your ears, and a third panel horizontally on the ceiling, also halfway between you and the speakers. To be sure you have absorption in all possible early reflection points, sit in the mix position while a friend places a mirror flat against the side walls. Any surface where you can see either loudspeaker in the mirror should be covered with absorption. You can also do this on the ceiling by attaching a hand mirror to a broom stick with rubber bands.

Bass traps: Although reflections at mid and high frequencies are more easily noticed, low frequency reflections are more damaging. Any decent bass trap should have substantial absorption at 300Hz and lower — hopefully much lower. The least expensive bass traps are 4-foot bales of fluffy fiberglass, left in their plastic wrapper, and stacked in the room corners. They may be big and ugly, but they perform reasonably well, especially given their low cost. The next step up is rigid fiberglass panels wrapped in cloth and placed straddling the room corners, including the ceiling corners. Commercial bass traps include foam corners, corner mounted rigid fiberglass, and wood or fiberglass-based membrane traps.

Collect the whole set.



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The Vibe Studio

Buyer's Guide

STUDIO FURNITURE & ACOUSTIC TREATMENT

compiled by Greg Rule



You've seen the photos and read the expert tips and techniques in this month's Vibe Studio feature section, now it's time to get your hands on the materials to make vibe happen in your own space. On the following pages are listings from some of the world's top manufacturers of studio furniture and acoustic treatment, each followed by a web address. May your studio never be a vibe-free zone again!

[Readers, once your studio has been sufficiently vibed, send "before" and "after" photos to gregrule@musicplayer.com. You might be featured in a future issue of EQ.]

STUDIO FURNITURE & ENCLOSURES



Argosy Console

Argosy offers premier studio furnishings direct to the recording, television, and film industries. 90 Series console enclosures are model-specific furniture solutions that transform desktop mixers into full-featured consoles with onboard rack and monitor space. Key features: powder-coated bridge lids and end panels (black or platinum), top and back access to utility areas, full-length padded armrest, steel legs, starting at under \$2,000 delivered. 70 Series console enclosures offer the look and feel of the larger 90 Series in a smaller, non-expandable console. Features: powder-coated bridge lids and end panels (black), top access to

utility areas, full-length padded armrest, steel legs, starting under \$1,000 delivered. Dual 15 workstations (not pictured) allow users to integrate smaller control surfaces, computer equipment, and even 88-note keyboard controllers in an impressive control center in the heart of their studio. Features: sleek angled design, powder-coated end panels (black), optional hardwood mahogany or platinum finish, steel legs, starting under \$1,500 delivered. Spire stand-alone racks bring order and character to your essential outboard gear. Features: 1" thick top and side panels, available in solid hardwood, laminates, or custom, starting at under \$800 delivered.

Argosy, www.argosyconsole.com



Herman Miller

The Herman Miller Aeron chair is one of the most famous and popular pieces of studio furniture in the world. You see them in studio after studio, from continent to continent. But more than a work of art, the chairs are comfortable, well-built, and medically correct. There are three sizes of Aeron chairs to choose from, but all have a high and wide contoured back that takes weight off the lower spine. The wide, soft armrests are sloped in the front, and the waterfall front edge reduces pressure under the thighs so circulation isn't restricted. Herman Miller describes Aeron as a "high-performance, long term work-chair solution." The

chair's comfortable, form-fitting, and strong suspension system distributes weight evenly over the seat and back, and conforms to each person's shape and minimizes pressure. Aeron's woven material enables air to pass through the seat and back so the sitter stays cool and comfortable. The Kinemat tilt lets you move naturally and effortlessly, from forward-leaning through reclining; the backrest and seat move in proper relation for correct support in all positions. And there's more where that came from, as you'll see when perusing the Herman Miller website.

Herman Miller, www.hermanmiller.com



Middle Atlantic Products

Middle Atlantic Products is a leading manufacturer of state-of-the-art steel enclosure systems and studio furniture. Their Edit Center series (examples pictured) provides an elegant, ergonomic workspace for the digital content professional. Edit Center racks can be specified with door kits, which include noise control and cooling systems mandated by today's increasingly powerful computers and noisy hard drive arrays. Gasketed doors (plexi front and solid rear) along with internal absorptive material reduce noise escaping from the enclosure by up to 22db. The rear door features a factory-installed ultra low-noise cooling fan, plus a removable

filter kit for air intake, while a brush grommet at the door bottom allows cable exit while maintaining a seal for noise and air flow. Desk systems are available in two sizes: 84" and 60" wide, and include overbridges capable of accommodating multiple 21" computer monitors as well as large program monitors. Two pivoting speaker platforms allow you to place your audio monitors at the optimum listening angle. To request a catalog of Middle Atlantic Products full line of equipment and accessories, visit the website below.

Middle Atlantic Products, www.middleatlantic.com



Omnirax

Omnirax studio furniture is designed for pro music and audio/video production applications, as well as for home studio, office, broadcast, or institutional needs. The unique and innovative blend of style, function, and solid construction has established Omnirax as a nationally recognized leader in studio furniture. In addition to a broad range of production-line products, Omnirax also offers affordable "semi-custom" solutions as well as custom design capability. The ergonomic designs provide ample legroom, clear sight lines, and comfortable working heights. Other features include easy-to-reach rack placement, adjustable sliding shelves, properly positioned cable grommets, and heavy-duty casters. Omnirax products are available in a variety of materials and colors. All exposed edges are protected with PVC T-molding. Full-hole rackrails plus threaded equipment mounting screws with nylon washers are included. All models are easy to assemble, and include all necessary hardware and assembly instructions. Omnirax equipment comes with a 100% guarantee of satisfaction.

Omnirax, www.omnirax.com



Raxxess

The Raxxess "Config-u-raxx" system is a line of components designed to meet the unique requirements of every studio workstation environment. It offers an array of desktop surfaces, side wings and shelves, as well as add-ons such as doors, racks and keyboard trays. Each component can be easily interfaced with any other component in the system, allowing for an almost endless variety of configurations. Features include: melamine surfaces available in ebony fleck and maple, silver t-mold trim on all edges, height adjustable center legs, upgraded 3-D adjustable keyboard shelf, and silver "hammerstone" finish on all steel parts.

Raxxess, www.raxxess.com



Vocal Booth

Vocal Booth provides modular sound isolation enclosures for recording, practicing, audiology, and more, with sizes ranging from 4' x 4' to 16' x 16', as well as custom sizing. The exclusive "no tools" design allows for easy assembly and disassembly, making moving a snap. They offer four different models to suit a wide range of space requirements or budgets. Options include: windows, ventilation, lighting, fabric colors, caster wheels, acoustic foam treatments, and inner wall partitions.

Vocalbooth, www.vocalbooth.com



WhisperRoom

The SE 2000 series portable/modular sound isolation enclosures are designed for applications large and small. Nineteen sizes and two levels of isolation (single-wall and double-wall systems) are available. Flexible design characteristics allow each WhisperRoom to be tailored to specific needs. Along with choosing the enclosure size and level of isolation, the customer can select from four optional wall window sizes and doors hinged either left or right. Optional caster plate platforms are available for those who require mobility within their facilities or need additional downward sound control. SoundWave Deflection Systems (SDS) are available to convert interior WhisperRoom walls from parallel to non-parallel. WhisperRooms are also upgradable; the level of isolation and size of each enclosure can be upgraded at any time. WhisperRoom products come with a 5-year warranty.

Whisper Room, www.whisperroom.com

ACOUSTIC TREATMENT



Acoustic Sciences Corporation (ASC)

ASC manufactures professional acoustic control products, including the patented TubeTrap — the core of their line. TubeTraps are modular, free-standing low-frequency, broadband sound absorbers that are typically placed in the corners of a sound room. TubeTraps help control bass resonance and improve musical articulation and

The Vibe Studio

Buyer's Guide

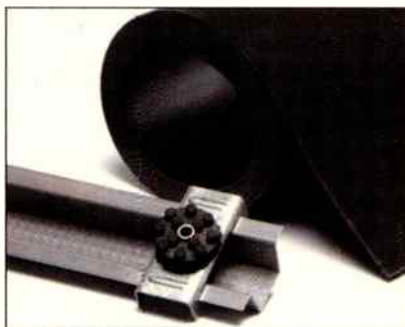


clarity. Various sizes are available, with prices ranging from \$288 – \$778 per Tube. The Quick Sound Field-QSF (pictured) is comprised of eight StudioTraps, which are adjustable, stand-mounted acoustic gobos, with flexible absorptive and diffusive properties. They're designed to give the recording engineer the ability to modify and create a virtual sonic subspace around the microphone or talent. The sonic characteristics can be dynamically shaped and sculpted by changing the positioning and rotation of the StudioTraps. Price: \$2,898.

Acoustic Sciences Corporation,
www.asc-studio-acoustics.com

Acoustical Solutions

Acoustical Solutions' AlphaResilient Isolation Clips and AudioSeal Sound Barrier can be used for achieving high STC ratings with new or existing wall, ceiling, or floor construction. Used together, the products can achieve a Sound Transmission Class



rating of 60. Clips are typically required on only one side of an assembly. The AudioSeal Sound Barrier weighs 1 lb. per square foot and is 1/8" thick.

Acoustical Solutions, www.acousticalsolutions.com

Acoustics First

The AcoustiKit Model 1014 is the latest in the AcoustiKit series. It's designed to provide all of the basic elements to treat a room of up to 10' x 14'. The package



includes the original Cutting Wedge acoustical foam in convenient 12" tiles as well as 2' square panels. The extra surface area, created by the Cutting Wedge pattern, makes it a highly efficient sound absorber. Complimenting the wall panels are the Bermuda Triangle Traps. These extend the absorption range, providing bass control in the room corners. Completing the acoustical environment are the original Art Diffusers. These sound-scattering devices make the room

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seem larger by breaking up reflections. The Model 1014 can be expanded as the facility and the budget grow. Included with the package are installation instructions and room layouts, illustrating placement of materials for different listening positions. The foam comes in standard "studio gray." The diffusers are white and may be painted to match the room décor. The price is \$398.

Acoustics First, www.acousticsfirst.com

Auralex Acoustics

Founded in 1977, Auralex has built a world-renowned product line that includes such products as industry-standard Studiofoam, Class A SonoFiber and Pro Panels acoustical absorbers, LENRD bass



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Auralex, www.auralex.com



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Illbruck's Fabritec Wall Panels provide excellent acoustical control in a variety of studio settings, including: video studios, recording studios, composition rooms, isolation rooms, as well as high-traffic and open areas. Made from Class 1 fire-rated Willtec, Fabritec panels provide sound absorption comparable to bagged fibrous products, but use less material, which reduces thickness and weight. The rugged

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The Viba Studio

Buyer's Guide



mount easily with one screw or hook — just like a picture — and can be mounted vertically or horizontally. MiniTraps are made with rigid fiberglass and metal instead of foam, and are non-flammable. MiniTraps cost \$179.99 each and are sold direct by the manufacturer. MicroTraps are thinner and cost \$119.99 each. Both are described in detail on the RealTraps website. The site

also contains tutorials on room acoustics and treatment, with practical explanations.

RealTraps, www.realtraps.com

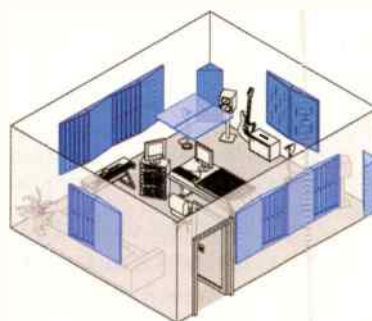
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Damon Thomas (left) and Harvey Mason, Jr.

THE

It's

hard not to feel overwhelmed by the vast array of gold and platinum albums hanging in the halls of the Underdogs' Hollywood recording studio. Everywhere you look are familiar album covers by the top pop and R&B artists of the last decade — Mariah Carey, Britney Spears, Pink, Michael Jackson, Toni Braxton, and Whitney Houston just to name a few. The duo of Harvey Mason Jr. (son of jazz drummer/Fourplay member Harvey Mason Sr.) and Damon Thomas may call themselves the Underdogs, but if their success keeps growing at its current rate, they're going to need to change that name to the *Top Dogs*.

As impressive as this display of the Underdogs' accomplishments is, the real rewards of the duo's success lie inside the walls of the various studios located in their facility. Each room is decked out with state-of-the-art equipment — digital mixing consoles, racks of outboard

processors, and computers loaded with Pro Tools and Logic. Thomas grins as he opens the door to the main studio, revealing not only a brand new 96-channel SSL C200 digital console, but also the familiar face of studio guitarist extraordinaire Michael Thompson, who is poised over a virtual cityscape of effects pedals — blinking lights and all — like Godzilla preparing to destroy Tokyo.

Mason and Thomas already enjoyed a successful history as musicians, songwriters, and producers before the two started working together in 2001. Thomas first made his mark producing tracks on Brandy's debut, moving on to work with hip-hop and R&B artists such as Tupac and Babyface. Mason had a lucrative career as a studio musician, mixer, and producer, eventually landing a gig as a songwriter and engineer for Rodney Jerkins (profiled in our November 2003 issue).

 link

From the moment they started working together, the Underdogs made a huge impact on pop and R&B music. Their first collaborative effort was writing and producing "I Like Them Girls," the first single from Tyrese's debut album, which propelled the album to #10 on the *Billboard* charts. A steady stream of successful projects followed, including work on K-Ci & Jo Jo's *Emotional*, Brian McKnight's *U Turn*, Stacie Orrico's *Stacie Orrico*, and Justin Timberlake's *Justified*. They also produced songs for *American Idol* favorites Kelly Clarkson and Ruben Studdard.

In August, 2003, the Underdogs signed a deal with Clive Davis and J Records to form their own label and develop artists on their own. Although the deal allows Mason and Thomas to produce other artists for different labels (such as the projects they're currently working on with Craig David, Babyface, and Studdard), they're already beginning

UNDERDOGS

Meet Hollywood's

Hottest New

Production Duo

By Chris Gill

to focus most of their attention to their label and newly signed artists.

"We're just getting started with the label," says Mason. "We want to put out music that is going to make a difference. We're not trying to become famous. We want our music to be the star."

After listening to Michael Thompson lay down some sweet rhythm guitar tracks, Mason and Thomas sat down with *EQ* to talk about their all-encompassing approach to songwriting and production.

TEAMWORK

What influenced the two of you to form a production team?

Damon Thomas: I met Harvey when I was meeting with Rodney Jerkins to discuss a possible collaboration. At the time we both had made decisions to do our own separate thing outside of the situations we were working in. Soon after that meeting Harvey moved to L.A., and he called me up one day to let me know that he was living here. I was really surprised and impressed that he called, so I suggested that we get together to write some songs.

Harvey Mason Jr.: I wasn't so keen on forming a partnership, though. Damon said that he just wanted to write a couple songs and that he wasn't interested in a partnership either. The first song we wrote, "I Like Them Girls," got placed instantly with Tyrese and was his first single. After that we just kept working on things together.

How did you go from writing songs together to producing?

Mason: We both come from production backgrounds, so it just worked out that we ended up producing songs that we had written.

What is the key to forming a successful songwriting partnership?

Mason: First, you have to have mutual respect for each other. You can write songs together all day long but you won't get anywhere if you don't trust the opinion of the person you're working with. You have to respect their ideas. When Damon and I work together we'll tell each other if we like something or we'll suggest something that we think will work. Each person influences the other person. The important thing is that we're equal, which makes the partnership really work.

Thomas: There has to be some magic, too. There are a lot of songwriters and producers out there, so you have to know how to find something special. When we started working together we immediately knew it was hot. We've never had an argument or disagreement about a song. Both of us are very much in touch with what's going on. I'll be listening to Lil Jon in my car and he'll be listening to Coldplay. We share our views on what we're listening to and try to keep up with what's going on. If you want to be a producer, you've got to be in touch with what the kids are listening to. You've got to watch TRL and things like that. It doesn't matter if you don't agree with their programming and how they do it — that's what kids are buying. You have to be a businessman and not so much of a musician. Try to be creative and do what you love, but still be smart enough to know what the world wants to hear. You can't force people to listen to something they don't like.

THE PRODUCTION TIP

What type of preparation do you do before you work with an artist?

Mason: Generally we don't have a ton of time to do research. We're spontaneous and creative. We'll get with the artist and listen to where they're coming from musically and what's in their head. We try to figure out where they want to go and go for it. If we spent a lot of time analyzing an artist's previous work I don't think it would have the same excitement.

Thomas: Craig David is a good example. We couldn't do what he did two albums ago. Music is changing so much every six months that you have to be looking ahead or you'll just get lost. If you put out *Born To Do It* today it wouldn't sell. That's not what kids are into. You have to focus a little bit on where he came from so you don't lose his personality, but you also have to incorporate what's going on now.

What is the difference between producing an inexperienced newcomer like Ruben Studdard and a more established artist like Toni Braxton?

Thomas: We try to set the new artists apart from everybody else. With an established artist like Toni Braxton you've got to remember who she is and be careful to make sure she sounds the way people are used to hearing her. Ruben is brand new, so you can develop an exciting new sound that will make people remember him.

MAD SKILLS

You are both good musicians. What advantage does that give you as producers?

Thomas: That's important, but you also have to be able to write lyrics and come up with a concept. We challenge each other, whether it's playing, drum programming, or whatever. If it ain't hot, we have no problem telling each other that. ►

Is it also important to know how to engineer a recording?

Thomas: We've been involved with that since the beginning, and you should never get to the point where you're not involved with the engineering. A great kick and snare sound could be the one thing that makes the whole song come together, especially on a hip-hop record. You can't always depend on an engineer to come up with the sounds you want to hear. You have to come up with it and at least know where to start.

Mason: We've worked with our engineer Dave Russell [see sidebar] for almost a year, so he knows what we like. The sound is a big part of a track. When we're writing a song, we'll tweak the EQ while we're writing to make sure it sounds the way we hear it in our heads. That's an important part of our writing process. When it gets to the next level, which is the preparation of the mix, that's where our engineer is most valuable. A lot of songwriters aren't engineers, but almost from the beginning our songs are coming out of our speakers sounding close to how it will sound on the record.

Thomas: We can't just hand something we've created to some random engineer because they don't know what we're thinking. They don't know why the first or second or third kick sounds the way it does. They'll just mess with things and make it sound the way they think it should, and that's not always right for the song.

What's the key to getting good drum sounds?

Thomas: You have to develop an ear for drum sounds so you can choose the right ones. If you use the wrong kick and make it sound too big by EQing it to death, it's just going to be wrong. It might not go with the bass or the guitars. You have to know how the kick and snare are going to fit with all the other elements. Sometimes the kick and snare can sound hot on their own, but when you put everything else in there it doesn't sound so hot any more. It's important to get a good balance of everything.

Mason: The key is to have a lot of different sounds at your disposal. You need to try things and experiment. You can't get married to one kit and base everything around that on every song you record. We use a different kick and snare for every song. We won't just jam the same kick into every record because we like it.

Thomas: We never go back to the same kit. And we always play around with the sounds to make them sound like our own.

A DOG'S LIFE Underdogs' Engineer Dave Russell

"The first time I worked with Harvey and Damon I stayed up for six days straight," says Dave Russell, recalling his work with the Underdogs on Victoria Beckham's (a.k.a. Posh Spice) debut album. "When they built their studio, they asked me to come work with them in L.A. I guess they liked my work ethic."

Russell left his London home for the sunny weather of Los Angeles about a year ago and hasn't looked back since. But he hasn't had much time to work on his tan, as Mason and Thomas have constantly kept him busy working in the studio as their engineer. The duo relies on Russell to see their projects through from tracking to the final mix to ensure that the finished product sounds exactly the way they envisioned it. It's a big responsibility, but Russell's track record with the Underdogs has proven that he has the golden (and platinum) touch that the duo requires.

Here are some of Russell's thoughts about his favorite studio tools and techniques.

What do you like the most about the SSL C200 console?

I grew up using the SSL G-series and Neve boards, but now I prefer working with the C200 because the computer is so fast, easy to use, and can recall an entire project in less than eight seconds. We worked on the SSL MT for a while, but the C200's computer is faster and the bandwidth is a lot better — it's 96kHz. We work on multiple projects every day, so it would be impossible for us to have an analog board. It's too time-consuming to do recalls for each project.

I like to mix as I go along, and keep everything I do on the board until we mix it down. With the C200, I have the luxury of a 96-channel desk with a knob for every control, and every knob movement can be automated. If Damon and Harvey want to try something out on the board, I can do it very quickly. It saves me a lot of time during mixdown, because I can save everything we do while I'm working. With the SSL you can use the old-school approach of working with two people with both hands on the board at the same time. There's a knob per function, whereas the Euphonix boards we have in the other rooms are menu driven, which means that a single knob handles multiple functions. When you grab a knob on the SSL and turn it, something happens. I love that. The C200 also has a 9-pin jack for locking up with Pro Tools and Logic.

What is your approach for recording vocals?

Almost 70 percent of what I do is cut vocals. I try to stick to a sonically clean sound and start with a very good vocal chain. I use Sony C-800 convertible mics, Summit compressors, and Avalon mic preamps. I'm also a big fan of the Neve and Manley gear. I use a lot of that old, hi-fi tube stuff as well. In the mix I'll add in more tube stuff and maybe some reverb, like the TC Electronic M3000, which is fantastic. Then I'll try to polish it as much as I can.

Do you use any plug-ins in addition to the outboard processors?

I try not to go into a recording with tunnel vision. I'll A/B a lot of different compressors. Sometimes I'll use a Pro Tools plug-in and compare it with an outboard tube processor. I'm always comparing things as I go along. Whatever sounds a little bit better will stay in the mix. I like the Bomb Factory plug-ins a lot, and [Audio Ease] Altiverb is great. I just got the API plug-in, which I'm into because I love the API EQs. I can't wait to try it out. It really depends on what we're going for. Sometimes we want a dirty sound, so I won't rule out using anything. Everything has a useful sound. You just have to figure out where to use it.

We're tech heads so we're always getting the latest stuff. We're always searching the Internet for new things. We pay a lot of money for some of these toys because they're different and they bring something to the table. My outboard rack has a lot of stuff in it, but I use all of it. This is a great job because I always get to try different things.

What are your suggestions for getting big, punchy drum sounds that don't crowd a mix?

I'll use a lot of compression on drums to tighten them up. A lot of the drum sounds we've been using lately have been fairly trashy, so the sounds aren't always that big. We have a great room for recording live drums, which helps. You can't get a great live drum sound if you don't have a good-sounding room. Plus, we always have the best session players coming through here, like Teddy Campbell. When you have great players on a session, half of the work is already done for you. To make the drums sound dirty, we'll loop them and process them with all kinds of things like plug-ins. I don't always have time to experiment, so a lot of times I just have to follow my instincts.

Mason: We like to experiment with new things and weird stuff. With all the technology available today you can really get crazy. We use Logic to write our songs and do sequencing, and we use Pro Tools for audio recording and processing functions like EQ, sampling, resampling, and plug-ins. You can change a sound drastically with both of those.

Thomas: We'll take an element out of Logic, throw it into Pro Tools and cut it up, mess it up, and send it back into Logic.

Mason: We like to experiment with plug-ins. We'll use plug-ins in ways that you aren't supposed to use them — like putting

a de-esser on a snare — just to see what it sounds like. It doesn't always sound right, but sometimes it works. We might do so many things to a sound so nobody will be able to copy it. That's the beautiful thing about making music these days. There are so many ways to come up with your own sounds. [CMT] Bitcrusher is one of our favorite plug-ins, but we'll try everything.

OLD DOGS, NEW TRICKS

Why did you choose the SSL C200 for your main room console?

Mason: We chose everything in the studio for ease of use and sound quality. We

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work really quickly, and we always have a lot of different projects going on at once. We have matching Logic and Pro Tools rigs in every room. As soon as I go to work on one of Damon's songs, he's already starting to work on another one. I might be working on a song and he'll be recording an artist in another room. We need to be able to transfer things back and forth easily.

Thomas: The SSL C200 has the best recall of any console. We used to have an SSL J-series, and it would take hours to recall a mix. You have to really get into the console to understand it, but once you do it really works. With everything being digital today, it doesn't really make sense to have an analog console. It's not necessary. There's not a record on the radio today that hasn't seen Pro Tools at some point. The kids buying the records can't tell if something was recorded to tape. They hear a hit, and that's the bottom line. When they hear Outkast singing "shake it like a Polaroid picture" they don't care that it was analog or not. I've had Pro Tools since 1996 back when everybody was still using tape. Harvey has had it since 1990 when it was Sound Designer. We're doing everything on computers. Now even using

a keyboard and a drum machine is a thing of the past.

Vocals are the one thing that still exists in the analog domain. What is your approach for recording vocals?

Mason: We'll start with certain mics to get a feel for the sound and then we'll make adjustments. Our usual chain is a Sony C-800 microphone, an Avalon mic preamp, and a Summit compressor. We start with that and see how it fits in the track. We keep the vocals dry when we're tracking, although we may make some EQ adjustments. It varies depending on the vocalist. Some vocalists have a rumble in their voice so you have to take that out.

How do you get vocalists to deliver their best performances in the studio?

Thomas: Everybody is different.

Mason: That's the hardest thing, but it's also the most important. If the writing is good and the track sounds great but the singer doesn't pull it off, then it's all a waste. Sometimes you have to say nice things to a singer to encourage them, but some people perform better when you get them upset. It's the producer's job to figure out their personality and determine what's going to work.

Thomas: Sometimes it's really simple, like making sure you've got the right snacks there when they get in.

Mason: It's always about getting the performance. There's a lot of psychology involved. A lot of producers will just go for it. We prefer to *really* work with singers, and we don't just jump into the studio with them. Some singers like to punch in everything, but others just like to sing. Some people will sit there and shoot the shit with you for two hours before they even begin singing. You've got to sit there with them and watch some TV, hang with them, and talk to them, even though you might want to go right to work. But once they're ready, they'll go in and knock it out. You've also got to be able to know when something sounds right for a song, even though it may not be technically perfect. Sometimes the singer may want to do something over, but if it feels good and sounds right you should leave it alone.

Do you have to educate newer artists how to work?

Mason: It depends. We had this 12-year-old girl come in the studio, and it seemed like she had been in the studio her whole life. Usually with new people you have to spend a little more attention



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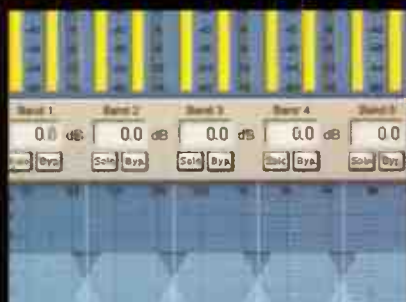
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THE UNDERDOGS

to them and teach them how to work with a microphone in the studio or how to control their voice.

You use a lot of synths in your productions. Are you using a lot of soft synths?

Mason: We have a couple of Roland modules like the JV-5080, but we only use them for a few things.

Thomas: Most of our hardware has one or two sounds that we can't live without. Everything else is soft synths.

Mason: We have almost every virtual instrument, and we'll go through them all looking for sounds. We really like the Emagic EXS sampler, EVP-88, and Spectrasonics' Trilogy and Stylus.

Thomas: Everything from the roots to the toots.

Mason: All of our drum sounds are on EXS. Sometimes we'll bring drummers into the studio to play whole songs because we want that feel. But other times we'll put things in Pro Tools and chop it up and manipulate it. It doesn't matter whether it's a drummer, bass player, or guitar player. We fiddle around with everything to make it sound the way we want.

JUST THE DOG IN ME

It seems like the Underdogs sound is always changing.

Thomas: We don't try to lock ourselves down to one sound. What we're doing today is going to sound different from what we're doing tomorrow, and it won't sound like what we've done before. We're always trying to grow.

What are your goals as producers?

Thomas: We're trying to make R&B music that kids can relate to. Kids want hip-hop today, so you can't totally dismiss it. We love hip-hop and we love R&B. But kids don't get much musical training these days, especially in school. We wonder where all the new musicians are going to come from. We get to work with great studio musicians like Nathan East and Michael Thompson, but there's no one coming up behind them to take their place. We're trying to educate a new generation and give them something to aspire to. Everything is influenced by hip-hop these days, whether it's R&B or rock. Hip-hop is here to stay, and you've got to understand that as well as know how to adapt that to the music you're making.

Mason: We really want to develop artists and help them develop creatively

throughout their careers. We want our label to be known as a label that puts out great music, great records, and great songs by great artists. It's not about trying to catch one hit with one artist and then move on to the next thing. We're trying to write music that will last and will still be remembered 10 or 20 years from now.

Thomas: We look back at people like Jimmy Jam and Terry Lewis. They came along when the Linn Drum was the sound of hip-hop. Real musicians hated that. But Jam and Lewis combined live music and drum machines and came up with *Rhythm Nation*, which still sounds incredible today. We're trying to do a similar thing by incorporating hip-hop with R&B and using computers to help us make exciting new music. A lot more kids are making tracks these days, and, thanks to computers, they sound pretty good. But they need to know how to write a song, which is more than just laying down a bunch of sounds and beats. They need to learn to play some instruments and how to sing.

Mason: You might have a great idea, but you have to know how to turn that idea into a complete song. **EQ**



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The Art of Recording: The Rodney Dangerfields of Equalization

Okay, you all know about that parametric thang — boost/cut, change frequency, select a wider or narrower bandwidth. But your EQ probably has a bunch of other response options, and a lot of people don't give 'em any respect. I mean, when was the last time you cuddled up to a highpass filter and let it know you cared? Or ran a comb filter through your frequencies? Not lately, I'd wager. Well, we'll fix that now by checking out some of the many uses of other filter responses.

THE NOTCH FILTER

If your EQ has a dedicated notch filter, then the notch is likely both steeper and narrower than what you can obtain by just setting a parametric to minimum bandwidth and maximum cut.

Probably the best-known notch filter application is placing a deep notch at 60Hz (50Hz for Europe) to cut hum. However, another common form of interference is a CRT monitor's horizontal oscillator signal, which generates 30 kilovolt pulses at 15,734kHz (NTSC) or 15,625kHz (PAL). If you record in the control room, that signal may be getting into everything from mics to guitar pickups (if your ears don't go up that high, use a spectrum analyzer or equivalent plug-in to check your audio for spikes in that range). Dial in the frequency on a notch filter, and cut it.

Also, some signal processors and instruments have significant high-frequency energy peaks that seem to relate to the clock frequency. Again, some quality time with a spectrum analyzer can reveal these sorts of problems. Notch them out for a cleaner sound.

SHELVING FILTERS

The low shelf is one of the preferred methods for adding "bottom" when boosted, and removing "mud" when cut. Similarly, the high shelf can add "sparkle" when boosting, and reduce "shrillness" when cut. The shelving filter's distinguishing characteristic is that after reaching the maximum amount of boost or cut, that amount remains constant. For example, if you use a high shelf to boost a signal by 3dB starting at 1kHz, and it reaches the full boost of 3dB

around 2kHz, the boost will remain at 3dB up to the filter's high frequency response limit.

Using a combination of shelving and parametric can solve numerous problems. Suppose you have a drum loop with too much kick drum, but not enough low end in general. Use a low shelf to bring up the low end, then use a parametric to "punch" a dip just in the vicinity of the bass drum. Or what if there's CRT monitor leakage in a dull-sounding signal? If you increase the treble, you'll also bring up the monitor leakage. So combine a high frequency shelf with a notch, and apply the notch to the leakage frequency only.



MOTU's ParaEQ 2-band is adding both a high shelf and a notch stage.

Shelving filters work with individual tracks, but because of their gentle and relatively benign effect, they can be applied to program material as well.

THE HIGHPASS FILTER

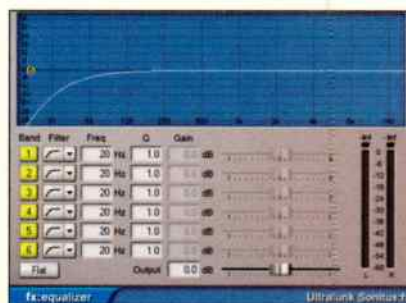
The difference between a highpass filter (which as the name suggests, passes high frequencies) and a shelf set to cut low frequencies is with the filter, the response continues to attenuate with frequency, at a rate specified in dB/octave.

by Craig Anderton

For example, with a 12dB/octave response, for each octave you go below the cutoff frequency, the response will be down roughly another 12dB compared to the previous octave.

The highpass filter is a fine way to get rid of subsonics, low frequency mud, room rumble, and excessive plosive sounds from vocals. One pole of rolloff (6dB per octave) isn't really enough; if possible, dial in a sharper cutoff to solve these types of problems.

Also note that with multiband EQs, you may be able to set each band to a response other than the traditional parametric. If you have to deal with subsonics, you can "gang" multiple highpass filters in series for a sharper overall cutoff.



Six of the Sonitus:fx EQ's highpass filters have been ganged in series to produce a steep subsonics filter. Response is down 1dB at 125Hz, 6dB at 60Hz, and around 40dB at 20Hz.

Highpass filters are rarely used to control a signal's tone; they exist mostly to solve problems. If you want to control the low end in a general way, shelving is usually the better option.

THE LOWPASS FILTER

The traditional use of lowpass filtering is to attenuate hiss. Few signals have significant amounts of energy above 10kHz, so if necessary you can usually remove the very highest frequencies without degrading a signal's integrity. ►

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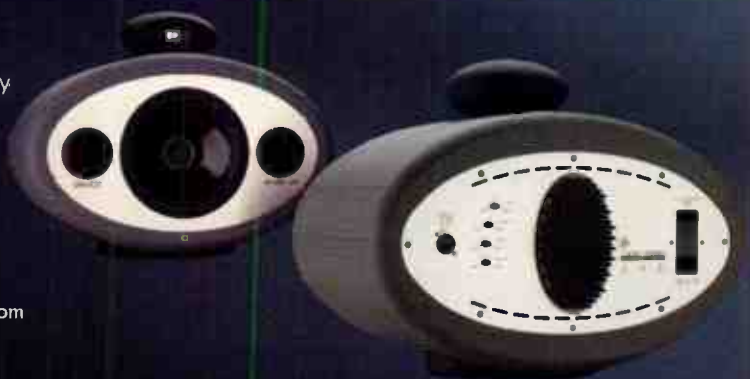
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The Art of Recording:

The Rodney Dangerfields of Equalization

But there are other uses. Removing high frequencies can help put a signal further back in the mix without resorting to a change in volume, and a lowpass filter can also take away some of the “brightness” of digital signals if they clash with primarily analog tracks.

Lowpass filters are seldom, if ever, used with program material (well, unless you’re restoring old radio broadcasts!) because even a slight amount of high-frequency reduction can create a “muffled” sound. This isn’t as noticeable on individual tracks.

THE COMB FILTER

I love the scene in *Amadeus* where Mozart is told there are “too many notes” in one of his works. When he asks which ones to take out, he’s basically told to, well, just take out some notes.

Sometimes I feel that way about frequencies, especially with sounds that are demanding more attention than they should. Conventional EQ may fix the problem, but an easy way to “dilute” a sound without altering its fundamental character is to apply comb filtering.

The comb filter gets its name because its frequency response curve looks like a comb — instead of being a straight line, it has a huge number of dips and peaks. Just as you can thin out MIDI controller streams by removing pieces of data, you can thin out audio by inserting lots of narrow notches in portions of the frequency spectrum.

This doesn’t work with everything, though. It’s best for overbearing pads, non-pitched sound sources, and instruments designed to sit in the back, like rhythm guitar. Otherwise, if the notches fall at, say, the resonant frequency of a tom, the sound may get *too* thin. Also be aware that comb filtering adds a subtle sense of pitch to the sound. However, you can adjust this to some degree, depending on your delay line’s resolution.



Sonic Foundry’s Simple Delay has been pressed into service as a comb filter.

Your Studio’s Mechanical Filters

Not all filters live in consoles or plug-ins. Mics often include highpass filters (also called rolloff switches) that help remove low frequencies prior to hitting the preamp/mixer. They can help reduce popping from plosives, although they don’t really substitute for something like a pop filter. Singing off-axis from the mic can also reduce low frequencies.

Then there’s the proximity effect with non-omnidirectional mics, where singing closer boosts the bass — not unlike shelving EQ. This adds depth without any of the issues involved with adding EQ.

Instruments themselves sometimes include filters, the primary examples being the tone controls on guitars and basses; changing pickups produces filtering effects as well. Guitar amp cabinets are complex lowpass filters, and whether they’re open-back or closed-back affects the tonality as well.

Just as you
can thin out
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frequency
spectrum.

It’s unlikely that your host’s EQ offers a comb response, so you’ll probably have to construct one yourself. It’s not difficult:

1. Insert a simple delay plug-in — the simpler the better. Make sure that it can do short delays (1–20ms). A flanger or chorus may work if it’s not a multi-voice type and you can turn off the modulation.
2. Set the dry out and delay out to the same level (if there’s a blend or mix control, set it to 50%).
3. Adjust the delay time in the 100µs to

20ms range until you hear the desired amount of “thinness.” Times under 10ms have a profound effect on the sound; longer delays get into the echo range.

4. If the sound is too pitched or “phasey,” reduce the delay level slightly. This reduces the depth of the notches.

THE VIRTUES OF AUTOMATION

These days most EQ plug-ins, as well as EQs integrated into a host, are automatable. This greatly extends the usefulness of “alternative” EQ responses; for example, you can cause the lowpass to sweep down for just a fraction of a second to eliminate an annoying high-frequency transient or reduce an overly friendly hi-hat, then return immediately to full frequency response. Or, if there’s a signal with some hiss, bring the lowpass frequency down in quiet sections, then sneak it back up again when no one will notice. Or in the example of setting up a comb filter effect, you could change the ratio of straight to delayed sound to adjust the sound’s “thinness.”

As long as you’re adjusting filter boost/cut, you probably won’t hear any “stairstepping” due to quantization of the parameter into multiple steps. You may or may not hear any when changing the frequency.

All of this comes down to one thing: Be creative with EQ. In the days of physical consoles, EQ tended to be set-and-forget devices because there just weren’t enough arms to run them and also ride the faders. But today, we have no such limitations . . . which means more options for the creative recordist. **EQ**

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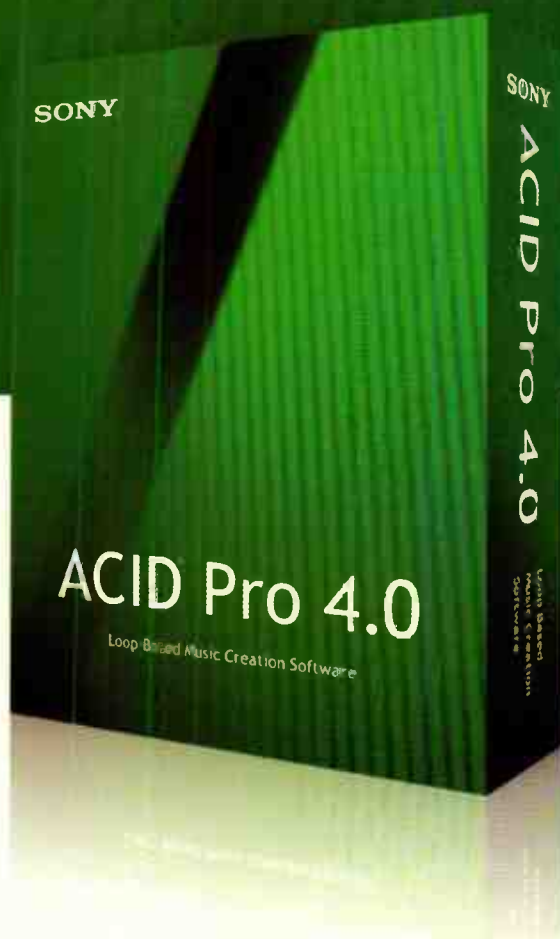
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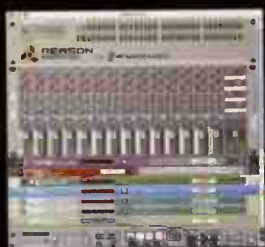
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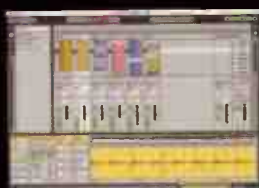
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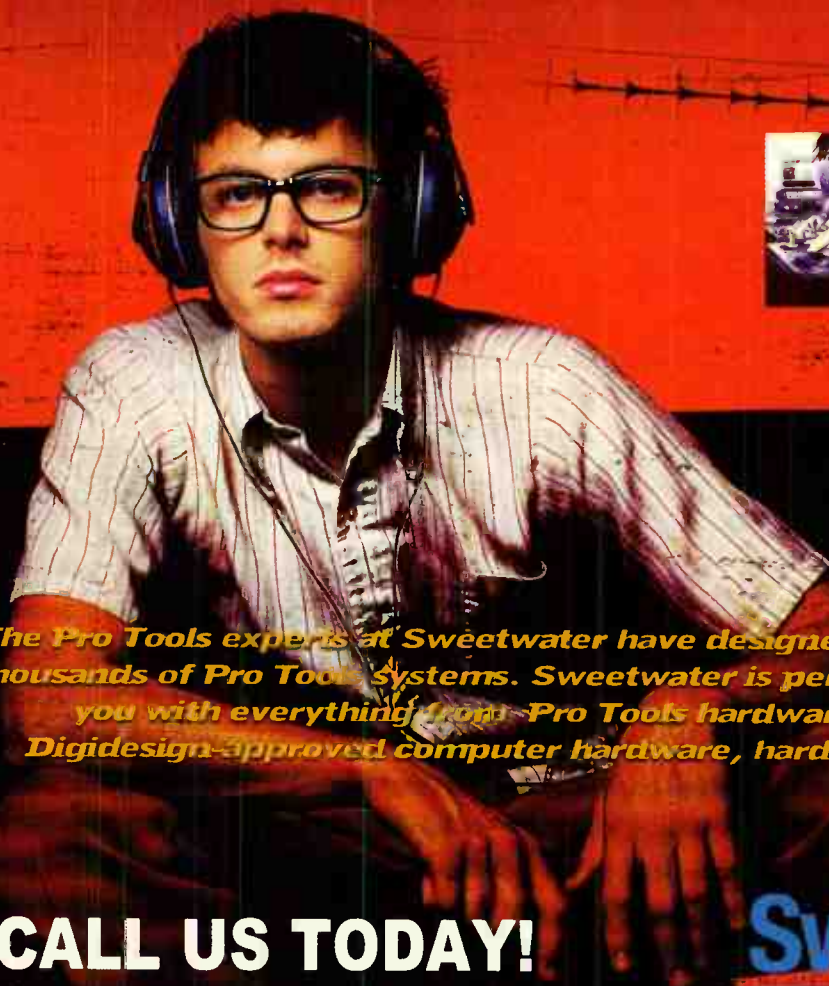
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by Craig Anderton

Cakewalk Sonar Producer Edition 3.0

Lovely look, potent plugs, efficient engine, better buses



Type: Hard disk recording, MIDI sequencing, and looping software
Platform: Windows 2000, XP
Price: Sonar Producer Edition \$719, Sonar Studio Edition \$479
Contact: www.cakewalk.com

Minimum system requirements:

Windows 2000/XP, 800MHz processor, 128MB RAM, 100MB hard drive space

Copy protection: Serial number during installation

Version reviewed: 3.0

Internal resolution: 32-bit floating-point

Sample rates supported: 11.025, 22.05, 44.1, 48, 96kHz

Driver support: MME, WDM/KS, ASIO

ReWire modes: Host only

Audio plug-in support: DX, VST, DXi, VSTi

File formats supported: imports WAV, "acidized" (RIFF) WAV, Broadcast WAV, SND, AIFF, ASF, AU, AVI, MPEG, MP2, MP3, OMF, Windows Media, MIDI; exports WAV, "acidized" WAV, Broadcast WAV, AVI, MP3 (limited time trial, \$29 to unlock), OMF, Windows Media 9, Real Audio G2, MIDI, Project5 patterns

Sync: Internal (computer motherboard clock), audio (sound card clock), MIDI clock with song pointer, SMPTE/MIDI Time Code (if supported by interface hardware); sends MIDI clock/MTC

Included DXi devices: Cyclone DXi, DreamStation 2.0 DXi, Edirol VSC DXi, VSampler 3.0 DXi, ReValver SE, LiveSynth Pro trial

VSampler file support: Akai S1000/3000 CD and S5000/6000 .AKP, SoundFonts .SF2, HALion .FXB and .FXP, GigaSampler .GIG, Downloadable Sounds .DLS, LM4 drum kits, WAV, AIFF

THE INSPECTOR, WHICH CAN BE HIDDEN, IS ON THE LEFT. TO ITS RIGHT IS THE TRACK PANE, WHICH CAN DISPLAY A LOT OF TRACKS IN A COMPACT PRESENTATION. FURTHER RIGHT IS THE CLIPS PANE, WHICH SHOWS THE ACTUAL AUDIO AND MIDI DATA. AT THE RIGHT IS THE NEW CONSOLE VIEW. NOTE THE INTEGRATED 4-BAND EQUALIZATION.

Sonar has gained significant momentum since its introduction, placing Cakewalk's flagship product squarely in the pro arena. Part of its success is due to a continuing, aggressive upgrade policy, and Sonar 3 is indeed a major upgrade.

The Sonar/Sonar XL differentiation is history, with Sonar now available in two versions: Sonar Studio and Sonar Producer. Producer includes the Sonitus:fx suite of plug-ins, integrated EQ in the console view, SpeedSoft's VSampler3 with two CDs of content, four assignable per-channel FX controls in the console view and Inspector, and the full

version of Lexicon's Pantheon reverb (Studio has a lite version). Otherwise, they're the same.

Installation is a snap: Insert CD, run installer, enter serial number, done.

THE AUDIO ENGINE

Many of Sonar's changes stem from a rewritten audio engine. This permits a revamped bus structure, and also "gapless" editing (well, not completely; but any interruptions due to editing, inserting plug-ins, creating buses, etc. are either minimal or non-existent). Buses are now objects that aren't defined at the beginning of a session, but can be added, deleted, or reassigned at any

time. There is no distinction between bus types (aux, master, cue, and the like) except for the names you give them. Furthermore, buses do not need to terminate in a hardware output; they can be freely assigned to other buses, and so on.

Sends are also objects (you can create, delete, and reassign). This is a dramatic clutter-reducer; you need see only the sends that you actually use in a project.

While the new bus structure is flexible, the one big disappointment is that Sonar 3 does not support surround — which is all the more unexpected



because the new bus structure seems like an ideal foundation for multi-channel audio.

THE CONSOLE VIEW

I disliked the original console view, and never used it. But I *really* like the new one, with separate panels for tracks, buses, and audio interface outs. It not only looks great — like the rest of the program, the motif is muted, “Euro-style” shades of grays and blues — but is highly configurable. You can show/hide meters, inputs, outputs, effects, mute/solo/record/phase/stereo-mono/track echo buttons, faders, and EQ frequency response thumbnails. EQ has a 3-position toggle: hidden, show one EQ stage, show four stages. Sends work similarly — hidden, two stages, four stages. If you have more than four sends, scroll within the space allotted

for sends. Channels can be either narrow or wide, on a per-channel basis.

Configurations are saved with projects, but can’t be saved independently as presets.

The integrated EQ is based on the Sonitus:fx 6-stage Equalizer plug-in (more on this suite later); while only four stages are visible in the mixer, you can “open up” the interface and work with all six stages if desired. Also significant: When you select a plug-in (audio processor or instrument), four assignable sliders appear that can control your choice of the effect’s automatable parameters. This means you don’t have to open a plug-in’s GUI to adjust it, and you can do any MIDI control assignments (for external controllers) directly from the Console view, as well as arm the parameters for automation.

Sonar 3 adds a Cubase-like Inspector strip to the left of the Track and Bus panes. This is basically a channel strip that shows the currently selected channel (or can lock to a channel), with show/hide capabilities similar to the main mixer channels.

These enhancements improve Sonar’s already smooth workflow. You can now shrink Track view down to just tracks and meters, because if you need a detailed view, use the Inspector. Those with dual-monitor setups can use one for the Console, and the other for editing audio. Rather than finding a single workflow and sticking with it, I seem to use different elements and processes for different stages of the recording process.

PLUG-O-RAMA

The Sonar 3 distribution CD includes all the plug-ins used in previous versions of Sonar, but defaults to installing only the new ones. If you’ve been a Sonarian for a while, make sure you install the old plugs too for backward compatibility.

The centerpiece is the Sonitus:fx suite of automatable plug-ins, made by Ultrafunk. Over the years they’ve acquired an underground reputation for their sound quality, CPU efficiency, and inviting interface. Cakewalk’s acquisition has revived the line, and added considerable value to the Sonar package.

There are ten plugs total: Compressor, Delay, Equalizer, Gate, Modulator, Multiband (compressor), Phase, Reverb, Surround, and Wahwah. Common features include one level of undo, two setups you can switch between (very useful for setting up two variations and deciding which you prefer), a preset manager (with a number of

factory presets), bypass, clean interface, and very useful online help.

The Equalizer’s six bands can choose from highpass, lowpass, parametric, high-shelf, and low-shelf responses, with the usual frequency, Q, and gain controls. I like the sound, which is full, with no trace of “brittleness.”

Another of my favorites is the 5-band Multiband compressor. A Vintage/Normal option changes the compression curve so that in Vintage mode, the compression ratio gradually diminishes above the threshold, eventually reverting to 1:1. The result is that the loudest parts of the signal are uncompressed (a characteristic of some opto-electronic compression curves), giving more “punch” than “squash.” There’s also a limiter toggle (either apply limiting to compressed signals, or don’t use compression and just limiting) and an auto-release function.

The Compressor plug-in is basically a single band of the Multiband.

The Reverb is overshadowed by the inclusion of Lexicon’s Pantheon, but it’s a solid single-algorithm plug with superior pre- and post-reverb filtering (low-cut, high-cut, and crossover with bass boost/cut). Don’t ignore it just because the Pantheon is cool.

Delay is a dual delay with sync to host tempo and “crossfeed” controls for each delay (where you can feed a delay into the other). Parameters can be linked or unlinked if you want to adjust both channels simultaneously; there are both high- and low-cut filters in the feedback loop.

The Gate is like other gates, with the main difference being an option to restrict the input signal’s



THE VSAMPLER3 VIRTUAL SAMPLER (BACKGROUND) AND LEXICON'S PANTHEON REVERB, ALONG WITH THE SONITUS:FX SUITE OF AUDIO PROCESSORS, ARE POWERFUL PLUG-IN ADDITIONS TO SONAR 3.

Cakewalk Sonar Producer Edition 3.0

frequency response before it hits the trigger. Thus, you could open the gate based on a signal in a particular frequency range, like kick drum. There's also a lookahead feature.

Modulator has a flanger mode, ensemble mode with three non-synced modulated delays, string phaser (phase shifter and chorus), 6-stage phaser, 12-stage phaser, and tremolo. The LFO is multi-waveform (with adjustable phase between the two channels), and there are high- and low-cut filters to adjust the range of frequencies to be processed.

The virtual Wahwah offers manual, triggered, or LFO control. You can set the filter's high and low limits independently, but can't sync the tempo to the host.

Surround is a surround panner, but don't get your hopes up — it creates a stereo signal with encoded surround and center channel information, which requires an outboard decoder to be of any real use. Having no suitable decoder, I couldn't test it.

Phase is a phase delay device that's useful for adjusting phase differences between channels of a stereo signal. But I found it was great for creating widening effects that, with proper adjustment, didn't cancel in mono. Check out some of the phase encode modes for widening.

That's it for the Sonitus:fx, but there's also the Lexicon Pantheon. Be forewarned that while many of the factory presets work right out of the box, you will need to tweak parameters for some types of program material (particularly percussive sounds, which want increased diffusion).

There are six algorithms, 16 adjustable parameters, and 35 presets. Two sets of controls are of particular interest: Density provides an adjustable delay with variable positive or negative feedback, and an Echo section offers variable delay time and level for each channel. Between these two echo generators, it's possible to create complex predelay effects, "fill in" the holes in a preset with low diffusion, and generally sweeten the sound. Although I was initially not that impressed, it didn't take long to start getting the sounds I wanted with most material.

Finally, there's SpectraFX, a variation on the FX Pad introduced in Plasma. You choose from a preset list of 39 dual effects; a virtual X-Y controller adjusts two parameters from within these effects, based on manual control, external control, autosweep, or host sync for a settable number of beats and measures. It's not

something you'd use every day, but there are some fun sounds lurking within for beat-oriented music.

VSAMPLER3

The soft synth roster remains unchanged (Edirol VSC, Dreamstation DXi, ReValver SE, the outstanding Cyclone, and a trial version of LiveSynth Pro SE) except for the addition of VSampler3 — which is in fact quite an addition. I had used earlier versions of VSampler, and was, to put it mildly, underwhelmed by both the confusing interface and lack of stability. But this latest version is leagues ahead. In fact, it might be even further ahead than I think, but there's no manual yet, and the online help has no flow — you have to just keep hitting F1 and clicking on pictures until things fall into place. Still, despite the somewhat cluttered interface spread over seven main pages, I've been able to figure out most of the functionality.

File support is comprehensive; I was able to import Akai, HALion, SoundFont, and Giga files consistently and reliably. However, VSampler3 does not stream files from disk (supposedly, this will be available as a paid upgrade in the future), so with Gigasampler files it may need to swap contents from hard disk to RAM as needed.

Sample editing is also very complete, with excellent zone editing, sample editing with beat slicing (!), auto crossfade, up to two filters per zone, ten built-in effects and the ability to accept VST plugs, four LFOs . . . there's even a 16-step pattern sequencer and mixer for the 16 multitimbral parts. This is a serious sampler.

OTHER GOODIES

File under "finally": Sonar now transmits MTC and MIDI clock over multiple ports, and draws the audio waveform (as well as MIDI clips and automation) while recording. It can also just draw a red band over the area being recorded if you want to save some CPU cycles. Sonar has spruced up the MIDI input, too, as ports aren't merged; you can even set up presets for recording particular combinations of channels over particular ports.

Furthermore, Sonar imports Project5 patterns, but more importantly, MIDI clips can now be treated as loopable "groove" clips, which can be "rolled out" to repeat.

And rounding out the main features, each track (MIDI and audio) now has its own input echo button. ►



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Cakewalk Sonar Producer Edition 3.0

THE WISH LIST

Aside from surround, Sonar is also short on video-friendly features, such as being able to anchor audio events to SMPTE times or having a "thumbnail" track. However, Sonar's ability to import audio into a rock-solid video window remains.

And while Sonar had a freeze function back in 1.0, it's not the simple, one-button type of process you find in Cubase's synth freeze or Logic. REX file support is still absent, too.

Finally, I'd like to see Sonar bring some of its excellent, and underrated, CAL effects into a proper menu for greater ease of use, or at least converted into MIDI effects. Cakewalk was way ahead of the curve on this, and now that the world is ready, the company seems to have moved on. Hopefully they'll revisit MIDI editing in a future rev.

THREEPEAT

Sonar 1 got people's attention and turbo-charged Cakewalk's direction. Sonar 2 showed that the company valued, among other things, compatibility with the outside world (e.g., ASIO, OMF, control surfaces). Sonar 3 leaves intact the nearly effortless workflow that has been Sonar's trademark, while making it easy on the eyes as well as the brain. When you add in the other enhancements — especially those related to the audio engine — the net result is an update that rewards loyal Sonar users, while presenting an increasingly attractive recording option to anyone in the Windows environment.

Probably the best thing I can say about Sonar is that I always look forward to booting it up, because I know I'll be getting ideas down within minutes, if not seconds. To me, that's worth a lot. **EQ**

Strengths:

- Configurable console view with integrated EQ
- New audio engine and bus structure
- Inspector improves workflow
- Sonitus:fx, VSampler3 plug-ins are excellent
- Confidence recording
- Improved handling of MIDI inputs
- Includes VST-DX Adapter
- Loopable MIDI clip

Limitations:

- No surround support
- Can't save mixer presets independently of a project
- Can no longer create Studio Panel files within Sonar
- Awkward freeze function unchanged since v1.0
- No REX file support

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- Focusrite 24-bit/96 kHz A-D Card

SRP: \$1985 - SPECIAL BUNDLE PRICE: \$1299



Combo NUMBER 2 TWINTRAK PRO PAK

An equally delectable dish for the digital DAW-user who desires to get rid of a traditional mixing desk and gain improved tracks with latency-free monitoring. We've doubled the feature-set for tantalizing sonic results.

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- Bluebird Mic w/BirdNest & BirdCage (Pop/Shock) & Blueberry Cable

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Combo NUMBER 3 TRAKMASTER PAK

Our most value-oriented dish with mouth-watering features and a great price to match. Don't let the low price fool you, this flavorful combo packs a lot on its plate!

- Focusrite TrakMaster Channel Strip featuring Class A Mic Pre and Instrument Level Input, Voice/Instrument EQ, Opto-compressor, available 24-bit/96 kHz A-D (additional cost)
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World Radio History



by John Krogh

For truly bizarre and beautiful sounds, Absynth is hard to beat.

Native Instruments Absynth

One of the coolest synths now does sampling!

Type: Software synthesizer

Platform: Mac OS 9/X,
WinXP/2000/ME/98

Price: \$299, \$69 upgrade

Contact: www.nativeinstruments.com

Sample support: AIFF, WAV

Sample rate support: up to 96kHz

Demo period: 30 days

Minimum system requirements:

Pentium/Celeron/Athlon/Duron or
PowerMac G3 500MHz processor,
256MB RAM, 50MB free HD space,
compatible sound card

Plug-in formats: VST, DXi

**Interface formats (stand-alone
mode):** ASIO, DirectSound, MME,
SoundManager, CoreAudio



**MOST (BUT NOT ALL) OF
ABSYNTH'S PROGRAMMING WIN-
DOWS FIT NICELY ONSCREEN.
NOTE THE SAMPLE JUMP ENVE-
LOPE WITHIN THE ENVELOPE WIN-
DOW (LOWER RIGHT).**

With Absynth version 2, NI has improved upon a truly remarkable thing, taking it to another plane where few software instruments can compete. The big news with V2 is that samples can be used as oscillator waveforms, which on the outside might not seem worthy of more than a yawn. Okay, so it can play samples and do modeled synthesis. So what, right? But the way in which samples can be played and processed is downright inspiring. Manipulating samples with Absynth can result in all manner of effects, soundscapes, and broken beats that would be nearly impossible to create with any other studio tool, hard or soft, with the exception of NI's own Reaktor.

So how does Absynth fit into the day-to-day studio gig? Say you want to transform static background vocals into a shimmering pad that seems to have the vowel and consonant characteristics of the lead vocal, but never quite sounds like words. If that's too extreme, and time is running out on a

deadline, maybe all you need is an obligatory percolating synth pad to sit in the back of the mix. Absynth can supply all this and much, much more.

OVERVIEW

The synth engine is a hybrid design incorporating elements from subtractive, FM, and granular synthesis — don't worry if all this sounds scary, it's really not.

Let's break it down: A patch consists of up to three oscillators, each with their own multimode filter and ring modulator. The output from all three can be fed into a waveshaper, which provides a variety of distortion-like effects, ranging from subtle overdrive to hardcore speaker-shredding filth. After this is another filter, which is helpful for taming any sharp edges created by the waveshaper. Last in the signal chain is an effect module, which offers a choice of multitap delay, comb filter, and a physical modeling algorithm called "pipe." In the factory presets, pipe is commonly used for reverb and panning effects. Each segment in the chain can be bypassed, so if you're looking for straight-up raw oscillators, it's no problem.

Three LFOs are available, each of which can be applied to any and all oscillators as well as a number of other parameters. LFO waveform choices are many — you can even draw your own. What's more, the waveforms' phase can be adjusted. There are five hardwired mod destinations: pitch, amp, FM index/balance,

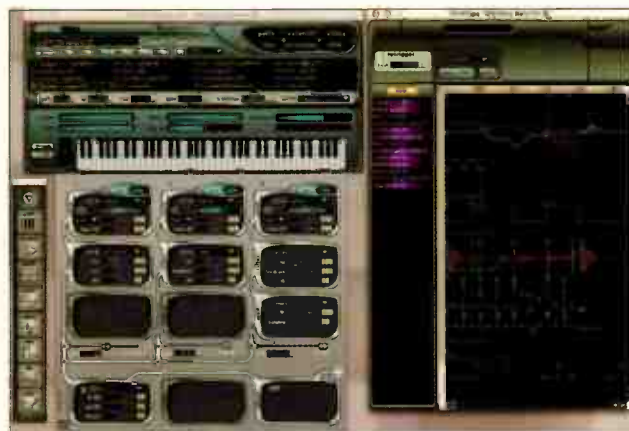
filter cutoff, and effect time. If you want to affect other parameters, you'll need to turn to the envelope section, which is nothing like what you'd expect to find in an analog synth.

Envelopes can have up to 68 stages. Let that sink in. Most synthesizers have 4-stage envelopes (ADSR), or some variation on this theme with perhaps an extra few stages. With so many stages, it's possible to produce arpeggios, rhythm patterns, wavesequence-like sounds, and so on, despite the fact the Absynth doesn't have a step sequencer or any of the other programming facilities commonly associated with these popular "synthsims."

NEW IN V2

Sampling. Two playback modes are possible with a sample-based oscillator. With Sample mode, an audio file can be assigned a keynote and played from the keyboard in predictable ways: Play a key in the upper register, the sound plays back faster. Play in the low register, audio is slower. Or you can assign the sample to play at a specific frequency (no change in playback speed across the keyboard).

With Granular mode, a sound is divided into many small "grains," each of which plays a tiny fraction of the sound. Essentially, this means time and pitch can be separated. The time of the sample is a constant, while the pitch of the sample is determined by the note you play on the keyboard. You're given control over several



parameters, which make it possible to "scrub" through a sound.

Envelopes. The already sophisticated envelope section has been enhanced. With the new Control Driven mode, you can use a single MIDI controller to move through an envelope. Instead of changing a parameter over a set period of time, which is determined by envelope duration, a continuous controller can be used to move from one breakpoint to the next as fast or as slow as you operate the controller. One application for this is to create a "lookup table," where you can morph between 68 different sounds with, say, mod wheel. Fun stuff.

A new envelope type, Sample Jump, has been added specifically for use with sample oscillators. With a Sample Jump envelope, regions within a sample can be retrigged, rearranged, and synced to tempo, and the trigger (playback) position can be different for each breakpoint. It's a clever way to revive otherwise well worn loops.

Patches. The factory soundset has been beefed up to over 800 patches. Some of these first appeared in add-on patch collections, others are all-new. In addition, patches have been organized into sensible categories such as Drums, Evolving Atmospheres, Ethnic/Ambient/FX, and so on. In some cases the same patch may appear in several categories, but I didn't find much duplication across the 13 banks of presets.

IN USE

I ran Absynth as a plug-in and as a stand-alone app on Mac OS X and WinXP with varying results. On both platforms, plug-in operation seemed to crash more than stand-alone, but that's not to say it crashed a lot — we're talking about two or three times a day during continued use and abuse. Most of the problems I experienced seemed to be related to the new sampling features. Under OS X I had continued pops and clicks, even with the 2.0.4 update.

As I was programming, it was tempting to use the envelopes to control every aspect of a sound, but that wasn't always practical. For this reason, I learned to exploit the LFOs for the "bread and butter" rhythmic programming tasks like sample-and-hold filter mod, and so on.

When I auditioned the included factory sounds I discovered there weren't many presets for the various sections (envelopes, oscillators, effects, etc.). There were only eight effects presets, for example, and only three envelope presets, none of which approached the kind of rhythmic or arpeggiator-like shapes common to many of the presets. As complex as Absynth can be, I'm surprised more "building blocks" aren't included to help make patch creation easier. (NI is planning to make a number of presets freely available from their website.)

On the plus side, hours of fine-tuning the perfect envelope shape to produce an undulating pad don't have to be repeated — envelopes, like effects and oscillator settings, can be saved and loaded into other patches.

I was a bit frustrated with the Sample Jump envelopes for several reasons: There's no search for zero-crossing for breakpoints, no way to extract tempo data from an audio file, and the grid lines in the envelope editor aren't labeled in bars and beats, which would make it more intuitive for programming envelopes that "work" perfectly when synced to tempo. These are arguably power-user wish list items, and as it is, there's very little you can't do now with the envelope editor, so any future features would be icing on the cake.

CONCLUSIONS

Version 2 brings more sonic sculpting possibilities to Absynth's already formidable palette of tools. There seem to be a few rough edges regarding stability, specifically under OS X. But don't let this put you off V2.

The prospect of bringing samples onboard significantly outweigh any short-term bugginess, and if you're already an Absynth disciple, it should be a no-brainer: This is a must-have upgrade. **ED**

Strengths:

- Complex, semi-modular synthesis capabilities
- Runs as plug-in or stand-alone app
- Integrated sample-playback and synthesis
- Sophisticated envelope modulation

Limitations:

- Third-party multisamples (Akai, E-mu, etc.) not supported
- Thin selection of presets for envelopes and effects

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by Mitch Gallagher

TASCAM FW-1884

Welcome your DAW to the real world



Type: Control surface/FireWire audio interface/MIDI interface/digital mixer

Price: \$1,599; 8-channel FE-8 expander, \$1,249

Contact: TASCAM, www.tascam.com

Channel controls: mic preamp trim; assignable rotary encoder; channel select, solo, and mute switches; 100-mm motorized touch-sensitive fader

EQ section: Gain, Frequency, and Q rotary encoders; High, Hi-mid, Low-mid, and Low band selector switches

Analog inputs: 8 balanced XLR mic with 48V phantom power (switchable in banks of 4), 1/4" balanced line input

Analog inserts: 8 (1/4")

Analog outputs: 8 balanced 1/4" line level, 1/4" headphone

Digital I/O: 8-channel ADAT optical, 2-channel S/PDIF coaxial (RCA)

MIDI I/O: 4 independent MIDI inputs and outputs

Other connections: FireWire (2), word clock I/D (BNC), 1/4" assignable footswitch

Simultaneous external I/O channels: 18

Sample rates: 44.1-, 48-, 88.2-, 96kHz

Resolution: 24-bit

Frequency response: 20Hz to 20kHz, ± 0.5 dB (44.1 or 48kHz), 20Hz to 40kHz, ± 0.5 – 1.5 dB (88.2 or 96kHz)

Noise: < -124 dBu (mic in to insert send), < -64 dBu (line in to stereo out or surround monitor out)

Minimum requirements: Computer running Windows 2000/XP with 6-pin FireWire port; G3 or better computer with Firewire port running OS 9.2 or above or OS X 10.2.4 or above.

Host support: Host software must provide support for FW-1884, Mackie Control, Mackie HUI, or MIDI control

Computer-based DAWs are wonderful things. But where they fall down is in the "real world" department — all that power goes untapped if you can't easily control it, connect it to external devices, and get MIDI and audio in and out.

TASCAM's FW-1884 is a FireWire-compatible unit that handles everything you need for getting control, audio, and MIDI in and out of the computer, along with built-in monitor control capabilities, and, as a bonus, it can function as a stand-alone 18x2 digital mixer. Given its near-universal software compatibility, it looks like a dream product. But does it live up to expectations?

OVERVIEW

The FW-1884 offers eight channels of hardware control at once. If you have more channels, you can move through them in banks of eight. Buttons are provided for changing the channel rotary encoder function from pan to one of eight aux sends.

There's a dedicated 4-band parametric EQ control section. Buttons are provided for Save, Revert, All Safe, Solo Clear, Marker insert, Loop mode, Cut/Copy/Paste, Delete, and Undo — how functional these are depends on your host. Alt/Command, Control, and Shift modifier keys are also available.

The transport section has the obligatory Rew, FF, Stop,

Play, and Record buttons, as well as In/Out set, Locate, cursor control arrows, and a jog/shuttle wheel, which can also be used for data entry. On the upper-right are buttons for changing among computer control, MIDI control, and monitor mixing modes. Below this, function keys double as buttons for setting up clock source and rate. Across the top of the front panel are eight trim controls for the analog inputs, and knobs for controlling PFL/solo, monitor, and headphone levels. The monitor section can handle up to eight channels — a big plus of this unit is its ability to hardware-control monitor level for up to a 7.1 speaker array. It would be nice if there were a monitor mute switch, and I'd love the ability to switch to a second set of stereo monitors from the front panel. One other thing I'd change is moving the headphone jack from the back panel to the front edge.

For a complete rundown on the I/O of the FW-1884, check out the specs list to the left. You can route up to 18 channels of audio in and out at a time: eight analog, eight ADAT optical, and two S/PDIF. The inputs can be routed into the computer via FireWire, you can mix and monitor them in the FW-1884, or you can do both, which allows for latency-free recording when overdubbing to your DAW.

If you need more channels, the FE-8 expander will give

you eight — only control surface features, not mic preamps, inserts, etc. You can add up to 15 FE-8s to build a control surface with access to up to 128 channel strips.

There are some nice little features included. For example, there's a button on the front panel that, when pressed, opens the FW-1884 software control panel on your computer. If you press Shift/MIDI Control, the control panel opens to the MIDI programming page, allowing you to change control assignments.

IN CONTROL

Three control modes are offered: Native Protocol, and Mackie Control and Mackie HUI emulation. Among those, you're almost sure to find one that's compatible with your host software. If not, there's also "generic" MIDI Control mode.

Native Protocol mode requires that your host application directly support the FW-1884. Currently Sonar, Logic, and Digital Performer support this mode, using plug-ins. The advantage is that all the FW-1884 controls are directly mapped to functions in the software. For example, if you have an EQ plug-in instantiated on a channel in Digital Performer, if you press an EQ button on the control surface, the EQ window will open up and you have control over the various parameters. (It works best with MOTU plugs. With, for example, a Waves plug, the window will open but the parameters may be mis-mapped.) ➤



THE TASCAM FW-1884 (SHOWN HERE WITH TWO FE-8 EXPANDERS INSTALLED) OFFERS NEAR-UNIVERSAL CONTROL SURFACE COMPATIBILITY ALONG WITH 18 SIMULTANEOUS ANALOG/DIGITAL INPUTS AND OUTPUTS. AS A BONUS, THERE'S A 4-PORT MIDI INTERFACE BUILT-IN.

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TASCAM FW-1884

In the two emulation modes, you're given similar control to what you'd get with the original hardware control surfaces. I used the FW-1884 in Mackie Control mode with both Logic and Nuendo with good results. For example, Logic's Channel EQ can be directly controlled from the FW-1884. Likewise, HUI emulation worked well with Pro Tools and Nuendo.

While the modes all work fine, there's little or no plug-in support (besides EQ in certain cases). I didn't find this to be a major issue. Despite being a dedicated control-surface user, I still find myself making most plug-in control changes using the mouse/keyboard.

MIDI CONTROL

In addition to Native Protocol and HUI/Mackie Control emulation, the FW-1884 can operate as a "generic" MIDI control surface. Initially, I had trouble with this. After some investigation, it became clear that MIDI Control mode doesn't work through the FireWire connection, it must

use MIDI connections. This is fine if you're MIDI-controlling an external hardware box, but it's a problem if you want to MIDI-control a piece of software when the FW-1884 is also being used as the audio interface. (TASCAM says FireWire support for MIDI Control mode is planned for a driver update.)

There was no work-around in the manual, but I found two ways to make this work. First, you can use a second MIDI interface on your computer. For example, I hooked up an Emagic Uinitor 8 via USB, and ran a cable from FW-1884 MIDI output 4 (you can choose which MIDI port carries control information) to one of its inputs. A second sneaky solution occurred to me later: Simply connect a short MIDI cable from (for example) FW-1884 MIDI output one to MIDI input four, and choose those as the ports that are handling control information.

Once I figured out the MIDI routing situation, MIDI Control mode worked perfectly for controlling Reason, Live, and other applications. Pretty much every FW-1884 button, knob, and slider can send

MIDI messages, and it's very easy to change MIDI assignments. Open the FW-1884 control panel, go to the MIDI Programming page, push a button, turn a knob or move a fader on the controller, then use the control panel to assign it to whatever MIDI controller or note number you desire. Slick.

You are, of course, more limited in the number of controls you can send in MIDI Control mode. You can't for example, switch between using the rotary encoder for pan and aux send levels.

AUDIO

I was pleased with the audio performance of the FW-1884. The preamps perform well. They're present, detailed, and clean. The line inputs and inserts function as expected. The A/D/A converters are of high quality. And you can always use an external converter and route in through the FW-1884's digital inputs.

Having 8-channel surround control in the monitor section is a godsend. For DAW users dealing with multi-channel mixdown, it almost makes the FW-1884 a


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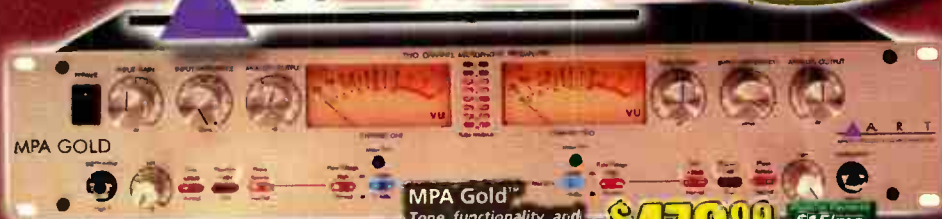
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TASCAM FW-1884

must-buy on that merit alone. If you're doing stereo work, you can switch the monitor level knob to only control outs 1 and 2. This frees you up to use the remaining six outputs as aux sends or whatever. Driver v1.10 (due by the time you read this) will support six outputs under control of the monitor level knob, while the remaining two outs can be used for other purposes.

IN USE

Setting up the FW-1884 is a breeze. I had the unit functioning in minutes. The learning curve is easy, although it may take a while to memorize which controls access what in your host software.

The front panel does provide LED meters for master output levels, and LEDs that indicate MIDI interface activity. It would be nice if there were also channel level meters, LCD "scribble strips" showing channel names from the DAW, and a time/position counter. I found myself having to look at the computer monitor more than I would like. The lack of scribble strips becomes more of a problem when you start banking

through big mixes; I would expect it to also be an issue when you add multiple FE-8s. (v1.10 will include "SoftLCD," an applet that emulates scribble strips on the computer screen.)

The beauty of this box is that it combines all the necessary DAW control and interface features right in one unit. You can sit in front of it, and do pretty much everything you need. I'm a big fan of having one cable connected to the computer carrying audio, MIDI, and control information.

WELCOME TO THE REAL WORLD

I was hooked on the FW-1884 almost as soon as I connected it to my computer. Having everything you need for interfacing and controlling your DAW all in one tabletop package is simply awesome. Of course there are wish list items: metering, scribble strips, and a position counter top my list. But as it stands, the FW-1884 offers one of the most-complete DAW-control/interfacing implementations around. And given that it can interface with and control virtually every current piece of software out there, and can

stand alone as a mixer, the value is high.

It's time for DAWs to make the move from the inaccessible virtual plane into the real world. The FW-1884 is a great way to make this happen. Once you have it in action, you'll wonder how you ever got along without it. **EQ**

Strengths:

- Stereo, 6-, or 8-channel monitor control
- 4-in/4-out MIDI interface
- Near-universal software compatibility
- Expandable
- Good audio quality
- Latency-free overdubbing
- Stand-alone mixer mode
- 18 audio inputs, 8 mic preamps

Limitations:

- Limited visual feedback — no meters, position counter, or scribble strips
- Headphone jack on rear panel
- MIDI control mode requires MIDI cable connection
- Little control surface support for plug-ins



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With permanently incorporated in each larger system, the 1029APM active nearfield monitor is designed to provide the best possible sound reproduction. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications. With its 10" woofer and 1" tweeter, it is well suited for use in a variety of applications. The 1029APM is a compact, active nearfield monitor. It is designed to provide the best possible sound reproduction. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications. With its 10" woofer and 1" tweeter, it is well suited for use in a variety of applications.



FEATURES

Crossover Filters

Efficient crossover filters are used to separate the low and high frequency signals. The crossover filters are designed to provide the best possible sound reproduction. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications. With its 10" woofer and 1" tweeter, it is well suited for use in a variety of applications.

Amplifiers

The low and midrange amplifiers are designed to provide the best possible sound reproduction. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications. With its 10" woofer and 1" tweeter, it is well suited for use in a variety of applications.

Drivers

The 10" woofer is a high efficiency driver. The 1" tweeter is a high efficiency driver. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications. With its 10" woofer and 1" tweeter, it is well suited for use in a variety of applications.



Mounting Options

The 1029APM is designed to be mounted in a variety of ways. It can be mounted on a stand, on a wall, or on a rack. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications. With its 10" woofer and 1" tweeter, it is well suited for use in a variety of applications.

GENELEC

1030A

6 1/2" Bi-amplified Active Monitor

The Genelec 1030A is a very compact, active nearfield monitor. It is designed to provide the best possible sound reproduction. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications. With its 6 1/2" woofer and 1" tweeter, it is well suited for use in a variety of applications.



Some features on the 1029APM EXCEPT—

• Like the 1029APM, it is a very compact, active nearfield monitor. It is designed to provide the best possible sound reproduction. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications. With its 6 1/2" woofer and 1" tweeter, it is well suited for use in a variety of applications.

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Accessories

Various high quality accessories are available for the 1029APM and 1030A. These include stands, cables, and other accessories. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications.

DCW (Directivity Control Wedge) Technology

DCW technology is a unique feature of the Genelec 1029APM and 1030A. It is designed to provide the best possible sound reproduction. The compact size and active drivers, crossover, and built-in amplifier make it an ideal choice for use in a variety of applications. With its 10" woofer and 1" tweeter, it is well suited for use in a variety of applications.

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by Craig Anderton

Roland VariOS

A hardware/software “plug-out” for your computer

Type: Hardware/software system that works with host systems or as a standalone device

Price: \$1,495

Contact: Roland,
www.rolandus.com

Drivers/software compatibility:

Windows ME/XP/2000 and Mac OS/FreeMIDI/OS X

Computer interface: USB

Memory: 46MB RAM wave memory, 32MB flash backup memory, PC card slot (Microdrive, SmartMedia, and CompactFlash can be used with a suitable adapter)

Internal resolution: 32-bit floating point (sounds), 24-bit fixed (effects)

Polyphony: 14 voices (stereo samples use up two voices)

Total time of samples in memory: 2.5 minutes stereo, 5 minutes mono

Maximum number of samples: 128

Import formats: WAV, AIFF, SD2

Package includes: Hardware box, software (V-Producer, VariOS-8 Analog Modeling Synth, VariDS 303 Analog Modeling Bass Synth), Phrase Library CD with 1,000 loops, USB cable

In 1989 Peavey launched the DPM3, a synth based on general-purpose DSP instead of custom chips. But being a new concept, from a company foreign to keyboards, it didn't take off — although DPM fans still revere its sound.

In hindsight, though, it was the precursor of the software-configurable hardware box, with one of the latest examples being Roland's VariOS system. Think of it as a “plug-out,” it's a lot like a plug-in, but exists outside your host, and therefore does minimal CPU loading.

The VariOS system consists of a 1U tabletop or rack-mountable hardware unit with smarts, memory, and controls, and whatever software runs on it. The system can work standalone — significant if synth support increases, as VariOS can then be a portable instrument with a changeable personality. It's possible to adjust needed parameters from the front panel, although computer-based

editing, courtesy of the VariOS USB connection, is far more efficient.

The front panel has a PC card slot to supplement the unit's internal storage, three detented knobs for realtime control, 2x16 LCD, four programming buttons, data knob, four LED status indicators, volume knob, and headphone jack. The S/PDIF digital out, two ins with line/mic switch and level knob, stereo main outs, and stereo direct outs (all 1/4" phone) are around back.

INSTALLATION

VariOS includes an installation CD, but check the Roland web site for updates — the CD had an older version of V-Producer, and no Mac drivers.

I first tried installing under Windows XP. VariOS showed up as a drive, and the MIDI drivers installed without any X symbols or exclamation marks. But XP kept saying although the MIDI driver was installed and enabled, it wasn't functioning properly (as

V-Producer confirmed by saying “MIDI offline”). I spent hours trying various approaches, but eventually gave up.

So I grabbed the G4 drivers, installed them on the Mac, and all was well. This isn't a PC vs. Mac thing — I've installed dozens of devices in the past in XP that communicate data over USB — but it just goes to show the perils of living on the bleeding edge.

V-PRODUCER SOFTWARE

Think of V-Producer as an Acid/REX type of program that lets you stretch and manipulate phrases, but with more precise control and in real time — as well as being a 6-track audio sequencer optimized for dealing with “elastic audio.”

V-Producer can work standalone, or sync to another sequencer within the computer. I set it up with DP 4.1 so it played in tandem, but unlike a plug-in, audio doesn't appear on a track as something you mix; you need to feed the VariOS output back into the sequencer or into whatever hardware mixer handles your sequencer's output.

The program reads files from your hard drive, encodes them (like the “acidization” process), sends them over USB to the VariOS for processing, and saves VariPhrase format files to disk. The samples show up as a list; a sample edit screen provides a huge variety of sample editing options, while a primitive waveform editing screen allows optimizing the encoding process for the best stretching quality.

To create a song, you drag-and-drop samples from



THE PHRASE SCOPE WINDOW CORRELATES AUDIO TO MIDI, SO CHANGING MIDI NOTE CHARACTERISTICS ALSO CHANGES THE AUDIO. A RELATED GROOVE SCOPE WINDOW DEALING WITH RHYTHMIC PHRASES ON A “SLICE” BASIS.

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How many times have you proven it wrong!

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WHATEVER IT TAKES

The K2 represents everything we have learnt from designing and building thousands of valve mics. The test equipment you see in this photo proves how far we go to do it right. The 1950's Tektronix 570, so rare and valuable; most valve

designers have only seen photos. Owning this unit allows us to delve deeply into valve technology. It allows us to extract every last ounce of performance from our circuits.



our circuits.

The result?
The best sounding valve pre-amplifier I've heard!

THE HEART AND SOUL OF OUR SOUND

I am so proud of the Australian designed and manufactured Type HF1 capsule. This represents RØDE's finest transducer technology. Named in honour of my late father, Australian audio engineering

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The K2 gives you total control. Every polar pattern! Omni through to cardioid and to figure of 8. This is not multi-position, this is infinitely variable. Achieve what you want in any situation.



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Please listen to the K2. Even if you are willing to spend \$20,000.00 on a mic, listen to what we have achieved. RØDE can offer this performance and quality because of the volume we manufacture. Small volume manufacturers aren't better; just more expensive. Once you hear the K2, you too will believe it can be done!

Peter Freedman, President
RØDE MICROPHONES, SYDNEY AUSTRALIA



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MICROPHONES

Roland VariOS

the list into an arranger window, or play the samples in real time from a MIDI keyboard (or the built-in arranger) while recording. But the best part is phrase editing. The Phrase Scope window (designed for processing melodic parts) shows each clip (or "frame," in Roland-ese) as a series of notes displayed with both waveforms and the MIDI note that triggers them. You can change the note duration, pitch, placement, create additional notes to make harmonies, delete notes, and even quantize or split notes into multiple parts. Furthermore, a controller strip allows changing pitch, playback speed (which can preserve duration), formant, and dynamics. These also respond to MIDI controller numbers; most other control parameters are sys-ex.

The Groove Scope window rhythm processing shows a waveform "sliced" à la REX files. The slices can be rearranged, deleted, added, copied, lengthened or shortened, etc. There's even a random function that swaps

selected notes around. If you're familiar with Sonar's Cyclone DXi, this will be familiar territory.

The tracks feed a mixer section with pan, level, and send controls for three effects: reverb with nine algorithms, eight types of chorus (which has a send for the reverb), and multieffects — choose from four EQs, overdrive, amp simulator, autowah, vocal formant filter, dynamics, six delays, four choruses including a Boss CE-1 chorus emulator, three flangers, two phasers, tremolo, pitch shifter, rotary speaker simulator, three lo-fi effects, and several effects combinations. The multieffects out has send controls to the dedicated chorus and reverb.

Some of these effects are quite cool, but unfortunately, the VariOS hardware inputs don't do anything yet other than feed the outputs for mixing V-Producer audio with DAW audio. Presumably Roland put them there for more ambitious reasons; using the effects would certainly

be one of them, as would sampling.


Although V-Producer can play along with a host, you can also save the song (or individual tracks) as a WAV file for importing into other programs, or process the song through the VariOS effects, and re-record the results back into the arrangement.

Two other cool touches: the VariOS virtual keyboard and the X-Y controller, which can have the two parameters assigned to your choice of pitch, time, or formant. A final point is that the allowed sample time may seem inadequate, but remember that you'll likely be dealing a lot with looped parts. A four-second loop can play for several minutes in a tune, but it still takes up only four seconds of memory.

THE SOFT SYNTHS

This isn't *Keyboard* magazine, so we've concentrated on V-Producer. But the synths are a nice add-on — especially because they have latency-free, snappy response — and give a hint of VariOS's future.

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The VariOS-8 Analog Modeling Synth, basically a virtual Juno/Jupiter, is a two-oscillator design (with sync and multiple waveforms) that features an arpeggiator, series low- and highpass filters, sub-oscillator, and various effects. I don't know if it sounds exactly like a Juno, but it makes useful and warm sounds, and that's what matters.

The VariOS 303 Bass Synth finds Roland itself modeling the TB-303. While a faithful emulation, this version adds several series effects (compressor, overdrive/distortion, chorus, delay and 3-band EQ), and offers a new way to create patterns with the "slider pattern screen" (you can still do step sequencing). Changing VariOS personalities isn't seamless — turn off, reboot, etc. — but these two synths add considerable value to the overall package.

AND THE VERDICT IS . . .

Currently, \$1,495 buys you some extremely clever phrase-stretching software, along with two soft synths. V-Producer may seem redundant to those whose hosts can do time-stretching, but don't discount the realtime control, harmonization options, effects, overall flexibility, and ability to work outside the host with minimal CPU loading (although V-Producer does need some RAM to work with). The synths are solid; by themselves they're not a reason to buy VariOS, but are appreciated as useful tone generators that again, don't stress out your host.

For some, V-Producer alone is sufficient to justify the price. For others, the ultimate value of VariOS depends on future support. This "open system" isn't totally open, because there's currently no third-party SDK; it's up to Roland to provide the goodies. I think for the unit to achieve "critical mass," Roland needs to open up the inputs for the processors and sampling (and a sampling instrument would be welcome). Value also depends on any additional software's cost; perhaps the occasional freebie coupled with more ambitious paid updates is the way to go.

Roland has an excellent track record for updating products, and the VariOS section of the Roland website — with tips, updates, downloads, and controller maps for Edirol PCR-30/50 MIDI keyboards — shows the effort the company is putting into launching VariOS. For those who don't find V-Producer and the synths compelling enough, adding more devices could make all the difference. The potential of the

"open system" is there: If any company has the will and resources to make it happen, it's Roland. Meanwhile, check out the V-Producer software — there's nothing quite like it. **EQ**

Strengths:

- Updateable architecture
- Cross-platform
- V-Producer software is useful and creative

- Cool instrument emulations
- Useful roster of effects
- Computer-based or front panel editing

Limitations

- Changing "personalities" isn't seamless
- No third-party support yet
- Audio ins can't feed processor ins or do sampling

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by Greg Rule

PreSonus Eureka

A 1U channel strip with a few tricks up its sleeve

Retail price: \$699 [optional digital output card is \$249]

Contact: PreSonus,
www.presonus.com

Channels: 1

Inputs: XLR, 1/4", send (1/4" TRS)

Outputs: XLR, 1/4", return (1/4" TRS); both can be used simultaneously

Frequency response: 10Hz–50kHz

Dynamic range: >115dB

Headroom: +22dB

EIN: –127dB

Noise floor: –112dB (+12dB gain)

Gain range: up to 52dB

Selectable input impedance:

50–2,500 Ohms

Highpass filter: –3dB shelf at 80Hz

Phantom power: +48V

FET compressor: threshold: –40

to +20dB; ratio: 1–10 (1:1 to

4:1); attack: 0.1 to 200ms;

release: 0.05ms to 3 seconds;

gain make-up: –20 to +20dB;

10Hz–10kHz; highpass filter on

the sidechain; soft knee mode

Parametric EQ: 3-band; 20–300Hz,

200Hz–3kHz, 2–20kHz (all ±13dB);

Q (variable all bands): Q = 0.4–2 (3 octave to 2/3 octave)

Misc.: Optional 24/192 digital output card with AES/EBU and S/PDIF output, plus auxiliary 1/4" TRS analog in (allows two Eureka's to share one card)



You've invested in a state-of-the-art DAW, loaded it with plug-ins, purchased some nice mics, an accurate pair of nearfields, and all the trimmings. Your tracks are sounding good. Nice and clean. But then you play a few mixes for your veteran producer friends and the hammer drops. "Where's the beef?"

The new Eureka channel strip from PreSonus could be the cost-effective analog solution you need. Pump your vocals, guitars, keys, drums, or you-name-it tracks through Eureka's transformer-coupled Class-A electronics, and . . . bring on the punch and power. PreSonus proudly touts Eureka's "pro-level performance at a mid-level price point." But how well does it live up to its billing? Let's find out.

TOUR OF FEATURES

The first thing you'll notice when handling Eureka is its rock-solid construction and knob-packed front panel. The sculpted, brushed-metal faceplate looks pro, as do its heavy-duty blue knobs and matching blue backlit buttons. The knobs are solid and tight — no wiggly BS. No cheesy wall-wart here either; the unit

connects to the AC outlet via a standard 3-prong power cable.

Eureka's controls are grouped into four main categories across the front panel: preamp, compressor, parametric EQ, and master. A VU meter sits in the center, and can be toggled to display compression gain reduction or master output level. In case you're wondering where the on/off switch is, it's located on the back panel — which might be inconvenient, depending on your studio setup.

A rear-panel XLR input is provided for plugging in your mic of choice; instruments plug directly into the front-panel 1/4" input. A button is provided for activating 48V phantom power. The preamp section also includes controls for 80Hz cutoff, phase reverse, impedance (more on that below), and my personal favorite, Saturate, which adjusts the drain current on the input FET amp to simulate the effect of tube saturation. It's a useful warming effect, and a smooth one at that, but note that "simulation" is the key word, as PreSonus chose not to equip Eureka with a tube as they did on their FireStation computer interface. Tubes aren't for everyone, though, as

they can be temperamental and have a shorter lifespan.

Another notable feature is Eureka's variable input impedance, which allows you to "tune" the unit to a variety of microphones. It can also be used as a tone-shaping effect. "Being able to match impedance to each of your microphones is a powerful tool," adds Mitch Gallagher, "and can definitely enhance the sound. In Eureka's case the 5-position impedance control covers a broad range. The lowest setting, 50 ohms, should be great for most ribbon mics. Used with condensers, reducing impedance cuts low end and results in lower output. Fortunately, Eureka has more than enough gain to make up for it. For most applications, you'll use high [2,500 ohm] impedance, but the tonal options provided by the other settings are worth exploring, and a nice bonus to have available."

Eureka has a fast-response FET compressor onboard, offering both soft and hard knee options. It also has a make-up gain stage and an internal high-pass side-chain control. The latter can be used for frequency-specific compression — de-essing, for



TWO OF EUREKA'S STANDOUT FEATURES ARE ITS VARIABLE IMPEDANCE CONTROL AND TUBE SATURATION EMULATION, WHICH ADJUSTS THE DRAIN CURRENT ON THE INPUT FET AMPLIFIER TO SIMULATE TUBE SATURATION/WARMTH.



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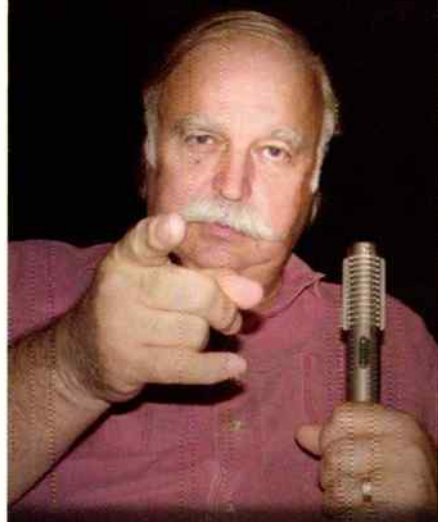


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Bruce says



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

Bruce Swedien

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



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PreSonus Eureka

example. The routing switch is a useful option, which allows the compressor to be placed before or after the EQ section in the signal path.

In the parametric EQ section, three identical control sections are provided for low, mid, and high frequencies. From low to high, the frequency range in each section overlaps into the next — no gaps, in other words. For each section you'll find a knob for selecting frequency, bandwidth range, and positive/negative gain. "It's great for broadband shaping," says Mitch of the EQ section, "and it has enough precision that you can dial in surgical cuts as well."

Finally, the master section at far right provides a single master gain control and a switch for toggling between VU display modes. "I love the sexy VU output meter," says Mitch. "Combined with the three signal present/clip LEDs, it gives you a good idea of what's happening in the unit level-wise. I wish that you could switch it to different points in the signal path — post-compressor, post-EQ — however."

SESSION NOTES

I toggle my workload between two studios — a home studio, used primarily for line-level tracking and editing, and a larger offsite facility for open-air recording and mixing. The home rig is digital, so I welcome the chance to bring devices in that can treat those cold, edgy tracks. And that's just what I did with Eureka, as I was able to use it for keyboards, drum/percussion tracks, and vocals during this review cycle. Mitch Gallagher conducted additional guitar, bass, percussion, and vocal sessions at his well-equipped studio in Nashville. Here's what we discovered during our sessions:

As slick as Eureka is physically, PreSonus had to cram a lot of features onto that slim front panel. The knobs are positioned tightly, so if you have thick fingers, you might be in for a bumpy ride. Heck, even fine-fingered folk might have to be extra precise. In the heat of tracking, I found it nearly impossible to twist a knob without bumping the one adjacent to it. Fortunately the knobs are tight, so they seldom turn when bumped. Mitch's main complaint wasn't so much the position of the knobs, but "the shiny metallic blue knob faces, which make it hard to see the settings against the silver face plate."

In one round of tests, I used Eureka to process some high-resolution solo

Its tone is full and rich, without the sterility or harshness sometimes associated with DI inputs.

vocal files — including one of a pro Broadway singer belting at full lungs. That particular source file was all over the map dynamically, and needed some compression and a touch of EQ. I routed an output from my DAW into Eureka's mic-pre input, since I couldn't resist dialing in a bit of saturation to round off the edges. (In order to access the Saturation feature, you have to patch into the XLR or front-panel instrument input, as the 1/4" input on the back panel bypasses the mic-pre section entirely). I also gave the vocal a 12k bump for a bit of air. Within minutes I had a smooth, natural, and controlled sound. Excellent.

Mitch tracked guitars directly through Eureka. "The instrument input sounded fine with all my guitars and basses. Its tone is full and rich, without the sterility or harshness sometimes associated with DI inputs."

In general, Mitch found Eureka's sound to be "tight on the low end, and detailed on top. It doesn't have quite the lower-midrange girth of some preamps, but tracks recorded with it sit well in a mix without need for EQ. Dynamically it responded well to both loud vocal passages, as well as to acoustic guitar performances. The preamp's saturation control isn't an extreme distortion effect. Rather, it softens the top end, fattens up the mids, and reduces upper midrange. At 50 percent, the effect is noticeable, but not overly intrusive on the quality of the original signal. Even at 100 percent, the original signal comes through, albeit darker, less present, and rounder. I liked this effect most on hard-sung vocals and distorted electric guitar. For delicate tracks, such as nylon and steel-string finger-picked acoustic guitar, I felt that it obscured detail. On percussion, such as finger cymbal, tambourine, and

75 years later... Nothing has Changed!

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Gefell - Quality, Tradition and Innovation



2003 - UM92.1S capsule.



1957 - UM57 capsule.



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



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Ted Curtis, Upstairs Productions, Oklahoma City, OK



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triangle, I preferred the straight sound of the preamp."

The owner's manual provides suggested settings for vocals, guitars, keys, and drums, but one thing they don't talk about is running complete mixes through it. Obviously Eureka is a mono channel strip, but in a pinch you could try using it for "shoestring" mix processing by running left and right channels through it one at a time, then realigning the tracks in your DAW. For fun, I tried just that by using a few mixes that were extra edgy and "digital sounding." I was curious to see how much analog smoothing I could achieve, and also how much noise would be introduced in the process. So I dialed in 50-percent saturation, a touch of soft compression, and a moderate amount of gain. As sketchy as this process was, I have to say that the results weren't bad. The tracks sounded warmer, and had lost much of the "digital edge" from the original straight-from-DAW mixes. Noise was virtually non-existent.

JURY

PreSonus has a winner on their hands with Eureka. It's a well-built, high-performing channel strip at an affordable price. Mitch agrees. "At under \$700, Eureka stands out in the crowd. Its specs and feature list are cool — transformer-coupled input, flexible signal path, good processing capabilities, etc. — but its outstanding attribute is its open, detailed sound. It would make a great choice as a front-end for a DAW."

There's no shortage of affordable slim-line channel strips on the market. Focusrite and MindPrint have several units that go head to head with Eureka, to name two manufacturers. But Eureka holds its own in the pack, and stands out in several key areas. Give it a test run and you might be surprised at how much it can improve your tracks — especially those cold, edgy digital ones. Thumbs up. **EQ**

Strengths:

- Big bang for the buck
- Transformer-coupled class-A circuitry
- Tube-saturation emulation
- Variable impedance control
- Low noise operation

Limitations:

- No tube (à la PreSonus FireStation)
- Knobs crammed tightly together

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World Radio History

by Mitch Gallagher

Apogee Rosetta 800

8-channel converter doubles as Pro Tools & FireWire Interface

Type: 8-channel AD/DA converter
Price: \$2,995 (96kHz); \$3,995 (192kHz); X-Digi-Mix Pro Tools Mix interface card, \$595; X-FireWire FireWire interface card, \$595; X-HD Pro Tools HD interface card, \$595
Contact: Apogee Electronics, www.apogeedigital.com

A/D channels: 8
D/A channels: 8
Analog inputs: DB25, balanced +4dBu
Analog outputs: DB25, balanced +4dBu
Digital inputs: 2 ADAT optical (S/MUX-compatible), AES/EBU (DB25)
Digital outputs: 2 ADAT optical (S/MUX-compatible), AES/EBU (DB25)
Word clock I/O: BNC
Sample rates: 44.1, 48, 88.2, 96kHz ($\pm 10\%$), 176.4–192k (optional)
Resolution: 16-, 24-bit, UV22HR word length reduction
Frequency response: 10–20kHz ($\pm 0.2\text{dB}$) @ 44.1kHz
Dynamic range: 114dB

It's all about converting analog voltages to ones and zeros, and vice-versa these days. And Apogee has been all about converters for many years. The latest from the company combines eight channels of analog input and output with multiple digital I/O formats and flexible routing — and, of course, excellent quality conversion.

Two models of the Rosetta 800 are available. One supports sample rates up to 96kHz, the other can handle rates up to 192kHz. A 96k model can be upgraded.

DOUBLE-DUTY

Rosetta 800 has two independent signal paths. The first accepts up to eight channels of incoming signals (analog or digital) and sends them simultaneously to AES/EBU (single- or double-wire), ADAT (standard or S/MUX), and whatever card is installed in the unit's option slot (see "The X-Factor" below). The second accepts eight channels of incoming signals (analog or digital) and routes them to the eight analog outputs. You can choose to run analog and digital signals in or out of the Rosetta at the

same time on a channel-pair basis. So channels 1 and 2 might be fed analog, while 3 and 4 come from ADAT, 5 and 6 from analog, and 7 and 8 from ADAT, with the outputs being similarly configurable. Since digital input can be routed to digital output, the Rosetta can convert ADAT to AES or vice-versa. Apogee's Soft Limit is provided to prevent A/D clipping, and UV22HR is included for reducing word length.

Signal I/O is on DB25 connectors (except ADAT I/O), so you'll need breakout cables in order to use the Rosetta (not included with the unit). There's also word clock I/O on BNC.

Rosetta has powerful digital sync/clocking features, based around its dual-stage clock. The first stage accepts and buffers incoming clock signal, while the second stage clocks bits out to the converter. Apogee says this reduces jitter to the lowest possible level. In addition to the required ability to sync to external clock, the unit can run at sample rates that are multiples of the incoming clock frequency. So, if you're feeding the Rosetta ADAT signal at 48kHz, you can run the unit at 96kHz. Note however, that the unit doesn't do sample-rate conversion.

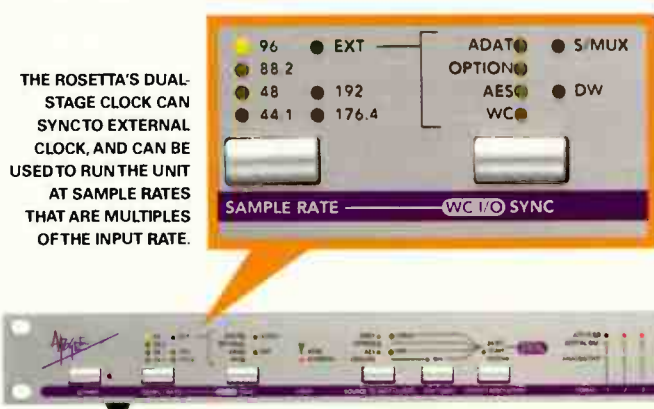
Pro Tools Mix system. The upcoming X-HD and X-FireWire cards will connect to Pro Tools HD and FireWire computers (OS X and Win XP) respectively.

IN USE

It's simple to set up and use. Plug it in, connect your sources and destinations, then use the front-panel buttons to set up sync and routing. The nicely illustrated manual does a good job of guiding you through the possibilities and how to access the advanced functions.

In a word, it sounds great. Whether at 44.1k or at high resolution, the sound is clean, transparent, detailed, dynamic, and natural. What's surprising is how inexpensive it is. \$3,000 (\$4,000 for 192k) may seem pricey, but when you break it down, you end up at less than \$190 per channel. And that's before you factor in all the features, to say nothing of the ability to serve as a Pro Tools or FireWire interface (which does add \$600 to the price).

For those looking for multiple channels of A/D and D/A conversion, Rosetta offers excellent sound quality and high value. Add in the extra features, and the deal gets even sweeter. **EQ**



THE X-FACTOR

The back panel of Rosetta 800 has an option slot that may be filled with expansion cards, called "X" cards. There are three flavors. The first, the X-Digi-Mix, is available now (I was unable to test it for this review), and allows the Rosetta 800 to connect directly to a

Strengths:

- Independent A/D and D/A signal paths
- Flexible signal path configuration
- Great-sounding conversion
- Soft limit
- Powerful clock/sync features
- Option cards allow connection to Pro Tools and FireWire computers

Limitations:

- No S/PDIF support
- DB25 connectors require breakout cables
- No sample rate conversion

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David Grisman
Legendary Mandolinist



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Rane PEQ 55 Parametric EQ

by Craig Anderton

Price: \$999

Contact: Rane, www.rane.com

Strengths:

- Unique shelving response
- Real-time control over all parameters
- Wide-range parametric EQs
- Overload indicator and bypass switch for each stage
- Universal voltage internal power supply

Limitations:

- No preset storage or MIDI control
- No digital I/O

Like the DEQ 60 graphic EQ (reviewed 5/03), the 2U PEQ 55 features digital processing with analog control. Configurable as 5- or 10-band linked stereo, dual 5-band mono, or 10-band mono, each of the ten filter sections has three switch-selectable ranges that, in total, span from 12.5Hz to 20kHz. Rounding out the unit are high- and low-cut filters along with high, mid, and low tone controls.

Each channel can set one filter stage to high shelf and one to low shelf, using Rane's unique "accelerated slope" technology that creates a steeper slope to reduce influence on the midrange

frequencies. Compensation keeps phase shift, normally an issue with increased slope, under control (see the white paper at www.rane.com/pdf/acceler.pdf).

As befits the price, the PEQ 55 has a pro vibe, from the XLR/1/4" TRS/Euroblock analog I/O to the sturdy construction and solid control feel. One great feature is that each filter stage has its own bypass switch and overload indicator, so you know instantly which stage is clipping. There's also a per-channel master bypass.

The A or B group of knobs can control either channel. For example, to link, you switch both channels to A, and use its knobs. You could have a different setup on the B knobs and switch to those (which brings new meaning to the term "A-B" comparison), or

switch one channel to A and one to B for unlinked operation.

However, there are no presets — after all, the point is real-time tweakable control (which also makes the PEQ 55 well suited to onstage use). As someone who regards EQ tweaking as part of the "performing" aspect of mixing, the PEQ 55 performs admirably: You don't hear stair-stepping with drastic control twisting, and there's enough space between controls to make tweaking comfortable.

If you just need some stages of parametric EQ, the PEQ 55 is probably overkill. But if you also need shelving, you haven't heard shelving until you've heard the accelerated slope technology, which brings a welcome, unexpected additional flexibility to the PEQ 55.



Ursa Major SST-206 Space Station

by Mitch Gallagher

Price: \$1,395

Contact: Seven Woods Audio, www.sevenwoodsaudio.com

Strengths:

- Convenient "remote control" form factor
- Wonderful, character-laden Space Station reverb and delay
- Lush room algorithm
- Knobs for each parameter

Limitations:

- No bypass switch
- Digital I/O only
- No preset storage
- No high sample support

Christopher Moore of Seven Woods Audio designed the Ursa Major Space Station in 1977. His goal at the time was to create the best possible low-cost reverb. The original processor, with its 11-bit converters and 7kHz bandwidth, went on to become legendary for what some of its users called its "garage grunge" sound.

Now Moore is back with a new unit, the Space Station SST-206. But his approach has changed: Now we're talking 24-bit resolution and 22kHz bandwidth. In addition to re-

creating the sound of the original Space Station, he's added a high-quality "room" algorithm. The old unit was a 3U monster; the new one is tiny. In fact, on opening the box, I assumed I was sent just the remote control by mistake. In fact, the "remote control" is the SST; the entire thing is smaller than a DVD case. A breakout cable comprising AC power and AES/EBU digital I/O (the only connections available) is permanently affixed to the unit.

The unit is covered with knobs. At the upper left are input and dry signal level, lower right is a knob that selects one of four modes: SST Reverb, SST Echo, Room, and "Program," which is currently unused. In between are various parameter controls; high and

low decay, pre-delay, early reflection levels, room size, and so on. A 4-stage LED ladder displays level.

Sonically, the SST-206 can provide everything from slapback delay to comb-filter-like echo "clouds" to metallic reverbs to lush, realistic rooms. The user interface is excellent — grab a knob and make the change you want. Version 2 software has just been released, which doubles delay times in the Room and SST-Echo algorithms. Existing units will be updated free — contact Seven Woods Audio.

The original Space Station has a lot of devotees, and Seven Woods Audio is providing an affordable way to get an updated version. Add in a great-sounding room algorithm, and you have a winning combination. **EQ**



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Primera Bravo Disc Publisher

by John Krogh

Price: \$1,995 (CD-R burner only),
\$2,495 (DVD-R/CD-R combo
burner)

Contact: www.primera.com

Strengths:

- Affordable alternative to commercial duplication/printing services
- Cross-platform
- Easy to use
- Combo model supports DVD-R and CD-R media
- Can be used with professional graphics programs

Limitations:

- Included graphics software is basic
- Curves print with a slight jaggedness



Primera's Bravo Disc Publisher is one of a handful of affordable CD and DVD duplicator/printers. If you're a studio owner or musician frequently in need of cranking out promotional or fully produced discs, Bravo could save you thousands of dollars in print and duplication fees in just a few months. It works with Mac OS X and WinXP, and connects to the computer via USB and FireWire. Both connections are used simultaneously — FireWire for transferring data, and USB for operating Bravo remotely from the computer. Bravo's Quick Start guide can get you

duplicating in minutes, but I took the manufacturer's suggestion of running the Configuration Utility for optimal print quality at 2,400 DPI resolution. The utility allows you to monitor ink levels, maintain and calibrate ink cartridges, and align printing on the discs.

For layout, Primera's Discus is a straightforward and basic program that's more consumer-grade than professional, but I was still able to get high-quality results. Discus recognizes all installed fonts, which is good news if your company logo uses a custom or rare typeface. The graphics capabilities are bare bones, but it's possible to access Bravo's printing features from Photoshop and other pro graphics apps.

Duplicating (i.e., burning data to multiple discs) is handled by Discribe — a straightforward app that supports Disc Copy (it even works with commercially released sources) in addition to VideoCD, ISO9660, DVD Video/Audio, and other popular formats.

Up to 50 discs can be created at once; I had no problem burning multiple runs of 20-plus discs. There wasn't a coaster in the bunch, but I did notice that printed curves were slightly jagged — not as smooth as professionally silk-screened discs. If you don't mind the print quality, and would benefit from having duplication/printing facilities in-house, the Bravo Disc Publisher won't disappoint.

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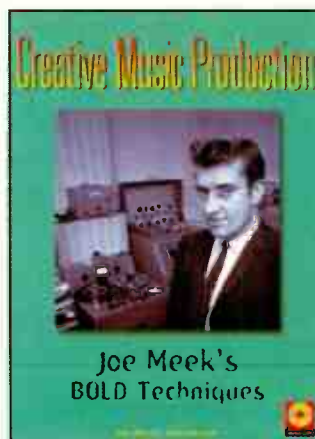


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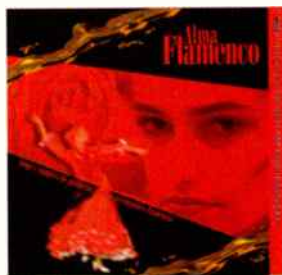


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Sounds



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Alma Flamenco

Contact: Discovery Firm,
www.discoverysound.com

Format: 2 CD (Acid WAV/REX2,
and audio)

Price: \$55

IF you're looking to bring flamenco fire to your productions, *Alma Flamenco* can light the flame with authentic-sounding materials. The 2-CD set includes a CD-ROM with 601 Acid/WAV files and 342 REX2 format files, and an audio CD comprising 529 phrases.

The package takes a construction set approach broken down into bongo and cajon drums, *castaneula* (castanet), *palmas* (clapping), finger snaps, *taconeo* (tapping), and *voces* (female, male, and group voices).

The guitar accompaniment tracks offer the most articulations. There's arpeggios, muted strumming, quick *picado* single-string runs, *rasqueo* and *rasguído* strumming patterns, *falseta* phrases, and more.

It's a simple matter to put together a realistic flamenco track, complete with percussion, vocal interjections, guitar licks and fills, and using the various strumming patterns and articulations, to create good dynamics.

The acidization of the files varies; a few glitches here and there. And documentation is non-existent. But the tracks sound authentic.

Flamenco performances, particularly guitars, aren't squeaky clean. It's part of the style to hear string buzzes, creaks, and scrapes. Having these in the tracks only increases the realism. At \$55, *Alma Flamenco* offers a good source for adding flamenco flavor to your productions, or for quickly putting together decent backing tracks.

—MITCH GALLAGHER



AMG

2-Step Ahead

Contact: AMG, www.samples4.com

Format: Audio, REX, WAV, ReFill, Apple Loops (for Apple Soundtrack)

Price: \$99 (£60, worldwide shipping free of charge)

The good news: A major client just called. They want a "2-step dance track" for a national campaign. The bad news: The only 2-step you know is the country variety. *Gulp.* The good news: You do some research and find that AMG has a ready-made library that will save your hide.

2-Step Ahead offers 482 stylized REX2 files, 76 NN19 programs, 50 Subtractor patches, 10 Malström patches, 5 ReDrum kits, and five song starters. You'll find hard-shuffled dance beats, a variety of synth riffs, vocal hooks, bass lines, effects, and one-shot sounds — all dancefloor ready.

Many of the electronic beats are built upon retro sounds (booming analog

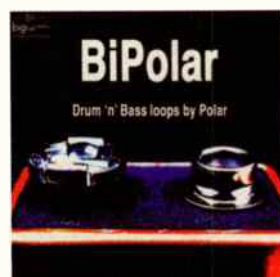
kicks, metallic synth clinks, and the like) and they shuffle *hard*. From rubbery drips and whips to ring-modulated madness, the Processed Beats are also a blast. They're anything but pristine, however. Check out the noise floor on Processed Beat 33, for example.

As for the basses, they're hard groovin' as well, and made to match the beats. The FM synth sources are a trip straight back to the '80s. But, be warned: Some of the bass samples can easily be transposed into a garbage bin of aliasing, so watch how far you go.

Another note of caution: If you buy the Apple Loops version, the usage rights are different than the other versions. AMG explains that the AL material "is licensed only for use 'to picture' in AV applications. If you wish to use it commercially in non-AV-linked music you need to buy the other versions, which are licensed for regular music use."

All things considered, *2-Step Ahead* is a handy collection to have around, especially when stuttery, hard-shuffled electronic dance grooves are required. But don't let the name pigeonhole the potential of this collection. There are plenty of cool sound effects and patches to feed many a track, 2-Step or otherwise.

—GREG RULE



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Contact: Big Fish Audio,
www.bigfishaudio.com

Format: 1 CD Acidized WAV, 1 CD audio

Price: \$99.95

You don't see a lot of drum 'n' bass sample CDs, so it's good news that this construction kit-based CD *really* delivers the goods. There are 35 folders, each with two to four complete loops, along with the elements that make up those loops (including individual drum hits) — 949 files, or 568MB, total. Tempos are 170 or 175 BPM; folder names specify the key. All the sounds are authentic, well-recorded, and . . . well, check out my demo at www.eqmag.com.

Of special note: the synth effects aren't genre-specific and would work well in other contexts. Thoughtfully, they're loops rather than one-shots. However, note that loops intended to be mixed softer are cut softer. While this speeds up the process of creating a tune using the "construction kit" approach, if you use the loops for other purposes, you'll likely need to bump up the levels a bit.

Although the acidization is okay, it's not great. That's too bad, because some of these loops are otherwise very useable when slowed down to the 140 BPM range. But tweak a bunch of markers, add in the missing ones, and you're good to go.

D'n'B may not be the heartbeat of mainstream America, but there are pockets where it's huge. If you're into the genre, or just need to put together a sound track with the right vibe, this CD is all killer — no filler.

—CRAIG ANDERTON **EQ**

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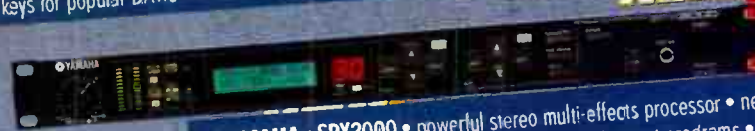
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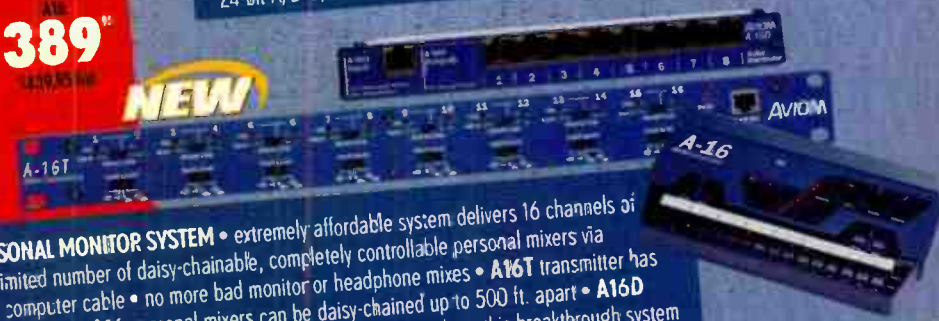
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COMING ATTRACTIONS

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

by Greg Rule

EMULATOR X and EMULATOR X STUDIO desktop sampling systems

What is it? 24-bit/192kHz software sampler with integrated I/O and hardware-accelerated effects for Windows XP and 2000; runs as VSTi or standalone.

Who needs it? Musicians and sound designers that need true professional sampling and synthesis features.

Why is it a big deal? Emulator X delivers the sampling technologies, powerful DSP, and sound quality of E-mu's hardware samplers with the latest disk streaming, file management, and graphical interface advantages of software, over 2GB of incl. sounds.

Shipping: By the time you read this.

Retail Price: Emulator X, \$399.99; Emulator X Studio, \$799.99

DIGITAL AUDIO SYSTEM

What is it? 24/192 PCI-based I/O and hardware-accelerated effects, mixing, and monitoring for Windows XP and 2000; compatible with all major audio/sequencing software (WDM/DirectSound/ASIO drivers).

Who needs it? Anyone looking to record/create digital audio on their PC with pro results.

Why is it a big deal? E-mu's Digital Audio Systems feature premium (120dB SNR) converters, a host of analog and digital I/O formats, over 20 hardware-accelerated effects plug-ins (with over 500 presets), and zero-latency mixing/monitoring at an attractive price.

Shipping: By the time you read this.

Retail Prices: 1820M, \$699.99; 1820, \$599.99; 1212M, \$299.99

Contact: E-mu, www.emu.com

E-mu Emulator X & Digital Audio System hardware

At long last, E-mu is ready to launch their highly anticipated Emulator X software sampler for Windows XP and 2000 operating systems. But that's not all the company is rolling out. A new line of I/O hardware is also set to ship. Let's take a sneak peek at the hardware and software components of this new line.

SOFTWARE

The Emulator X delivers the same sampling technologies, DSP, and pro sound quality of E-mu's hardware samplers, but adds the latest disk streaming, file management, and graphical interface advantages of software.

True to its roots, Emulator X offers a deep synthesis engine for sculpting your sounds down to the sample level. You get 36 patchords per voice, over 50 Z-Plane morphing filters, multi-wave LFO's, conditional voice modulation, clock modulation, and an arsenal of other synthesis features and parameters. You can also save your favorite synth

setups as templates for quick editing.

E-mu offers two Desktop Sampling Systems: Emulator X and Emulator X Studio. Both systems feature the Emulator X software, but ship with different I/O and sync components — the **Emulator X** system ships with the E-mu 1212M, and the **Emulator X Studio** system ships with the 1820M.

HARDWARE

E-mu also announced the arrival of three new Digital Audio Systems interfaces: the E-mu 1820M, 1820, and 1212M. Compatible with all major PC audio/MIDI software apps, the new interfaces feature premium (120dB SNR) converters, hardware-accelerated effects and mixing, and E-mu's E-DSP chip — a hardware-accelerated effects processor with over 20 effects plug-ins and over 500 presets. The effects architecture is expandable, allowing you to add more plug-ins to your system as needed. The E-DSP chip also provides zero-latency, and hardware-based mixing and monitoring via the included

PatchMix DSP mixer. All three Digital Audio Systems ship with a PCI card that contains ADAT, S/PDIF and FireWire ports, as well as connectivity to a family of internal and external I/O and sync options.

The **1820M** is equipped with 18 audio ins and 20 outs. It's housed in a half-rackspace breakout box equipped with a pair of TPro mic preamps (with 48V phantom power), six balanced analog ins, eight balanced analog outs, turntable in (with ground and RIAA preamp), eight speaker outs, and optical S/PDIF out, as well as two sets of MIDI I/O. The 1820M features premium 24-bit/192kHz converters (120dB SNR) and a sync daughtercard that offers Word Clock, SMPTE, and MTC sync. The **1820** comes in the same enclosure as the 1820M, but lacks the sync daughtercard and premium converters (though still delivering 111dB SNR). The **1212M** offers 12 audio ins and outs, and provides the same converters as the 1820M on an I/O daughtercard. It has a pair of balanced ins and outs, as well as MIDI I/O.



Emulator X software



E-mu 1820M Digital Audio System

AdIndex

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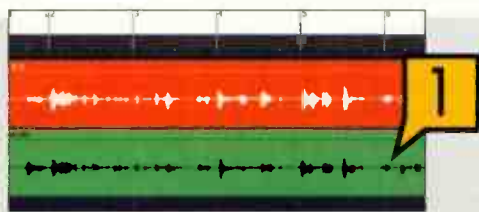
Emagic Logic

Comping Strategies

Objective: Make auditioning and editing together (comping) takes faster and more efficient using key commands.

Background: Weeding through many takes to assemble "the perfect" comp in Logic can be a clumsy affair if you don't know how to take advantage of several features that improve workflow.

Step by Step: These instructions assume you have a session with multiple takes already open and ready to be edited/arranged. (For the purposes of this article, I've only included two takes, but these techniques will work for larger sessions.)



- 1 Zoom in on the waveforms so you can see where phrases start and stop. Use **Ctrl+up/-down-arrow** to zoom vertically; **Ctrl+right/left-arrow** to zoom horizontally.



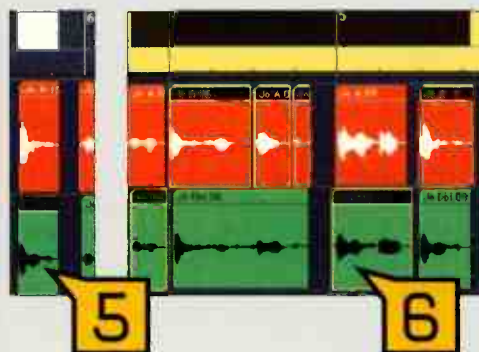
- 2 Break the continuous audio regions into smaller sections using the **Strip Silence** command. (This will create the pieces that you'll assemble into the final take.) Select one of the regions, then choose **Strip Silence** from the **Arrange** window's **Audio** submenu (or press **Ctrl+S**). Do the same for the remaining tracks. Note: Adjust the **Threshold** amount to make fewer or more individual regions.



- 3 At this point, the tracks should look something like those in Step 3 (left). Strip silence may not have divided all the tracks in the same locations. If this is a problem (say, you want to replace a single word that's within a larger region), you can click directly at the location with the scissors tool from within the **Arrange** window.



- 4 Now you're ready to start auditioning the best bits. To make things go quicker, use **Cycle playback (/ / key)** and set the cycle region to the boundaries of the individual audio slices (or **Objects**, as they're referred to in the **Key Commands** window; **Options > Preferences > Key Commands**). You'll need to assign a key command for this, such as **"Shift+/"**.



tips

- To make a single assembled track, select all of the "final" phrases, then click on any one of the regions with the **Glue** tool. A new audio file comprising the selected regions will be created.
- If you hear clicks at transitions between individual slices, add small crossfades — no more than 15 ms should be enough.
- If the source audio regions are spread across many tracks, pack them in a folder (**Arrange** window > **Functions > Folder > Pack Folder**) when you're done comping — this will help reduce screen clutter.

- 5 Return to the **Arrange** window. Turn **cycle playback** on, and then change the **cycle start/end points** using the new key command.
- 6 To hear each track soloed, press **S**, then select an audio slice. (When solo is engaged, only selected regions will play.)
- 7 Once you've chosen the best phrases, mute the others by selecting them, then pressing **M**.

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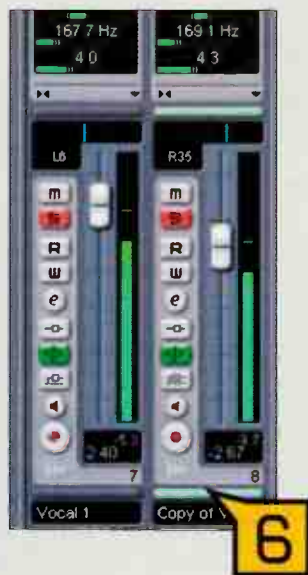
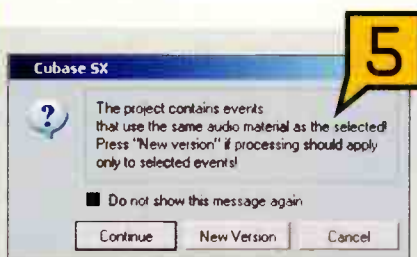
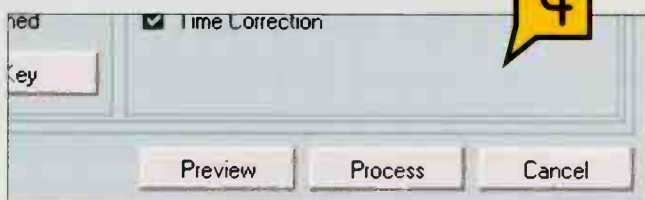
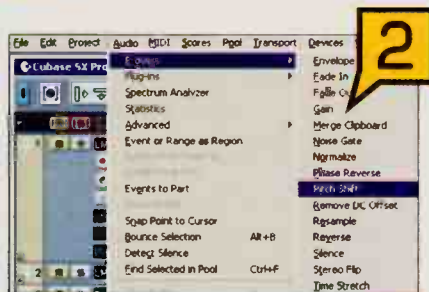
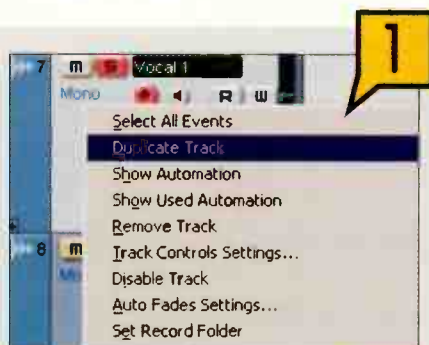
Steinberg Cubase SX

Thicken with pitch shifting

Objective: Use Cubase SX's pitch shift module to make vocals sound richer and thicker.

Background: A proven technique for creating richer vocals is to have the vocalist double a line by singing along with the original take. The doubled take is often mixed behind the main line at anywhere from -3 to -10 dB. However, sometimes it isn't always possible to cut a doubled line — like when you're mixing, and the vocalist is on tour somewhere. For those occasions, here's a quick workaround.

Step by Step: If the preview in step 4 doesn't sound satisfactory, repeat steps 3 and 4 until you get the sound as desired, then proceed to step 5.



- 1 Right-click on the vocal track you want to thicken, then select **Duplicate Track**.
- 2 Select the copy and go **Audio > Process > Pitchshift**.
- 3 Set Transpose to 0 semitones, Fine Tune around -20 to -30 cents, and choose one of four algorithms: Mode 1 (fastest, lowest quality), Mode 2, Advanced, or MPEX algorithm (slowest, highest quality). I suggest Mode 2 because it lets you preview the effect. Leave the other parameters at their defaults.
- 4 If Mode 1 or 2 is selected, click on Preview to make sure everything sounds okay. If another mode is selected, or you're finished with previewing, click on Process.
- 5 As the track was duplicated, you will get a warning that other clips also use this audio, so any processing will apply to them as well. Click on New Version so that the pitch shifting affects only the selected clip.
- 6 Mix the doubled and original vocals together. Experiment with bringing the doubled track down a bit so it doesn't compete with, but instead complements, the lead vocal.

tips

- For the thickest sound, pan the two vocal tracks to center.
- If you pan one vocal full right and one full left, you'll hear two individual vocals instead of a composite effect (which may be what you want), and the stereo image will be weighted toward the slightly louder vocal.
- Try panning lead vocals slightly left and right (e.g., left channel at 10 o'clock, right channel at 2 o'clock). This gives a little stereo imaging, and makes the vocals sound bigger.

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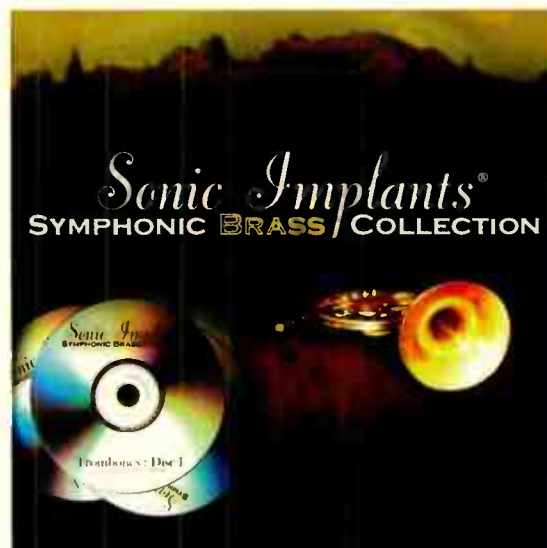
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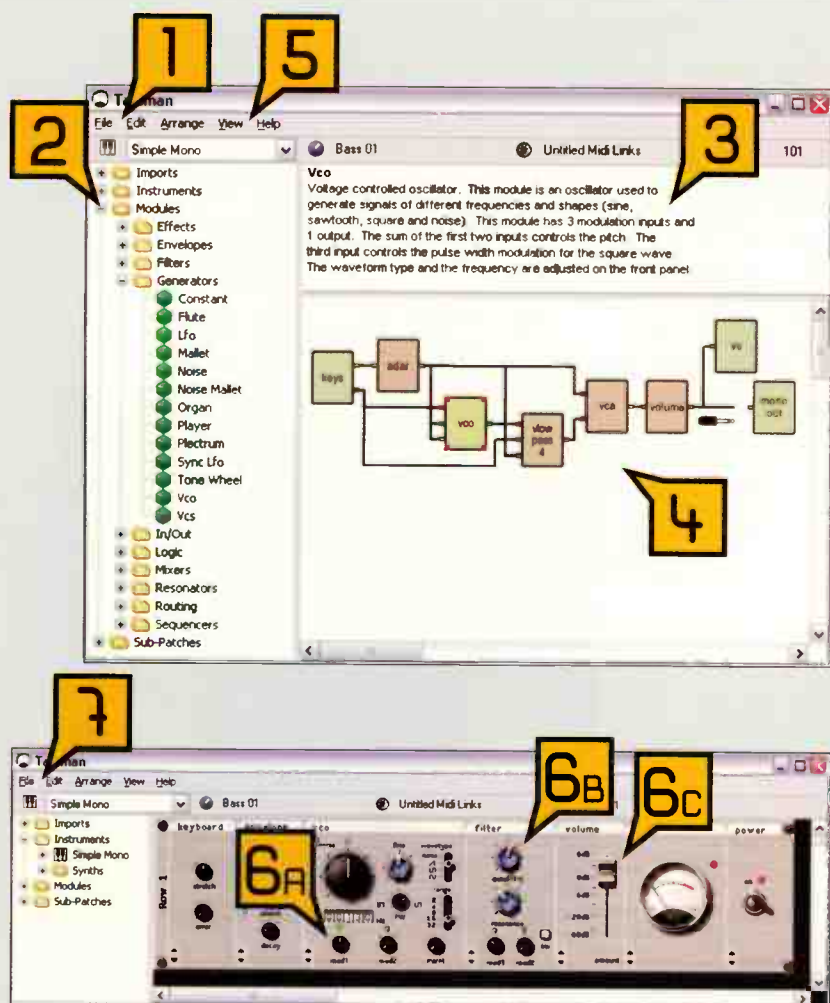
Applied Acoustics Tassman

Building your first synth

Objective: Build a simple analog monophonic synthesizer from scratch.

Background: Subtractive synthesis was the basis of many legendary vintage instruments. This method is still used today in a lot of great synths, like the Virus, Nord Lead, Andromeda, and Ion. Basically, it starts with a harmonically rich sound, such as a sawtooth or square wave. The sound source is then filtered to limit or shape its harmonic content. An envelope generator driving a voltage-controlled amplifier is used to apply an amplitude envelope. The following synth is an example of this type of synthesis.

Step by Step: Follow the seven steps in order.



- 1 Create a new synthesizer document by clicking New from the File menu.
- 2 Select your modules from the Browser and drag them in the Builder window. For this mono synth, you'll need the following modules: Keyboard (In/Out:MIDI), ADAR (Envelopes), VCO (Generators), VCA (Envelopes), Vlowpass4 (Filters), Volume (Envelopes), Level (In/Out:Outputs), and Audio Out (In/Out:Outputs).
- 3 Select a module in the Builder or Browser to get basic information about the module in the Help window.
- 4 Connect the modules together in the Builder window by clicking the output pin of a module to the input pin of another. The same output can be connected to several inputs. The Gate output of the Keyboard is used to control the envelope generator. The Pitch is patched in the first modulation input of the VCO. The output signal of the VCO is then filtered by the Vlowpass4 resonant low-pass filter. The signal is then shaped by the ADAR and VCA modules. Note that the output of the ADAR has been connected to other modulation inputs in order to increase the versatility of the synthesizer.
- 5 Switch to the Player window by choosing Show Player from the View menu.
- 6 Adjust the frequency modulation of the VCO so its pitch follows that of the keyboard by clicking on the mod1 green LED on the VCO module. Adjust the filter cut-off frequency to vary the amount of harmonics in the signal. Adjust the volume fader to hear the sound, and watch the level meter to avoid overloading the output. Adjust the attack and release parameters of the envelope to further shape the sound.
- 7 Save your instrument and create presets with the Save Instrument and Save Preset command from the File menu.

tip

- Change the direction of a wire while patching by left-clicking.
- Double-click on a module in the Builder to select its display row in the Player.

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Your all-native MOTU desktop recording studio just got bigger. A LOT bigger. The new Power Mac G5 is like doubling your studio's square footage, and then adding several additional floors stocked from top to bottom with virtual gear. Run more virtual instruments, more plug-in effects, more tracks, more busses, more processing, more everything than you ever thought possible. Yes, it's time to bask in the glory of your MOTU native studio. Starting at just \$1999, the G5 Tower transforms DP4 into a production powerhouse.

Put this universal sampler & unique multi-synth in your DP4 arsenal

MachFive could very well be the last sampler you ever purchase. Consolidate all of your sample libraries for instant access in DP4, including Giga, Sample Cell, Akai, K2xxx, Roland and others. Play up to sixteen different parts per instance, and apply automatable synthesis effects powered by the renowned UVI™ engine. To add vintage and fresh analog synth sounds, look no further than MX4, MOTU's new multi-synth. Inspired by legendary subtractive synthesizers, MX4 combines several core synthesis techniques in a unified, hybrid synthesis engine that delivers fat basses, nasty leads, analog pads, vintage electronics — it's all at your fingertips.

2-octave (25-key) MIDI controller with knobs, faders & LCD display

The Remote 25 MIDI controller gives you two full octaves of superb action semi-weighted keys with responsive aftertouch. Play MachFive, MX4 and other favorite software instruments with the care and precise control that makes all the difference to the final performance. The Remote 25 connects directly to the computer via USB and gets power via the USB bus or batteries, so if you've got a PowerBook, you can play anywhere. Use programmable pitch / mod / control wheel and 'touchpad' for total control and wild performance effects. Use the LCD to dial up dozens of pre-programmed button/knob/fader presets for the most popular software plug-ins and traditional hardware instruments. Dozens of product-specific colored LED strips (included) clearly label each control. All 8 rotary potentiometers, 8 sliders, 8 rotary encoders and 24 switches are entirely programmable. Control programs can be named and saved in any one of the 64 template memories. Remote 25 is the perfect compact controller for you DP4 studio.

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The second coming of a virtual synth legend

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East West / Quantum Leap Symphonic Orchestra™

World class strings / woodwinds / brass / percussion

This stunning new 24-bit orchestra sample library was recorded in a state of the art concert hall by GRAMMY award-winning classical recording engineer Keith O. Johnson with custom-designed recording equipment. And now it can be at your fingertips in DP4. Just open the included Kompakt™ sample player and then mix together any combination of three recorded mic positions (close, stage and hall) to alter the tone and ambience of any instrument or section. For example, you could use the stage mics for that big Hollywood sound, boost certain instruments with a hint of the close mics, and bring in a touch of the hall mics for reverb or even surround mixing. This library was produced by Doug Rogers and Nick Phoenix, recipients of over 30 international awards.



Novation V-Station™

Plug-in instrument version of renown Novation K-Station

When Novation launched the multi-award winning K-Station in 2002, it made an impact akin to lobbing a barracuda into a goldfish bowl. DP4 users were mad for the phatt'ness, the flexibility and the cool sound shaping while reviewers oozed with praise. And history is now repeating itself with the new V-Station Virtual Analog Synthesizer. The V-Station gets the same real 3 oscillator flexibility, awesome liquid analog filters, 8-voice polyphony, rippin' simultaneous FX and the kind of phatt sounds only a genuine Novation synth can offer. It's got sophisticated programming, acres of presets and convenient DP4 plug-in operation. From searing leads to passionate pads to delicate electric pianos, it's all there.



Universal Audio UAD-1 Studio Pak™

Accelerated effects processing for Digital Performer

With power-on-demand DSP and 20 award-winning UA plug-ins, the new UAD-1 Studio Pak plug-in bundle is an unbeatable addition to your MOTU studio. For less money than comparable native plug-in bundles, you get a real DSP card running at 44.1 to 192 kHz plus world class plug-ins like the legendary LA-2A, 1176LN, Cambridge,



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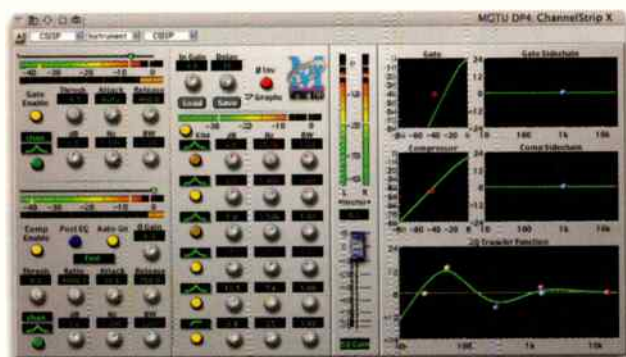
The KORG Legacy Collection is the ultimate virtual instrument pack, consisting of software versions of the MS-20, the Polysix, and the WAVESTATION bundled with a special-edition MS-20 Controller. It also contains the revolutionary "Legacy Cell" for making combinations of the MS-20 and Polysix including Insert and Master effects. Features native support of the microKONTROL for a complete hands-on music experience.



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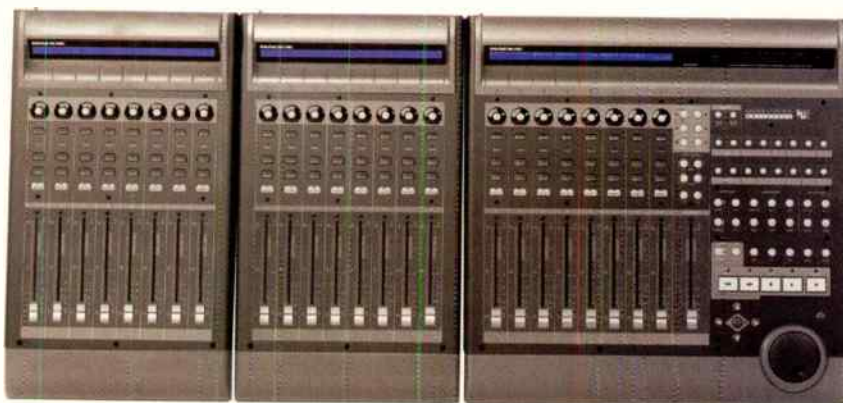
clearly and minimize ear fatigue. In addition, the Central Station features a complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied for flawless visual metering of levels both in dBu and dBfs mode. Communicate with the artist via talkback. Send a headphone mix to the artist while listening to the main mix in the control room and more.



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Mackie HR-series Active Studio Monitors

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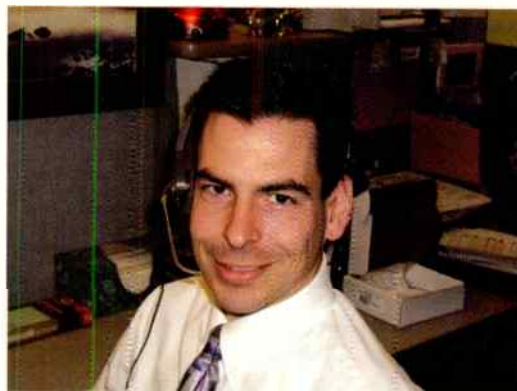
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EFFECTS: Korg DL241, Yamaha SPX90 [2], Digitech TSR12, Line 6 Pod, Bass Pod
MICROPHONE PREAMPS: Focusrite Voicemaster, ISA114HD, Neve 33114
MICROPHONES: Joemeek JM478, Neumann U87 [2], U47, AKG C414 [3], C451 [3], Sennheiser MD421 [2], B&K 4001 [2]
SAMPLERS/KEYBOARDS/MIDI: Akai S3000XL, Yamaha DX7, Midiman Oxygen 8, M-Audio MIDI Sport, Radium 49, Opcode Studio 4, Emagic Unitar 8
COMPUTERS: Apple PowerMac G4/dual-1.25 GHz, PowerMac G4/1 GHz, Powerbook G4/1.25 GHz, 23" Cinema Display [2]
DAW: Digidesign Mbox, Pro Tools Mix Core, Mix Farm [3], 868, DigiDelivery server; MOTU 828, Digigram VX Pocket
SOFTWARE: Steinberg Cubase SX, Digidesign Pro Tools LE, Pro Tools; Propellerhead Reason, Emagic Logic, Native Instruments Reaktor, Traktor DJ
DJ: Technics SL1210 mkII, Pioneer DJM 3000, CDJ800
STUDIO NOTES: According to David Harrow, "The Doghouse was built by Rudy Skedel and his sons. Rudy has been building

studios since the '70s, so the design and build stages were stress-free. The sound is perfect — 100% accurate. He even squeezed in a small guest apartment with a bathroom and shower — most useful for overnights and visiting musicians. He also included what I think is the biggest luxury of all: natural light! At least I know when it's daylight. . . .

"When we moved here from the UK last year, I took the opportunity to drastically revise my gear. Out went the redundant analog, the mixing console, the rack of 25 keyboards. I'm still paring things down to the bare minimum; why take up space when I have every keyboard I could possibly want on my laptop? I have no problem dumping outmoded recording concepts. I can see the day coming when I just have a laptop and some monitors.

"The only temporary thing is the workstation furniture — I built the workstation with \$300 worth of wood. I wanted to live with the setup for a while before everything is designated a permanent spot. I'm still moving things in the racks to find the best location for each item.

"This isn't really a commercial studio as I have more projects of my own than I can deal with, but I'm always looking for interesting vocalists. I tried to design this place to my requirements as a DJ, musician, artist remixer, and producer. I look at the studio as a big creative tool, and the DJ setup is as important a creative section as the studio itself.

"I've tried to make the room as intimate and accessible as possible. Having spent the last 20 years in studios, I want to be able to be creative without wasting time trying to get equipment working. I have the same approach with the software on the computers . . . unless it's relevant, out it goes."

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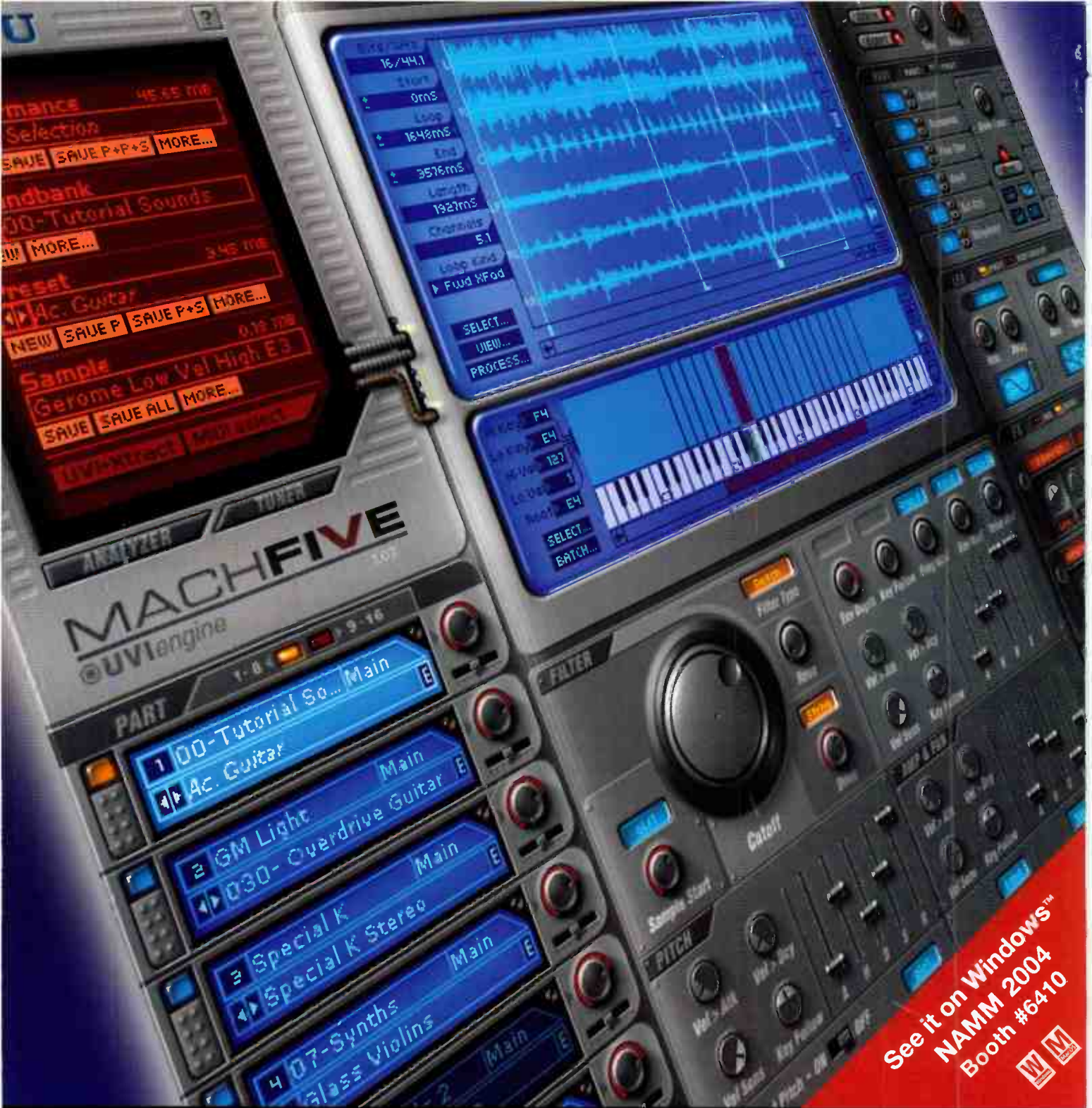
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Open MachFive directly within your host software. Save all MachFive settings with your audio sequencer projects for 100% recall. No separate files or settings.

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