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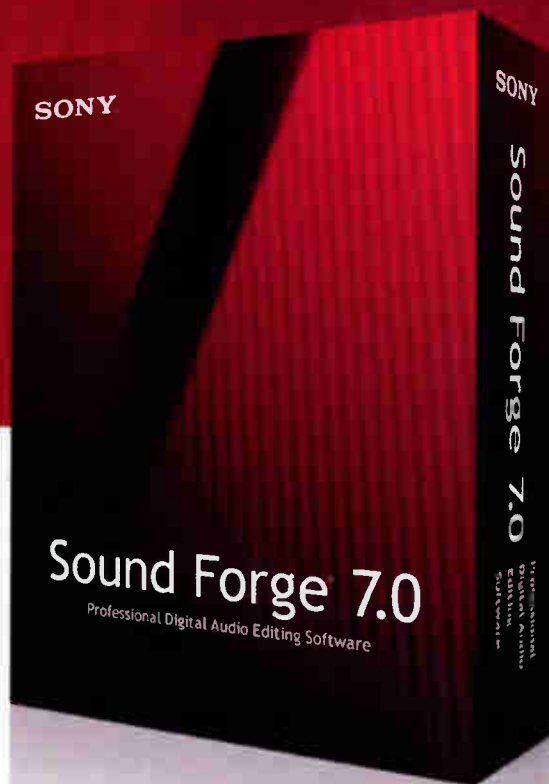
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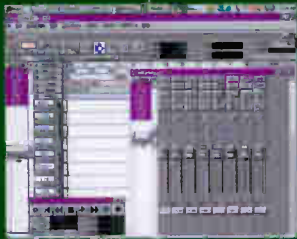
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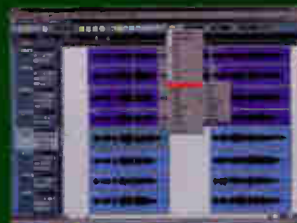
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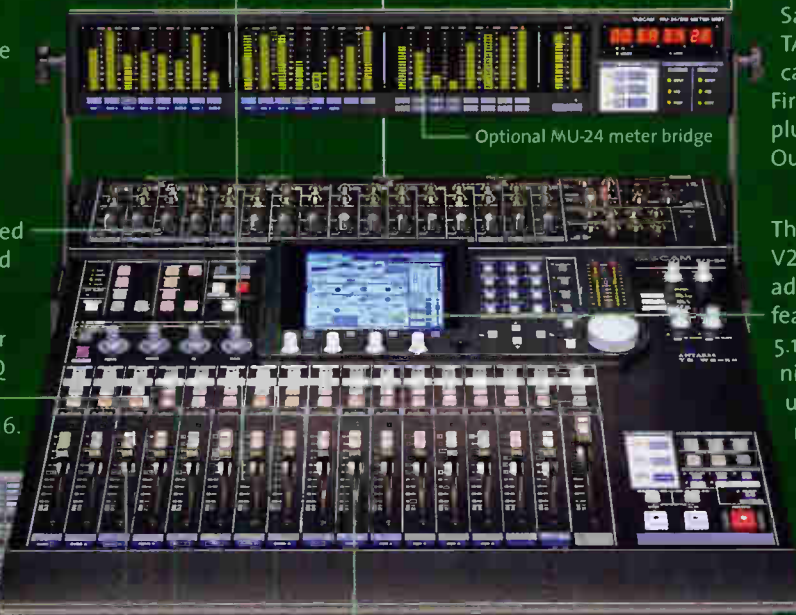
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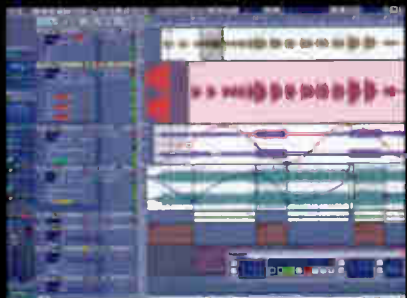
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World Radio History

MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

February 2004, VOLUME 28, NUMBER 3

desktop production special!

Desktop production has been established for decades now, but the professional tools to create anything and everything in software are being released at a higher quality and at more affordable prices. Throw in the processing power of today's PC or Mac, the slew of virtual instruments and a smattering of effects, and a hit record can be made entirely inside the computer. Today's engineers must be as conversant in operating systems as they are in pushing faders.

32 Not Just For Dance Music Anymore

Adding Loops Into Live Tracks Brings a New Audio Dimension

Loops had a bad rap when they first emerged in the production chain; there were few choices, the sound quality was below par and many believed that they were overused. However, the use of loops has become a significant production tool in all types of music, from R&B to hip hop—and even rock. *Mix* chats with top producers to get their trade secrets on effectively blending loops with their live studio tracks to make a hit song.

40 G5 Live!

Loading Up the Desktop for an Audio/Video Event

The new Apple G5 promises to provide all the processor speed and memory any audio pro would need. Find out what happened when technical editor Kevin Becka and three other instructors at the Conservatory of Recording Arts & Sciences took the computer and a dizzying array of audio (and video) gear to the edge in a live event.

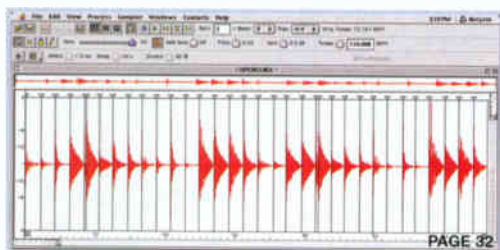
46 Virtual Instruments, Real Musicians

Software Emulations of Classic Keyboards

The legacy of classic pianos, organs and synths is carried on in virtual form. No longer is it necessary to cart around a grand piano or a Hammond B3—or even an ARP—to the studio or stage. Today's offerings emulate the sounds and interface to a "T" in hyper-realistic detail. Take a walk through *Mix's* gallery of current offerings and make the jump to the virtual world.

Check Out Mix Online! <http://www.mixonline.com>

On the Cover: Mi Casa's Studio A, designed by John Storyk, features two "cascading" Sony DMX-R100 desks, Genelec 1032A monitoring system, a SADiE workstation and Z-Systems 64x64 router. For more, see page 22. **Photo:** Robert Wolsch. **Inset photo:** Courtesy Lucasfilm.



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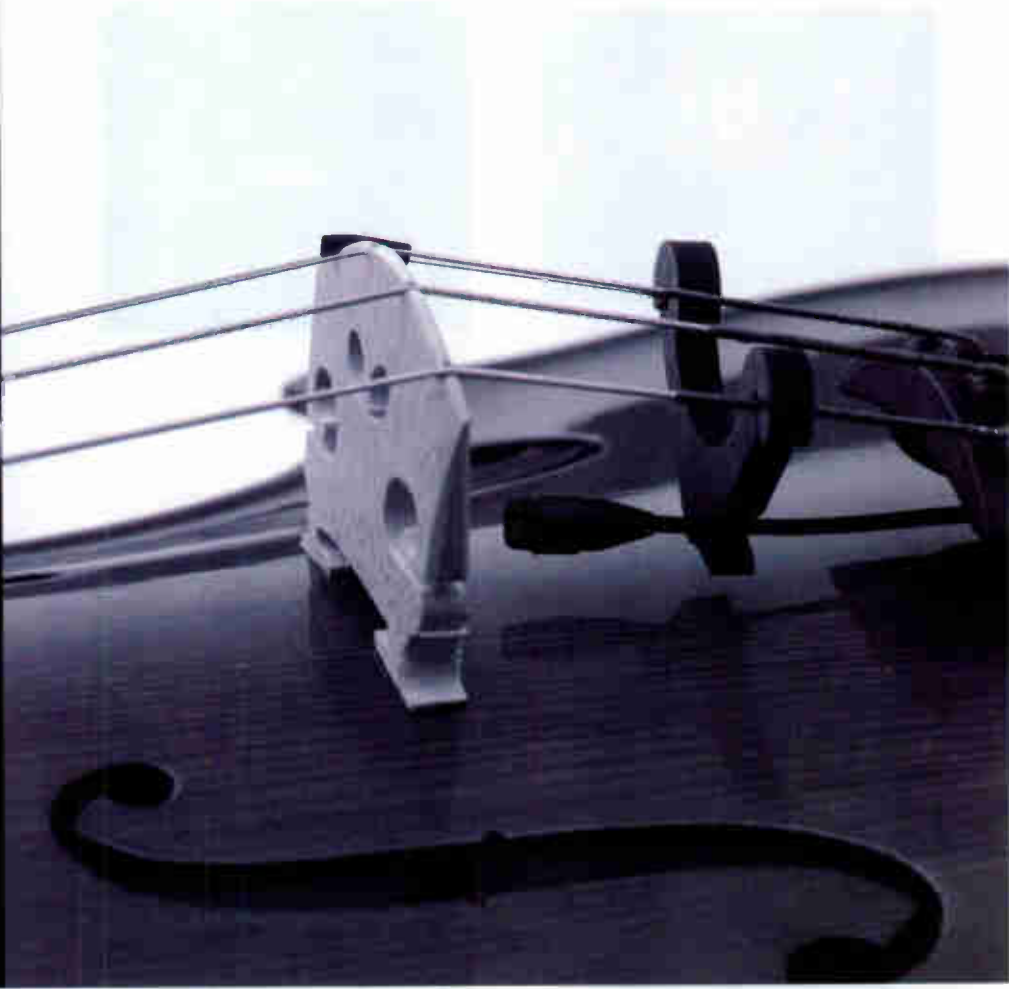
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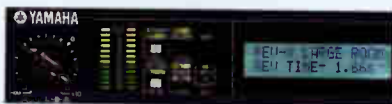
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The Desktop Studio Grows Up

Much has been said (and written) about the "desktop studio"—and with good reason. Given the state of modern DAWs, 24-bit sampling libraries, plug-ins and virtual instruments that can conjure anything from a 9-foot Bosendorfer to a road-worn B3 to any synth imaginable, there are few tasks that the desktop (or laptop) studio can't perform.

The desktop studio environment offers convenience in a compact package, yet among all of the glitter and magic such systems provide, the need for attention to audio details is just as important as in the traditional studio. Although an ever-increasing CPU horsepower supports more and more powerful software with fast, real-time processing, high-resolution 24-bit, 96/192kHz recording applications only spotlight the need for an improved signal chain. In any digital system, whether computer- or hardware-based, the heart of the system is the converters, and it is here that desktop (and laptop) rigs often fall short.

Fortunately, this is one area where upgrades are readily available, either in the form new AD/DA cards or external converter boxes. The same certainly applies to computers and low-end cards with built-in mic preamps, where the performance is mediocre at best. Here again, reasonably priced outboard preamps with solid specs are plentiful from any number of suppliers, and paired with a good mic will make a significant sonic improvement over "stock" offerings.

Certainly, there are applications where the desktop or laptop studio wins out over "traditional" hardware systems, such as editing audio tracks on a laptop during a cross-country flight, or loading virtual instruments and sequences into a rackmount computer for live performances. However, for most users, a hybrid approach may be best, incorporating a computer-based system into a conventional studio, creating the "new studio" with a Mac/PC core accompanied by a hardware controller, some standard outboard gear and perhaps plug-ins handling other processing chores, or as a source of production loops, rhythm beds or virtual instruments.

Of course, desktop production systems are not limited to computer-based systems, as the power of stand-alone hardware units also continues to evolve. For example, at last month's NAMM show, Roland unveiled its VS8F-3, an expansion board that brings a host of third-party plug-ins (from Antares, IK Multimedia, TC Electronics, Universal Audio, Massenburg, McDSP and SoundToys) to 250,000 users of its VS Series studios.

There's more to come. Announced last month and shipping now is Apple's GarageBand, which Steve Jobs described as "a pro music tool for everyone." The application (Mac, of course) is a 64-track recorder/mixer with 50 virtual instruments, 1,000 loops, 200 effects, amp simulations and direct iTunes file export. Options include a \$99 M-Audio keyboard and a JamPack expander with more loops, effects and instruments.

Whether desktop, laptop, PC, Mac, software, hardware or hybrid, the virtual studio is an integral part of the modern production environment. Factor in the absolute power of today's computers and the dirt-cheap storage/RAM prices, and there's a revolution waiting to happen. Just add the right song.

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The emagic logo is located in the top right corner of the advertisement. It consists of the word "emagic" in a lowercase, sans-serif font, with a stylized blue arc above the letter "i".The "Logic 6 platinum" logo is positioned in the upper right section. "Logic" is in a large, bold, sans-serif font, followed by a vertical line and the number "6". Below "6" is the word "platinum" in a smaller, lowercase font.

Music Production Software

for professional studios

The background of the advertisement is a photograph of the Newman Stage recording studio. It features a large, curved wooden wall with a control room area containing a mixing desk and a blue sofa. The floor is highly reflective, showing the studio's interior.

They love to keep mixing desks handy at Fox's Newman Stage.

With Logic 6 on every computer.

Countless legendary film scores have been recorded at 20th Century Fox's Newman Stage. These days, most of the composers working at Fox count on Logic 6 to make their scores legendary. "Logic has become the ultimate tool for our composers to keep up with the pace and demands of contemporary film scoring," says Mike Knobloch, Vice President of Film Music at Fox Music. "And on various recent movies, from Antwone Fisher with composer Mychael Danna to Ice Age with composer David

Newman, Emagic's Logic and Fox's Newman Stage have worked brilliantly together. It's absolutely amazing how powerful and indispensable Logic is for the modern film composer." With a comprehensively-equipped internal mixer including over 50 plug-ins, professional real-time notation editing, and MIDI functionality that's second to none, Logic 6 for Macintosh meets this challenge with ease. And the best thing is that Logic can fit handily into your recording studio, too. Technology with soul.



www.emagic.de

Letters to Mix



LOOK, THEY LIKE IT WHEN I BLEED

Good God, Stephen! I just read "Fast Lane" and ran downstairs immediately to send this e-mail. After everything in the recent past (trees, cats, ex-wives, cancer, etc.), now this?! I am stunned. God must have something very special for you to do with the rest of your life, because He surely wouldn't have put you through all of this to snuff you. In many ways, I can relate to your hospital experiences, but not completely. When I was shot at a gig in Tulsa back in 1972, I spent a fun time in intensive care and on my back for eight weeks at St. Francis. Fortunately for me, I got better.

Our prayers are with you. If there is anything I can do, if you need some place to get away for a while, whatever. You are truly an inspiration to many folks out here in the Hinterland. You've just about been there and done it all: Lived such an exciting lifestyle, motorcycles and music, invented new tools for musicians, been a CEO, lived at the top of the heap, fallen through the bottom floor, and *still* you get up and with tongue firmly planted in cheek, you tell us all about it in an off-the-cuff way. How do you do that?!

May you dust yourself off and shake the morphine monkey off your back. May all of your trials and tribulations *finally* be over. May you have accrued [enough] karma to last the rest of your life. May you find someone you can dictate to. You certainly deserve it. Don't bother answering this: Just get back up and keep slugging!

Bob Ketchum

Cedar Crest Studio

SONIC YOUTH

I'm a 20-year-old student who is learning and discovering the craft of audio engineering more and more each day. I completely agree with what you said [in November's "Editor's Note"], even though I have minimal experience with audio recording and pretty much walked

into an environment where it's all "point and shoot" and polish it up with plug-ins.

Now, anyone with a decent audio interface can record. I see it every day at school: Kids walk in thinking that they are going to make "beats," only to find out that the next class will be on EQ curve. Hearing them say, "What do we need to know this for?" makes me laugh and want to respond, "How do you think they got that nice bass sound in that last 50 Cent record?" They don't realize that they aren't just listening to notes, but that the relationship and contrast between that deep bass and the snare drum hit is what is making them move. They finally got it when the teacher did a demonstration for us and did a short mix on a song that they all just laughed at in the beginning. But while he was mixing it, you could see the look on their faces [change]. Then we all tried [the technique] and really saw how much you need to know about sound.

I fell in love with audio because there are no rules, just guidelines, and they can be approached in many directions. We can keep on learning from them. It's funny, when I first got into this, I was just recording my band, picking up an audio magazine here and there, reading it and not having any idea what those big words meant. Now after doing it, I can pick up those old issues and relearn what I read before.

Andy

R-E-S-P-E-C-T

I just read your article "Audio: No Experience Necessary" and I wanted to let you know that I know what you're talking about. I am in high school right now, and while I don't know much about electronics and analog recording, I want to learn. I have put together a small home studio with a MOTU 828 card, an MX2442 board, various AKG mics, an Oktava condenser and my old 600MHz computer. I want to learn the intricacies of analog recording, but that's a huge investment for anyone, let alone a high school student.

It's good to know that good music can be recorded for a few hundred dollars using one microphone, a computer interface and some free software. But what is upsetting is that people don't have the respect for the engineers. When I tell people I want to go into audio engineering, a lot of people don't have any idea what they do besides "work in a recording studio." I [thought] I'd let you know that someone does respect what you and many other "real engineers" are actually doing.

Ricky Chilcott

THE LEGACY OF AN AUDIOPHILE

Talk about hitting a nail on the head [November's "Editor's Note"]. I have another 17 years on you and have been in the audio business since high school. I got my training on amplifiers that had those big glass bottles that got real hot.

At our post-production house for advertising agencies, we have an intern program for students studying recording. We are not a music recording facility and that is thoroughly explained to prospective interns. Most want to gain production experience in a professional environment. I'm truly amazed at their lack of knowledge in the technical aspects of what we do. Not one of them in the past five years had even a basic understanding of gain structure in a recording chain. I would get questions like, "Why is it so distorted?" when the channel fader would be at -40 dB and the preamp in the high gain position with the overload LED lighting the control room in a bright red glow.

I was taught professional recording by a feisty old-school curmudgeon in the '60s at Audio Recording in Cleveland. We had a 1/2-inch 3-track Ampex (very state-of-the-art) and the ability to multitrack. So it was an either "you got it or you didn't" type of recording. Vlad Maleckar was the owner and resident taskmaster about the technical aspects of recording that continue to count today. With analog tape recording, we were never allowed to record an uncompressed voice track hotter than -3 dB or we would "grunge up" (Vlad's description) the second and third harmonics that contributed so much to the overall voice quality. Vlad taught me how to edit tape without marking it with a grease pencil. It saved a lot of time, let alone the fact that you were not poking the playback head constantly. Until the advent of DAWs, clients would watch me edit trying to figure out how I did it.

Jim Cogan's articles about Bill Putnam have been wonderful reading; Cogan's writing and having had the opportunity to watch Bill work made the articles all the more interesting.

Your editorial is a wonderful reminder that a little technical direction can go a long way to helping people make better-sounding recordings. The term "fix it in the mix" only goes so far.

Mike King

Audio Recording Unlimited

Chicago

Send Feedback to *Mix*
mixeditorial@primediabusiness.com



Great Sound Is MY Winning Strategy

The New MKH 418-S gives me the edge

From network sports to the Count Basie band in 5.1, Mike Pappas brings decades of audio experience to every job. And his microphone line of choice is Sennheiser MKH. Reliable. Great-sounding. Impervious to environmental extremes. Just like Mike. Naturally, the **MKH418-S** MS stereo shotgun has already become part of his collection. Make it part of yours. "It's unanimous. All the network audio guys who've tried the new **Sennheiser stereo shotgun mic** love it."


- **Mike Pappas,**
Broadcast Audio Engineer



A photograph of Mike Pappas, a man with a mustache wearing a blue polo shirt, holding a Sennheiser MKH 418-S microphone. He is standing in front of a large mixing console with many faders and buttons. The background is dark, making the man and the microphone stand out.

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A vertical row of several different Sennheiser MKH microphone models, including various shotgun, lavalier, and studio microphones, shown in a close-up shot.

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MICHAEL KAMEN, 1948-2003

Michael Kamen was someone who crossed the lines between rock and classical music when it was a truly revolutionary idea, and he kept on breaking down barriers his whole career. A Juilliard-trained oboist, in 1968 he formed the New York Rock and Roll Ensemble, which appeared with Leonard Bernstein and the New York Philharmonic, and whom I saw twice, once backing Janis Ian at Philharmonic (now Avery Fisher) Hall. One of the band's running jokes was that they had two oboists: lead and rhythm.

He scored his first film in 1976

and since then wrote the music for more than 70 movies, including such blockbusters as the *Lethal Weapon* and *Die Hard* series, *X-Men* and *Brazil*. He won four Grammys, two Golden Globes and an Emmy. Following the 1995 Oscar-nominated *Mr. Holland's Opus*, he created, with star Richard Dreyfuss, a foundation that donates musical instruments to needy schoolchildren.

He continued to jump genres with glee, writing symphonic works for Metallica, Eric Clapton and The Chieftains, and film scores with the likes of Blondie's Chris Stein, to name but

a few. Perhaps my favorite work of Kamen's is the brilliant orchestrations and arrangements he brought to Pink Floyd's monumental *The Wall*. Soon after that record came out, I interviewed him at length for a music magazine, and he invited me to sit in on a Tim Curry session for "Working on My Tan," which he was producing. It was one of the most fun sessions I've ever seen. In Michael, I found a playful, thoughtful, intellectual and brilliant musician, with ferocious eyebrows and a great smile who, given the chance, I could talk shop with,



and laugh with, for many hours.

Michael had recently been diagnosed with multiple sclerosis, very rare for someone his age, but it was a heart attack that caused his death in November.

—Paul Lehrman

JACK EMERSON, 1961-2003

On November 22, 2003, one of Nashville's best-loved visionaries in the rock and alt-country communities, Jack Emerson, passed away from a heart attack. Emerson had been battling a respiratory ailment for a number of months.

Emerson was the original bassist for Jason and The Scorchers, a band that drew from the soul of Hank Williams-style country and fueled it with the raw, reckless energy of the Sex Pistols. Emerson would eventually ditch the bass and become the band's manager, helping them release their first early '80s recordings on Emerson's Praxis imprint, which he started in 1982. With partners Andy

McLenon and Kay Clary, he made Praxis one of the hottest artist development and management enterprises in the South. Ultimately, Emerson would land the Scorchers on EMI America, as well as elevate the Georgia Satellites from a regional act to worldwide success with hits like "Keep Your Hands to Yourself" and "Battleship Chains." As Southeast A&R for A&M and later Zoo Entertainment/BMG, Emerson and Praxis worked with John Hiatt during his landmark *Bring the Family* album, released Billy Joe Shaver's acclaimed *Tramp on Your Street*, and elevated the recording careers of Webb Wilder, Sonny Landreth, Steve Forbert, Tim Kregel and The Sluggers,

Matthew Sweet and others.

In 1995, Emerson formed E-Squared Records, a desirable imprint for roots and Americana artists, with Steve Earle. The label's roster ultimately included 6 String Drag, Cheri Knight, Ross Rice and Marah, as well as five of Earle's albums. In 1999, Emerson and Earle signed a substantial deal with Danny Goldberg's Artemis Records.

Emerson, a huge fan of The Kinks, recently spearheaded the critically acclaimed *This Is Where I Belong: The Songs of Ray Davies & The Kinks*, which featured artists such as Matthew Sweet, Fountains of Wayne, Steve Forbert, Josh Rouse and Yo La



Tengo. In the world of film, Emerson was also the executive producer of the film soundtrack for *You Can Count on Me*, winner of Best Picture and Best Screenplay at the Sundance Film Festival.

Donations may be made to the MusiCares Foundation, 615/327-0050.

—Rick Clark

NEW YORK GUITAR CENTER OPENS

For anyone used to the logistical difficulties of being an engineer or musician in Manhattan, one of the most puzzling has been the lack of a major retail outlet downtown or anywhere near it. Now, with the opening of a new 30,000-square-foot Guitar Center on 25 West 14th Street (the retailer's new flagship superstore), there's a convenient

downtown location to check out a huge selection of musical instruments and gear.

The new Manhattan location is the 120th Guitar Center store and also bears special significance, as that neighborhood has given rise to many famous music venues, such as the Academy of Music on East 14th Street. Guitar Center's pro audio de-

partment, located on the downstairs floor, provides an especially expansive place to become intimate with a wider range of gear than can typically be accommodated in a New York City retail environment.

—David Weiss



Dan Akroyd and family member with Marty Albertson (president, co-CEO of Guitar Center) at the grand opening

RE-INSTITUTIONALIZING THE CLASSICS

There may not be quite as many musicians who fantasize about being the next Beethoven as they do the next Beyoncé, but up-and-coming classical players with big dreams are out there. However, with the classical catalogs of many major labels being among the hardest hit in the tough music economy, it's been getting tougher for today's crop of classical musicians—and the engineers who capture their sounds—to get the financial backing to move forward with new world-class recordings.

The Classical Recording Foundation (www.classicalrecordingfoundation.org) celebrated crucial efforts in this direction at its Second Annual Awards Ceremony, held in the beautiful intimacy of Weil Recital Hall at Carnegie Hall (New York City) on November 5, 2003. Four breathtaking performances by award-winners Andres Diaz, Judith Gordon, Robert Shannon, Anne-Marie McDermott and Ani Kavafian surrounded the presentation of the Composer of the Year Award to George Crumb. Hopefully, the great artistry of the evening bodes well for the future of this important foundation.

—David Weiss



Composer of the Year, George Crumb

Violinist Ani Kavafian and pianist Anne-Marie McDermott are members of The Chamber Music Society of Lincoln Center and are involved in recording the complete chamber works of Prokofiev.

NEW CANON SPOT IS A JEWEL

Jewel recently visited writer/producer Michael Lattanzi's home studio in the Hollywood Hills, where they cut and mixed tracks on a 1970s vintage 76-input API console for a Canon digital camera national commercial. Guitar work was handled by both Jewel and Lattanzi.



ROLAND THERAPY

On November 15, Roland and California State University, Northridge, hosted Music Therapy Day L.A. to celebrate the healing effects of music on the human body and mind. Events included a presentation by CSUN's Music Therapy Wellness Clinic director Ron Borczon, a drum circle and music activity, and demonstrations highlighting Roland technologies and the significant effects of the digital music medium on music therapy.



Music therapist Julie Berghofer demonstrating the unique benefits of the Roland HandSonic.

MOOG DOCUMENTARY IN THE WORKS

Director Hans Fjellestad and producer Ryan Page are halfway through the production of *MOOG*, a feature-length documentary film that explores the life of electronic musical instrument pioneer Robert Moog. The film is currently shooting on location in North Carolina, New York, Los Angeles, Tokyo and London. Page is finalizing a summer 2004 theatrical and soundtrack release.

Fjellestad said, "I'm very much focused on Bob's ideas about creativity, interactivity, spirituality and the raft of stories in the man's head. This is very much an 'in Bob's own words' piece."

Artists such as Stereolab, The Neptunes, Devo, Meat Beat Manifesto, Tortoise, DJ Spooky, The Cure, Money Mark, Luke Vibert,

33, the Album Leaf, Pete Devriese, Bostich, Charlie Clouser, Baiyon, Suzanne Ciani, Electric Sky-church and others are contributing original music

produced on Moog instruments for the film's soundtrack.

To view the trailers, visit www.moogmovie.com.



PHOTOS: NANA TOKI

ON CLOUD NINETEEN

West Los Angeles' newest full-service DVD production and post-production studio, Cloud Nineteen, offers state-of-the-art suites outfitted with Phillips 42-inch HD Plasma Cinema Displays for client viewing. The DVD Suite offers two Sonic DVD Creator workstations, Sony digital and analog VTRs, and has digital routing and signal patching capabil-

ities. The 5.1 Audio Suite is centered around Pro Tools and offers a 4x8-foot recording booth with a Phillips HD flat panel to accommodate ADR, original voice-over recordings, commentary tracks and single-instrument recording sessions. The Editorial Suite is equipped with two Final Cut Pro 4 workstations using AJA's new I/O box that allows for 10-bit uncompressed SD video capture, along with Sony DigiBeta and Beta SP decks for finishing.

President/founder Scott Boutté is also the company's DVD executive producer. Cloud Nineteen's other principals are Michael Tucker (pictured), sound producer, and Andrea Morin, executive producer. The company is located at 3767 Overland Ave., Ste. 104, Los Angeles, CA 90034; 310/839-5400. For more information, visit www.cloud19.com.



JAMES MURRAY, 1952-2003

James Murray died on October 7, 2003, in his native Oswego, N.Y. A natural salesman with enormous integrity, his career began in the early '80s at Express Sound and New West, a rep firm in Burbank, Calif. Murray eventually became Western regional manager for Panasonic/Ramsa and then added the Eastern states. He later handled sales and marketing for Bose, Tannoy and EAW. An outgoing and charming guy, he had many friends in the manufacturing, rep and dealer communities.

Murray survived a car crash in the mid-'90s, in which a tree branch struck through his midsection; he would later joke about his near-death experience. Unfortunately, he contracted Hepatitis C from a blood transfusion, leading to complications and major health problems.

James was one of the warmest people I'd ever met, a good friend



to all who knew him and will be missed. He is survived by Vanessa (his wife and high school sweetheart) and his stepson, Joel. A fund has been set up for Joel's education. Please send donations in check form to: The Joel Crouse Educational Fund, c/o Tim Schaeffer, 2826 Emily Lane, Simi Valley, CA 93063.

—Bill Ford

TEC AWARDS SITE CHOSEN, CALL FOR ENTRIES

The Mix Foundation for Excellence in Audio announced that the 20th Annual Technical Excellence & Creativity Awards will be held Saturday, October 30, 2004, at the San Francisco Marriott. For ticket or sponsorship information, contact Karen Dunn at 925/939-6149 or Karen@tecawards.org.

Product nominations are still being accepted. To be eligible, products must have been released and in commercial use during the period of March 31, 2003, to April 1, 2004.



Companies that wish to nominate for Studio Design should send the studio name and location, date completed, name/phone number of the architect(s), the acoustician(s) and the studio owner(s). Submitted projects must be new studios or rooms, or major renovations, completed and in use during the eligibility year of March 31, 2003, to April 1, 2004.

Forms can be downloaded from www.mixfoundation.org. All entries must be received by February 27, 2004.

INDUSTRY NEWS

In addition to celebrating its 30th anniversary, **Furman Sound** (Petaluma, CA) has appointed **James R. Bonfiglio** president/CEO...Responsible for the operations of **Dolby's** New York office, **Bill Allen** was promoted to senior director, production services...**Greg Batusic** joined **Gibson Guitar Corp.** (Nashville) as its chief sales officer and senior VP global sales. In other company news, **Michael Allen** is the new chief people officer and senior VP human resources...**DMT Rentals** (Burbank, CA) has opened a transfer department, which will be headed by **Brad Cobb** and **Vicki Giordano**...Continually expanding its roster, **Fluid** (New York City) has added editor **Bruce Ashley**...Console manufacturer **Audient** (Herriard, UK) has brought on **Nick Pemberton** as UK sales manager for its **Aztec Live Performance Series**...**Per Larsen**, former COO of **Steinberg Media Technologies**, has been named sales and marketing director of **Broadjam** (Madison, WI), where he will coordinate product distribution, sales, marketing and customer service through his recently formed firm **M17** (Malmö, Sweden)...Based out of Atlanta, **Tom Knesel** is the new regional sales manager for **Aviom** and will cover the Southern U.S. Other new distributors for the company include **Audio Geer** (Huntington Beach, CA) covering the Southwest, **Eaton Sales and Marketing** (Binghamton, NY) representing the Northeast and **HP Marketing Company** (Phoenix) covering the Rocky Mountain region...Overseeing all aspects of **QSC Audio's** (Costa Mesa, CA) export sales operations is **Mauricio Saint Martin**, export sales manager...**National Mobile Television** (Somerville, NJ) announced that **Stan Leshner** has joined the company's sales team as an account executive. In other NMT news, the company's Venue Service Group hired **Michael Descoteau** as its first director of sales...**Solid State Logic's** U.S. dealer network for its XLogic line comprises **Brook Mays Professional Recording Sales** (Dallas), **Cutting Edge Audio** (San Francisco), **Harris Audio Systems** (North Miami), **Interface Audio** (Nashville), **Professional Audio Design** (Rockland, MA), **Tekserve Corporation** (New York City) and **Guitar Center Professional** (Westlake Village, CA). The dealer in Canada is **Sonotechnique** (Montreal), and **Vari International** will cover Mexico.



Bill Allen

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NOTES FROM THE NET

LOUDEYE, MICROSOFT LEND A HAND

Digital music services provider Loudeye and Microsoft will collaborate on handling the infrastructure and distribution of online music services branded by other companies that are looking to sell songs online. Loudeye's services—which include its Digital Music Store and iRadio Service that contains 100 pre-programmed music channels—are based on Microsoft's Windows Media 9 Series. Early customers include AT&T Wireless and Gibson Audio. Plans for Microsoft's own download service are still in the works.

WAL-MART JOINS THE DOWNLOAD FRENZY

Retail giant Wal-Mart launched a bare-bones Website (<http://musicdown.loads.walmart.com/catalog/servlet/MainServlet>) to test its new \$0.88-per-song online music service. Offering thousands of tracks that can be downloaded in the Windows Media Audio format, as well as transferred to portable devices, burned to CD or played on Windows-compatible PCs, the site is currently in beta test and will formally launch in the spring of 2004. Tracks available will mirror those that are sold at the stores, continuing with the company's policy of not offering music that it deems offensive.

DO I HAVE P2P PROGRAMS ON MY COMPUTER?

Music-Amnesty.com has debuted its ShareControl (\$19.95), a software program that checks for the Top 10 music file-sharing programs and MP3s on a

computer and then allows the user to delete them.

"I think most people want to comply with the RIAA ruling but just don't know enough about their computers," said Mark Andrews, co-founder of Music-Amnesty.com. "The key advantage we give users is the ability to police themselves. Users decide if they want to delete these programs, turn sharing on and off, delete or keep music files; we don't impose our values. Our research shows that



when parents delete one peer-to-peer product, their sons or daughters often download another product and start downloading music again. Parents need to know if these products are on their computers and what their potential liability is."



SHEDDING LIGHT ON MAKING HIT RECORDS

More than 100 people attended the Music Production Forum, a free event held on November 29 at the new Globe Institute of Recording and Production in San Francisco, during which producers/authors David Gibson, Maestro Curtis and The Enhancer explained how to successfully produce any type of music.



David Gibson

In a step-by-step process for pre-production, the producers critiqued the 11 aspects of a recorded piece of music: concept, melody, harmony, rhythm, lyrics, song structure, density of arrangement, instrumentation, performance, mix and equipment. The attendees then critiqued a few songs based on the quality of the overall production. The conference concluded with a discussion on the state of the music industry and how individuals should take things into their own hands to be successful, including learning how to set up and run your own record company and do your own marketing.



Maestro Curtis

VISIONEERING GIVES SOUNDELUX JUMP START

In a month's time, Visioneering Design integrated five portable Pro Tools editorial systems and a loading station for digitizing picture and loading audio elements into Soundelux's new London editorial facilities.

"The first show we're working on is Wolfgang Peterson's *Troy*," said Bill Johnston, Ascent's senior VP of engineering. "The new company is staffed completely by British citizens, because it is not about our company sending over editors from Los Angeles; it's

about creating a British company."

According to Doug Mountain, Todd-AO Studios engineer, "All the systems are completely portable, so they can roll from room to room or to a stage. Four of the systems are based on Control 24 as a controller and as a monitoring environment. We are using JBL LSR-28s for monitoring systems and a JBL LSR-12 subwoofer. Each of the systems has a Mackie 1604 as a monitoring device for full 5.1 in the editorial rooms."



Doug Mountain (Todd-AO Studios engineer) is flanked by Visioneering president Ron Lagerlof (left) and Bill Johnston, Ascent Media senior VP engineering.

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World Radio History

Mi Casa Multimedia

By Maureen Droney

Tucked away in the Hollywood Hills in a cozy 1920s-era house, the busy studios of Mi Casa Multimedia Inc. are dedicated to the art of remixing feature films for the home theater surround experience. The brainchild of producer/engineer/synthesist Robert Margouloff and musician/engineer Brant Biles, Mi Casa opened in 1997. Since then, it has evolved into a three-studio complex with an enviable, genre-crossing track record that includes such notable pictures as *Austin Powers: Goldmember*, *Dirty Dancing*, *Se7en*, *About Schmidt*, *Down From the Mountain*, *Elf* and both *The Lord of the Rings: The Fellowship of the Ring* and *The Two Towers*.

Currently in the process of restoring six original '60s and '70s *James Bond* films for MGM, along with numerous other projects, Mi Casa is equipped with four Sony DMX-R100 consoles and a sophisticated recording, editing and restoration system: a hybrid of SADiE, Pro Tools and Sony technology.

The Grammy-winning Margouloff, known for the four records that he made with Stevie Wonder (including the classic *Innervisions*), and for his work with artists as disparate as Devo, the Doobie Brothers and Norman Brown, is your basic Renaissance type. His aesthetics are reflected in the painstaking restoration and retrofitting of Mi Casa's Mediterranean-style house and in the way its ambience blends with acoustics to create three discrete and distinctly contemporary "living room" listening experiences.

"Home theater is a very different animal than the movie theater," he notes. "What we wanted to achieve here was three fairly typical, but different, listening environments. Each room has its own set of speaker systems, and we make sure that the end result works in all three rooms."

With the enormous success of DVD-Video, Mi Casa's remixing for home theater premise was a case of the right idea at the right time. Margouloff, however, has been a surround enthusiast since the mid-'70s. With the advent of 5.1, he and Biles were quick to see the potential for music mixing and early on created a fruitful collaboration with DTS. But, with 5.1 music still only nascent, they began looking for other venues. "I started listening to DVDs, and they all sounded horrendous," Margouloff recalls. "They were di-

rect transfers trying to imitate the theater experience. I knew what the capabilities were, so we started knocking on the doors of movie companies. We were fortunate to develop a relationship with New Line Cinema, an unusual company that wants every disc that comes out to represent the finest solution possible. It wasn't long before directors, realizing the difference we could make, started getting involved, and the other companies quickly followed."

"For current films, like *Elf*, we remix basically from stems," explains Biles. "But even with stems, you'd be surprised at the amount of noise and dropouts that can occur in the original material. When your monitors are six to 10 feet away from you at ear level, the whole environment is different, especially in the surrounds. We take all of this into account. The result is not an imitation of a movie house; it's a different, much more detailed experience."

For Mi Casa's restoration projects, the requisite tracking down of original source material comes first, with supplemental sound design added where needed. According to both Biles and Margouloff, SADiE's Cedar Tools and Retouch programs are invaluable to the restoration process. Recently, Mi Casa has expanded operations to encompass the full spectrum of audio on its DVD projects, including remixing and finishing in surround for deleted scenes, commentaries and menus.

Noted architect John Storyk designed Mi Casa's studios, with input by Vincent Van Haaff and room tuning by Bob Hodas; main construction was by carpenter/musician Tony Clearwater. Biles is responsible for overall technical design, with the major portion of the wiring work done by Paul Cox.

Studio A, the largest suite, features two "cascading" DMX-R100 desks with a Sony SIU 100 AES/MADI interface for a total of 106 digital inputs and 48 analog inputs, along with a Genelec 1032A monitoring system. Studios B and C have single R100s; B is



equipped with JBL LSR 28S monitors, and C with Meyer HM-1s.

"In Studio A, we're running the SADiEs with 24 I/Os, Pro Tools with 48 I/Os, the two DMX-R100 consoles and the SIU 100 all at the same time," Biles marvels. "Not to mention the TC Electronic 6000s and Orion Junger mastering compression. The Z-Systems 64-by-64 digital routers in all studios are really helpful, as well. It really is an incredible amount of power."

"What we are doing here is truly the convergence of motion pictures, television and audiophile audio," comments Margouloff. "The home theater platform is where all of them reside. What makes Mi Casa different is that all of us are musicians. That gives us a different sensibility than people from most of the post houses. And we never take what we do for granted. We don't ever want to sacrifice quality for expediency. When people come to us, it's because of the audiophile level with which we treat the projects."

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Maureen Droney is Mix's Los Angeles editor.

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Before we get started, I want to thank all of you who wrote to offer your support. Your letters and e-mails of concern and inspiration were greatly appreciated. Gee, if I had known I would get this kind of response, I would have slammed into a van long ago.

And so we move ahead, as looking back still hurts too much.

HONEY, PUT THE VETTE OUT ON THE DRIVEWAY

I have been predicting and advocating totally virtual studio work environments for some time now, but I must admit that I never thought it would start like this.

Of course Apple did its Thing at MacWorld again, and Steve Jobs Jobified everybody rat good. He showed a slightly smaller iPod called the iPod MINI, a little toy that doesn't really seem properly placed or priced—that is, until Jobs explains it all to you and you walk out thinking it is the coolest thing since, well...the iPod *you* own. You also find yourself thinking, "How could I have been so misguided to think this thing was too expensive and didn't fit the market?" Yes, Jobs is good. Only after a day or so when his voodoo wears off do you realize that your initial assessment might actually have some merit.

But by then you have already bought one or found a new reality halfway between your old one and his, so you will at least go see it in the stores. Then you touch it...

But that's not the point. *This* is. He also introduced iLife, as "Microsoft Office for the rest of your life." Now I don't know if he means that you can use iLife for all the other things that you do in your life outside of work, or that if you buy this program it will immediately kill you, thereby assuring that you did in fact use it for the rest of your life.

iLife is a suite of tightly integrated multimedia programs: brand-new and massively improved versions of iMovie, iDVD, iTunes, iPhoto and, of course, the new *GarageBand*. What a friggin' name. iLifed until iCried. *Fifty bucks* American buys you the entire iLife suite. And it is free with any new Mac.

GarageBand is not a little toy, nor is it a pro app by any stretch of the imagination. It offers way, way too much for the money, yet is far too limited to make an actual commercial tune.

THIS IS THE END, MY FRIEND...

So what will it do? Well, for starters, it will end the way we make music, at least with Macs, as music software and DAW developers, feeling betrayed and sabotaged, will probably turn their backs on Apple. No one can compete.

This has always been a curious aspect of Apple mar-

keting: its history of buying companies with good software, updating and integrating the aspects of the software that it feels fit its targets and then releasing packages that compete with some of its strongest developers' efforts. Sometimes this process produces products that are exemplary, like the Amazing Avid Killer: Final Cut Pro. And sometimes it just seems to muck up the water. Only Steve Jobs really knows what the master plan is. Having personally made secret business trips to the Apple campus, I can tell you that I, and most at Apple, have absolutely no clue.

But this I can tell you: Releasing a product with GarageBand's bizarre combination of power, limitations and price is exactly the kind of move that can destabi-

GarageBand is not a little toy,
nor is it a pro app by any
stretch of the imagination.
It offers way, way too much
for the money.

lize the market and force it to regroup at its next level. And including it for free with every new Mac virtually assures it a place in history.

GarageBand is far too easy to use. And while Jobs points out that half of American households currently have at least one active musician in residence, he also claims that nonmusicians can easily, and instantly, create music with GarageBand. Both these statements are true. May the Masses make their own music.

This reliable, stable, supersimple 64-track recorder/editor/mixer with built-in virtual synthesizers, along with reverb, EQ, compression and a host of other effects, is gonna cause some trouble somewhere—or as I suspect, *everywhere*.

Yup. The Mac-oriented virtual synth, effect plug-in, microstudio and MI baby DAW developers who are suddenly faced with fully integrated native competition from their own target platform are not going to react too well, while every kid that likes any kind of music is going to at least want to try it.

And if you think about it, GarageBand probably marks the end of physical synthesizers, as well. It contains not only virtual synths but real acoustic samples and even live musician loops for your drop-and-listen pleasure.

Of course, virtual synths have been around for a long

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time and have not yet killed off physical keyboards, but Apple is in a unique position: The company can place GarageBand in every Mac kid's home and school virtually overnight. *That's* what's new here—Apple's size and power, and the fact that they have *musicians* working on music products as opposed to the *technicians* who design those frustrating, included toy Windows apps.

WE DON'T DO WINDOWS

Yes, there does seem to be a certain deeply ingrained mindset in the Wintel world that assures lame, clunky near-miss products of little to no value as their freebie consumer add-ons. Crippled, unstable and useless little applets that sound like crap might make it look like you are getting more for your buck when you're standing there at CompUSA, but they *are not* going to change the world.

Fluff like this simply isn't part of the Macintosh life. I'm not sure why this is true, but like it or not, it is. Mac users actually use the cool little apps that are part of OS X. And GarageBand is just the latest case in point. It is *integrated*. It interacts seamlessly with your homemade movies, videos and

Mac users actually use the cool little apps that are part of OS X. And GarageBand is just the latest case in point. It is *integrated*.

slide shows. And just to make sure you get the point, the included iDVD now burns *pro-quality two-hour DVDs* with animated menus in the privacy of your own hot little teenage lap.

And these new Mac apps just *might* change the world. Jobs has made seemingly crazed moves before, only to show in the end that he knew things we didn't. Take Final Cut Pro. It is released, with iMovie following for the kidlets, and then Final Cut Pro Express for the rest of us, and now Final Cut Pro Express 2 with power that the masses simply shouldn't have at all. Large apps first, trickle-down apps next. S.O.P.

But every time the analysts think they understand him, he changes his approach

and slips another aspect of personal computing into the future. So maybe, just maybe, he's doing it again, but *backward* this time: starting with the little app and moving *up*. If not, this could end Apple Pro. If they lose audio developers by placing a product that pretty much steps on everyone's blue-suede shoes but can't deliver the goods when a pro steps up, who the hell is going to think Mac when it's time to Mix?

This is why I think they have a monster hiding in the wings...a really *big* monster. I also think it will be announced within the year, and it will be pretty good. And history shows that Apple actually listens to its pro users and adds required features and fixes mistakes within the next year.

So, a monster DAW—no, a complete recording studio, within the year, and Version 2 within a year after that. I make this prediction based on five points:

1. The unfolding of the Avid vs. Final Cut Pro story
2. My network of spies and sources in such matters
3. One to two years is a *very* long time in tech-time
4. It just smells like it

—CONTINUED ON PAGE 128

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A Producer That's All Thumbs

It's a Mad, Mad, Mad Palmtop World

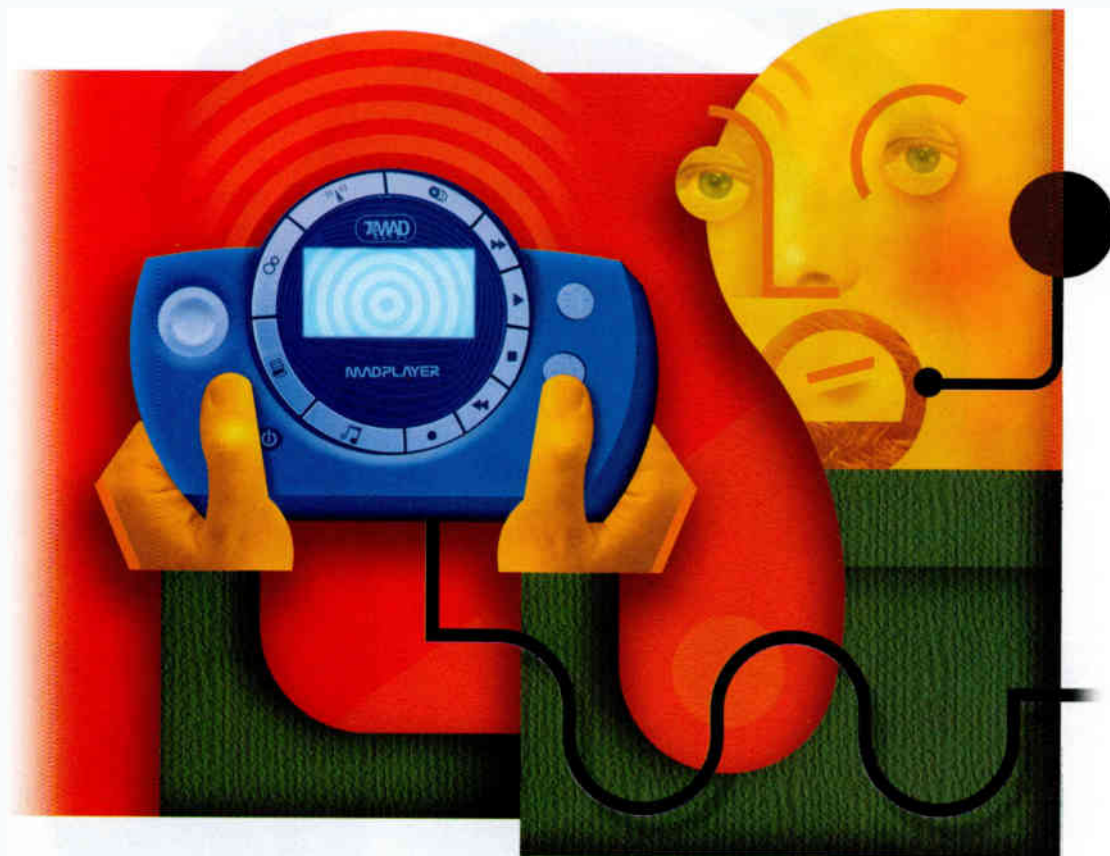


ILLUSTRATION: GORDON STUDER

So you wanna talk about desktop production? Heck, I've been doing that since 1986. A Mac, a couple of synths, a Sony PCM-F1 and a cheap VHS deck, and I could make an album in a week. And I did, too. Two of them, actually. And I'm still getting royalties on them, although as of late, my statements come with sentences like, "We don't issue checks for less than \$20," and no checks.

These days, of course, we don't need no steinking converter, tape deck or even synths. For the past couple of years, anyone with a laptop, a miniature keyboard and a little audio-to-USB (ugh) or Firewire doohickey could run an audio/MIDI sequencer and a software synth, mix the whole thing down and burn a CD master right inside the sucker.

No, desktop production is old, old, old. The new trend is *handheld* production. And I'm not even talking palmtop—more like fingertip. At least that's what the makers of a very interesting new gadget would like you to think.

If you've ever thought about how much technology there is in a Game Boy or a cell phone, then you realize it's probably more than what was in your entire stu-

dio 10 years ago. There's a whole general MIDI synth with downloadable samples inside that phone, and that thumbnail-sized smart card in the game player holds 128 MB of RAM, which, at the beginning of the past decade, would have been the size of a vinyl LP and cost about \$5,000. The disk storage in an iPod alone would have taken up a whole closet. Even the connectors have shrunk. Not long ago, recorders and reverbs required hooking up everything with pairs of XLRs, but today's inputs and outputs are stereo minis and subminis. SCSI connectors have been replaced with USB, and AC cords—well, they're hardly necessary when the whole shebang runs on batteries.

It was Yamaha that first developed the idea of palmtop music. In 1995, the company came out with the MU5, a 28-voice, 16-part general MIDI synth, which boasted a built-in serial port for direct connection to a PC, an internal sequencer and, best of all, a little two-octave "chiclet" keyboard that could be virtually stretched to 10 octaves by which you played and programmed the thing. It ate AA batteries—six at a gulp—but if you traveled with a bag full of Duracells and had really tiny fingers



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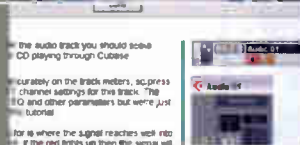
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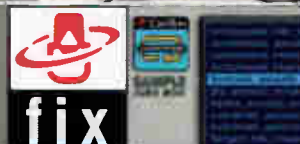
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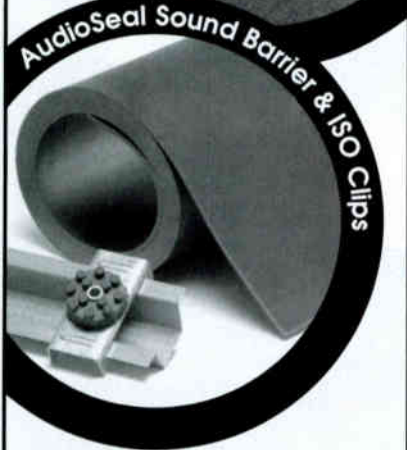
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INSIDER AUDIO

and a lot of patience, you could get quite a bit done with it during a transcontinental flight. Originally \$300, these days on eBay, you can find people bidding \$10 for them.

It was a niche item, of course, and the niche turned out to be awfully small, so the MU5 didn't spawn any direct successors. But it did pave the way for a slew of groove boxes and small "studios": little 4- and 8-track digital recorders from Korg, Zoom and Roland with drum machines and effects, and maybe a bass synth built in.

But even with those devices, you still need a certain amount of talent and knowledge to make decent-sounding music. Un-

Rather than simply sitting back and listening to music, users become active participants in the process by mixing and matching layers. But this is a far cry from actually "creating" music.

less, of course, your idea of music is random noises and verbiage over a couple of relentless rhythmic loops, which, granted, is true for a certain percentage of the public.

Individual tastes in music notwithstanding, it was inevitable that someone would come out with a palm-top production studio that made real, original music and required *nothing at all* from the user. And that's a pretty fair description of a new gadget from a company called MadWaves that is located in, of all places, France.

I don't know if the folks from *MAD* magazine have any objections to the company's name or naming its product the MadPlayer (the magazine doesn't seem to mind that wonderful Alfred W. Bush caricature that's going around, which I have proudly posted on my personal site), but I haven't heard any objection yet. They've got PC/Mac software called MadWare, the documentation is the MadManual and its Internet community is, of course, MadWorld.

The MadPlayer bills itself as a "generative digital music player." It puts a lot of stuff into a package the size of a Game Boy with a game-like user interface: a 1x2-inch 1-bit LCD encircled by 10 buttons that act as

mode and function controls; a four-way rocker switch that the company refers to as a "joystick," which selects and edits data; a two-way rocker switch that controls volume; two "shift" buttons to select DSP control; and two tiny buttons to turn on the power and store the music. There are mini headphone and microphone jacks—the unit includes a pair of headphones with a tiny electret mic attached on a boom—and a proprietary USB jack with cable supplied. Two AA cells provide power. No wall wart operation is possible, but a charger and two rechargeable Ni-MH batteries are included, and the player can also draw power off of the USB cable. Files are stored on a 32MB smart card that slides into the back.

To get the thing rolling, power up, go into "e-DJ" mode and choose one of 21 styles, which range from bossa to urban mix to garage. Immediately, it starts to play a complete arrangement—no encouragement needed. You have eight tracks to mess with: drums, bass, lead, riff, back, pad, sample and mic. The mic track controls volume and some rudimentary effects that you can apply to the mic input so you can rap or sing karaoke over the thing (yes, it will show you the words), and you can record the track if you are so inclined. The sample track, besides allowing you to record samples, lets you order them in memory for playback and fire them as either loops or one-shots.

The instrumental tracks are the interesting ones. If you don't like what you're hearing on any track, then you can tell the player to "recompose" it, which it does on the spot, creating a new two-bar segment with a new instrumental sound and different notes while staying in the same key and meter (i.e., 4/4). There are some very clever algorithms at work here. A lot of the recomposed riffs are quite good and, like snowflakes, it would seem that no two are ever the same. You can keep recomposing each part endlessly and the player will remember the last 16 patterns on each track.

You can also change volume and reverb levels on each track, adjust resonance and center frequency of a simple bandpass filter, and change pitch and tempo globally. Each track has its own set of instruments with about 510 different sounds in all, and you can scroll through the instrument sounds on a track without recomposing it. While you are playing with the sounds, the MadPlayer "composes" an entire song—creating an intro, verses, choruses and an ending—using a predetermined formula that is different for each style. When it gets to the end, if you like how it came out, you can save it as a

—CONTINUED ON PAGE 130

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NOT JUST FOR
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Adding Loops Into Live Tracks Brings a New Audio Dimension

By Erik Hawkins

PHOTO TREATMENT: MIKE CRUZ

When we think of loop-based production, we often imagine techno and dance music or remixed pop hits—or in any case, music that's been assembled loop by loop. But take a close listen to some of the R&B, hip hop and even rock that's on the radio today, and you might notice the use of loops in the mix.

It used to be that "loop" was a dirty word, and for good reason: The material available to build a loop was weak, technology was limited and plenty of loops just sounded cheesy. But the popularity of electronic music has helped usher in a new generation of technology that allows for more creative flexibility in *any* music production environment. That, combined with the loop-heavy state of modern pop music, results in more music across the board that brings together loops and live audio tracks.

To gain a clear understanding of both the technical and creative sides of combining loops and audio tracks, *Mix* spoke with several well-known music producers and asked them to share some of their tricks. Producer/engineer/songwriter Michael Bradford (Kid Rock, Uncle Kracker, New Radicals) recently completed production on the new Deep Purple album *Bananas* (Sanctuary Records) and is about to begin production on Uncle Kracker's next album. Veteran producer/songwriter David Frank has been churning out hits for more than three decades, from Chaka Khan's "I Feel for You" to Christina Aguilera's "Genie in a Bottle" (which he co-wrote with Steve Kipner and Pam Sheyne). Recent work includes tracks with European pop star Ronan Keatings, *American Idol* runner-up Justin Guarini and a forthcoming *American Juniors* album. Joe Solo is a producer/songwriter with Famous Music, the music publishing division of

Paramount. His credits include Macy Gray and co-writes with John Ingoldby (Madonna and Elton John) and Arnie Roman (Celine Dion).

THE BIRTH OF A LOOP

Bradford explains that a well-chosen loop adds "spice" to a production that may be difficult to achieve with only an artist's studio performance. "The right loop will introduce a certain ambience to a track, creating a mental picture of where you want to take the listener—whether it's a busy city street, a dark alley or some place more exotic. A good loop can really do a lot psychologically for the listener and help you to tell a story with the song. It's like lighting in a visual setting: It helps set the mood."

A loop's repetitive nature can also function as a production's rhythmic, and sometimes harmonic, glue. "The basis for all contemporary groove-based music is one- or two-bar loops of repeating rhythmic or harmonic patterns," says Frank. "A loop can give a track that hypnotic feel, which can be used to a producer or songwriter's advantage," adds Solo, who will often loop a vocal line during the final chorus to underpin a song's hook. Bradford adds, "The good thing about loops is that they have that steady time, while the bad thing is that they're missing the human part of the equation—that spontaneous element of a performance. What makes a song that is heavily loop-based sound human is to have real fills and percussion played over the loop—something to break up the loop's repetitiveness."

A loop can be added midway through a track, but it also can ignite the creative process from the get-go. "There was a song I did

NOT JUST FOR DANCE MUSIC ANYMORE

recently where I just keep repeating an organ riff over and over again, and the whole composition was built up from this loop," says Frank. Generally, a looped element, such as a rhythm track or obscure melody from an old funk recording used during the songwriting process, will remain part of the final production even if the loop itself does not. As Solo puts it, "The loop may or may not end up in the final mix, but since the production was initially built using it as a starting point, the loop's 'feel' stays with the song to the end."

During the course of a production, a loop may make its first appearance at any time. Loops may be incorporated during the songwriting process and remain through to the final mix or added after a song has been recorded and carefully synchronized to these performances. Bradford says, "If I'm using a loop during the recording, it probably has a beat or a character that I want musicians to key into as they're performing the song. Otherwise, I'll record using a click so that I can edit and fly sections around without worrying about tempo changes; this also gives me a tempo that I can rely on when I want to use my loops."

HOMEGROWN AND READY-MADE

While there are numerous sample libraries on the market that offer quality loops, for the most part, these producers sample loops of their own creation. "I'll come up with

some sort of sequence that I like," says Frank. "This could be a rhythmic loop assembled from analog noise samples or a harmonic loop, like I might play a four-bar chord progression on a clavinet or Rhodes. Then I record the performance into Logic Audio so that I have the loop as an audio file. That's when the fun begins. In Logic, I work on the loop some more, filter it, chop it up and throw away the pieces that I don't like. There's a song called 'Heartbreaker' on Justin Guarini's debut album where I used this technique. I recorded a four-bar pattern of arpeggiated chords using Emagic's virtual Fender Rhodes, the EVP88. Then I changed the audio around in Logic. That loop is the harmonic underpinning of the song."

"I have a great drum kit, a ton of snares and a bunch of percussion instruments," says Bradford. "Often, I'll just go into my studio, have a click running and record myself playing. Then I'll process the performances, do various things with ambience and echo, and burn loops out of them. I'll also record individual drum hits and then put everything together to build my own pattern libraries." Bradford fashions loops from his guitar playing, as well. "A lot of the loops I make are guitar that's been heavily processed, sort of repeating, sonic patterns. I have TC Electronic's G-Force, a guitar processor with nine built-in effects—like compression, delay, distortion, reverb, some filters—that can be chained together in any sequence. And there are all sorts of modulation choices. It's an incredible



David Frank

sound design tool that I've used to make loops from guitar playing that sound nothing like guitars."

Solo takes a similar approach to creating loops. "In order to have my own custom building blocks, I'll sample my guitar playing and extract parts from my productions that haven't been released. Then I'll spend time mangling these elements with plug-ins, effects units and even stomp boxes, like wah wah and whammy pedals, to invent really unique-sounding loops." Solo says that he has two "special weapons" for processing loops: Antares' Kantos and Roger Linn Designs' Adrenalinn II. "I love the Kantos plug-in. It can twist an audio file in really unconventional ways, and the results are always original. Adrenalinn is a groove-filter stomp box, which can impart that classic, dirty loop feel to any instrument. I run

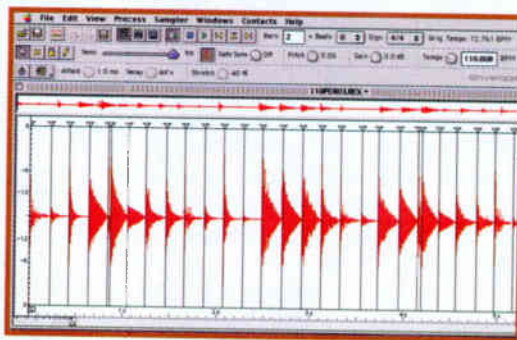
Prescription REX

With Propellerhead's ReCycle application, loops can be chopped up into component "hits," where each hit becomes one sample. An associated MIDI file plays back all of the samples in order, re-creating the performance heard in the original audio file. These are called ReCycled loops. Such loops are often referred to by their extension, .rex, for REX files. (There are actually two types of REX files: .rex, the original mono version, and .rx2, the more recent stereo version.) REX loops provide a high degree of tempo control without any of the nasty artifacts normally associated with traditional time compression/expansion. Moreover, because of their unique architecture, ReCycled loops can be easily quantized, re-grooved and even rearranged.

Many of today's top digital audio sequencers can read REX files, including Digital

Performer, Logic Audio and Cubase SX. A handful of other popular programs also work with REX files, including Propellerhead's Reason (the Dr. REX module) and Emagic's EXS24 sampler. There are a lot of cool REX libraries available, but it's also possible to write your own REX files with the ReCycle application. With this program in your loop-making toolbox, you can recycle your own loops to create the ultimate and totally flexible custom loop library.

Locking a ReCycled loop with the groove of a live performance is a piece of cake: By altering its MIDI performance file or the placement of each individual sample (as is the case when importing a REX file directly to an audio track), you can change the actual "feel" of the loop as easily as you can change its tempo. For exam-



Propellerhead's ReCycle chops up loops into "hit" samples.

ple, you can create a groove template based on the drummer's performance and then quantize all of the REX files' samples to that groove. This allows many loops that wouldn't normally sound good on top of each other to be layered together because they are all locked to the same groove engine.

—Erik Hawkins

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instruments through it that aren't usually associated with loops, from guitar to vocals and acoustic piano. It can even synchronize to MIDI Beat Clock for some amazing rhythmic effects. I once spent six hours straight running a couple of looped vocal lines through Adrenalinn and exploring all the various possibilities."

LOOP-LOCKED

But there are times when these producers

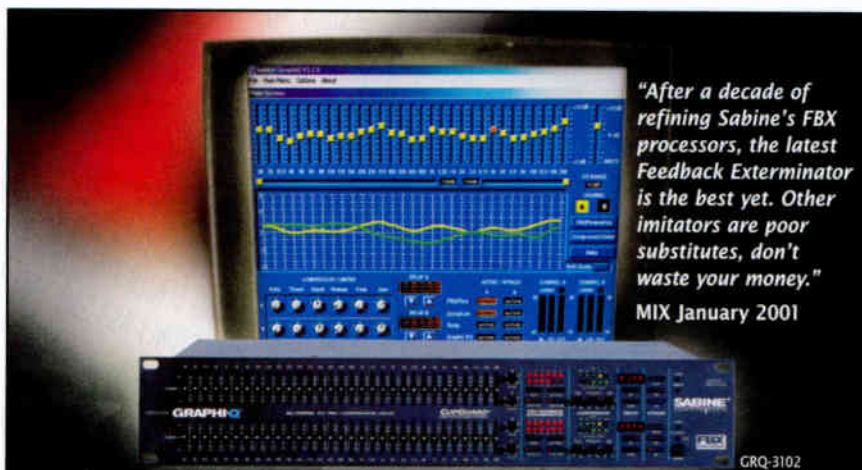
employ loops from a commercially available library. For example, both Frank and Solo name Spectrasonics' Stylus as a drum loop source. Bradford also names a few of his preferred CD-ROM releases: "One of my favorites is Zero-G's *Chemical Beats*," he says. "And E-Lab's *Vinylistic Series* is always great to have on hand. I've used that one on everyone from Terence Trent D'Arby to Uncle Kracker. One other library is Big Fish Audio's *Alien Guitars*. It's really good for sounds that you don't necessarily recognize as guitars; the loops just become ambience."

"I recently did a production for *American Juniors*, where I used a loop from Stylus," says Frank. "The track needed more of a swing feel, so I found a loop in Stylus that had the right type of feel. It was almost the right tempo as well, so rather than time stretch it, I simply tuned it to match the song's tempo. The song's original drums had sort of an eighth-note feel, while the loop from Stylus featured more of a swinging 16th-note feel. In this case, tuning the loop to lock it up with the original groove worked fine because there were no conflicts between any of the parts. The loop added the perfect feel for the final production."

For those times when more drastic measures must be taken to synchronize a loop, Solo employs Digital Performer's built-in time compression/expansion tool. "To change the tempo of one of my homemade drum loops, I use Digital Performer's graphic time-stretching tool. Initially, you need to be meticulous about truncating the loop so that it starts and ends perfectly in time, but after this, you can just grab the end of the loop and snap it to your sequence's tempo grid. The loop is then automatically stretched or compressed to match the tempo of your song. I have the whole process down to about 20 seconds."

Bradford depends on Serato's Pitch 'n Time plug-in for his time-stretching tasks. "If it's a matter of speeding up or slowing down the entire loop a significant amount, Pitch 'n Time is great. A lot of percussion has pitches, and if you speed them up or down, you don't necessarily want the pitch to change, just the tempo. You can do this with Pitch 'n Time." When even more detailed editing is required, Bradford employs Pro Tools' Beat Detective. "The Beat Detective feature lets me take any loop and chop it up into smaller sections, which can then be quantized. Between Pitch 'n Time and Beat Detective, I can pretty much line up anything with anything."

Most loops are in 4/4 meter, but with a tool like Beat Detective and some imaginative editing, it's possible to lock a 4/4-meter loop into a song of a different meter. "On the Deep Purple album, there was one song where the verses were in 7 and the choruses in 5," says Bradford. "I found a very cool Latin percussion loop in 4/4, then chopped it up to make it in 7. A lot of people think 4/4 time in terms of loops, but there's no reason why you can't do other time signatures. As long as you can get the loop to blend in so that you feel it but don't necessarily hear it."



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IN THE MIX

"The remake of Dobie Gray's song 'Drift Away' on Uncle Kracker's *No Stranger to Shame* album is a good example of how I work," says Bradford. "I cut the rhythm section with drummer Russ Kunkel, one of the best drummers in the world; he played on Jackson Brown's 'Running on Empty,' Bob Seger's 'Like a Rock' and Carly Simon's 'Anticipation.' At that point, the song sounded very retro—too similar to the original. So to give it a more contemporary sound, I decided to try some loops, which really brought it into this century. The loops alone would have been too youthful, too hip hop and not paid any respect to the original version, which is one of the most popular songs of the last 30 years. It was really the combination that made everything work. And it paid off. 'Drift Away' was Number One on *Billboard's* AC chart for a record 24 weeks, and the album went Gold largely on the strength of that single."

All three producers often use filtering to help a loop sit in the mix. As Solo explains, "I'll filter out all the frequencies below around 5 kHz, leaving just the high end. That way, the loop's kick and snare won't interfere with the real drummer's performance. This technique was used in Macy Gray's 'Sweet Baby,' the first single from *The Id* album, which was co-produced with Daryl Swann and Rick Rubin." According to Bradford, "I'll occasionally drop a loop out during the mix, but I'm more likely to filter it. The downside with loops is that they take up so much room; if you take them out completely, you feel like the bottom has dropped out of the song. So rather than having a loop go away completely, filtering just changes its tone." Frank also employs bit reduction. "The effect is to remove some of the loop's bottom end so that it sits behind the main drum groove."

Processing the same loop in different



Michael Bradford



Joe Solo

ways, for different sections of a song, can also help to keep things interesting. For example, you could lightly filter the loop during the verses, then put a phasing effect on the loop for the choruses. Bradford says, "Another thing I do is use different kinds of loops, one for the verse, another for the chorus and a different one for the bridge. To do this, you want to select loops that are similar, but not exact, so switching between them doesn't sound abrupt. It's the same idea as a live drummer who might play one beat during the verse and, for more energy, a slightly different beat during the chorus."

Bradford offers some wise advice to integrate loops and live percussion: "If you're going to use loops against live percussion, it's very important to have a drummer who has really good time. Loops are so steady, they can really show any flaws in the drummer's timing. But when you have a drummer who can really play in the pocket right along with the loop, it's a magnificent sound."

The right loop can add flavor to your production, and using a loop of your own creation will ensure that the flavor is not canned. As Solo puts it, "If you just stick with factory loops, you're using the same musical building blocks that everyone else in the world has access to." Don't be afraid to experiment, because as Frank points out, "Playing with a loop in a digital audio sequencer is not unlike working with another musician: You can get different ideas from your interplay with the program." Loops have become a staple in popular music production. If you need proof, just look at the charts. So throw out any preconceived notions about what type of music loops belong in, and dig in.



Erik Hawkins was totally looped when he wrote this story. Look for his new book, How to Remix: Produce Dance-Floor Hits on Your Personal Computer (coming next month from Berklee Press) to learn more sizzling production tricks.

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TAKING THE G5 Live!

How Much Audio, Video and DSP-Intensive Processing Can the New Mac Handle?

Whenever Apple releases a new computer, it invariably makes audio folks drool with anticipation but ultimately begs the question: Does it offer the features, speed and compatibility to make it worth dumping my old system? Because the G5 is more of a ground-up redesign than a faster, prettier box, the hype surrounding it has created a lot more than the usual interest. So when Apple offered to send *Mix* a shiny new über-computer loaded with Logic Platinum 6.3—an update of the first major version release since Apple took over Emagic and the first workstation to be fully optimized for the G5—we were very interested.

We wanted this to be more than a test of Logic on the new platform so I talked to Robert Brock, head of the digital department at the Conservatory of Recording Arts & Sciences in Arizona, about creating a test that would be fresh and informative. Brock co-wrote the Apple Pro Training Series book *Logic 6 Professional Music Creation and Audio Production* for Peachpit Press. When I mentioned that I had access to a new G5, Brock's wheels started spinning and the outcome of the conversation was the G5 Live Project.

THE G5: A QUICK LOOK

The G5 is built for speed. Unlike its 32-bit predecessors, the G5 delivers the ability to address up to 8 GB of main memory and perform advanced 64-bit computation. For audio, this means that large sample libraries can be held in RAM, allowing faster access than off of the hard drive. During our test, the G5 was able to play back complex mixes while synching a QuickTime movie, changing screensets, changing settings on plug-ins and viewing multiple RTA displays on the channel equalizer. Even when we loaded up the session, there was no sluggishness or mouse slowdown as with past G Series computers.

The reason for the speed is a wider data path. To allow the processor faster access to data in memory, the frontside bus offers a clock frequency of up to 1 GHz. (On dual-processor systems, each processor gets its own dedicated frontside bus.) As a comparison, the G4's frontside bus maxed out at 167 MHz.

The SDRAM is equipped with a dual-channel interface that allows simultaneous read/writes. Each second, up to 6.4 GB of data can be exchanged between the main memory and processor.

The two serial ATA drive bays allow the installation of two 250GB hard drives, each having its own bus. Up to 55 MB per second of data can be written to the drive, while 54 MB per second can be read. OS X's integrated RAID software allows the two drives to be viewed as one or allows data from one drive to be mirrored to the second.

On the outside, the G5 offers two FireWire 400 ports, one FireWire 800 port, three USB 2.0 and two USB 1.1 connections, Gigabit Ethernet and an optical Toslink I/O (S/PDIF). There is a USB 2.0 and FireWire 400 jack on the front of the unit for those quick hookups. Clearly, the G5 is poised to be everyone's "everything" computer. Whether that was true for audio is what we set to find out.

AN EARLY HICCUP

With any new or next-generation gear, problems can come up. In our case, the problem was a low-level, but unacceptable, noise that emanated from the G5's optical output port. We encountered this early on in the project—before we acquired a MOTU FireWire interface and initial I/O was ported through the G5's optical I/O into a Tascam US-428. In the initial G5 test unit, the noise could be altered by moving windows on the desktop and seemed to be tied to changes on the video screen; this was odd, to say the least. The noise could also be physically heard coming out of the area of the power supply.

The noise wasn't isolated to just our unit, as the Web was alive with buzz relating to the problem. An entire Web page complete with audio files at Accelerate Your Mac (<http://www.xlr8yourmac.com/systems.html>) has been devoted to this issue. Apple was very helpful and interested in tracking this down and sent us another G5 immediately. Apple engineers offered that the problem was grounding-related, but the US-428 uses a wall wart which usually helps, rather than hinders, noise prob-

BY KEVIN BECKA



lems. The second unit still had the noise but it was no longer related to the video. By this time, MOTU had shipped us an 896HD, and we discovered that the noise didn't exit the FireWire port. When I tested the FireWire output of another G5 that I had access to, it was quiet as well. Although I felt confident that we could carry on unhindered by noise, Apple sent us a third unit that was completely clear of the problem. Apple suggests that users who have this problem call AppleCare for assistance.

PROJECT SETUP

The purpose of the project was to load down the G5 with as many tasks as we could while recording a song during a live

performance. The G5 and Logic were to handle everything; we only went outside the box when we had to. Certainly, pulling off an event such as this put a lot of responsibility on our test unit, but it was not unfair to do so. After all, our computer had dual 2GHz processors, 2 Gigabytes of RAM and two Serial ATA drives all running an audio application capable of tapping into the massive horsepower of the G5. The plan was to play back prerecorded, sequenced tracks using some CPU-hogging sample libraries and virtual instruments while triggering new events and recording live players—all while playing it back to an audience in quad.

The project started with Brock writing and sequencing a demo of the song that we

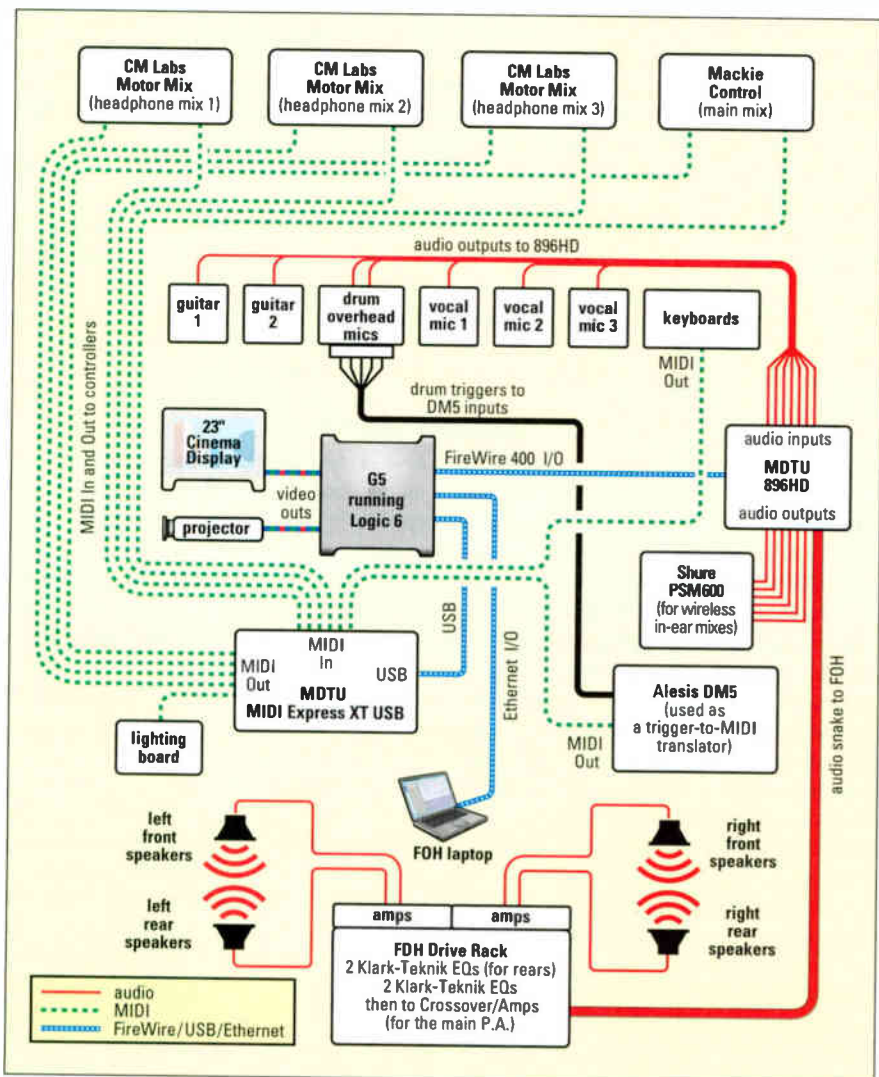
were going to perform. I contacted a number of manufacturers of virtual instrument plug-ins and sample libraries who sent us their latest and greatest. What we got was the massive VSL sample library from ILIO; BFD drum library from FXpansion; the Trilogy, Atmosphere and Stylus VI plug-ins from Spectrasonics; and the Space Designer Reverb plug-in from Emagic. The stunning audio quality and advanced feature sets of these products come at a high DSP price, and we wanted to see how the G5 would handle it. To be able to store the large libraries and have the audio files on a different drive than Logic, Maxtor loaned us a 250GB, 7,200 rpm internal SATA drive. To be able to port the session to another platform, we had the Maxtor 250GB OneTouch FireWire drive.

SETUP OUTSIDE THE BOX

For the live performance, the song's MIDI tracks were going to be played back with a combination of live and triggered drums, two guitars, keyboards and three vocal mics. A band comprising Conservatory instructors, named "G5 and the Black Hats," was assembled, with Bobby Frasier and myself on guitars and vocals, Tony Nunes on drums, and Brock on keys and lead vocal.

The first task was to set up the drums to trigger our sample library. Nunes brought in a full kit that would be used to drive the samples. To keep the drums from becoming overpowering onstage and in the mix, they were muted with a set of SoundOff drum set silencers. Trigger Perfect and other piezo-electric transducers were used on the snare, kick and toms, with an extra trigger added to a music stand to be used as a side stick trigger. These were sent to an Alesis DM5 to change the trigger pulses to MIDI events. The DM5's MIDI output was sent to a MOTU MIDI Express XT USB, which was sent via USB into the G5 and then to Logic running the BFD drum plug-in from FXpansion.

We used a MOTU 896HD FireWire interface for all of the audio ins and outs. Cymbals and hi-hat were recorded live through a pair of overhead condenser mics sent through the 896HD. The guitars, played through Line 6 Pods, and three vocal mics were sent to the 896HD FireWire'd to the G5, and tracks were assigned in Logic. We looked for a compatible amp-modeling plug-in that we could use for the guitars, but they hadn't yet hit the market. The 896HD's outputs fed both the quad mix to the house and the in-ear monitors used for the stage. The house mix was sent back to the FOH drive rack, where it was EQ'd and sent to crossovers before it went out to the house system. If there were such a thing as a crossover plug-in (hint, hint), we could have



The tangled web we wove: The G5, center, played back sequenced tracks, plus sample library material and virtual instruments, while triggering events and recording live players, all playing back in quad.



Conservatory instructor Keith Marris uses SIA Smart Live software on a laptop to tune the system and put the quad setup in place.

system. If there were such a thing as a crossover plug-in (hint, hint), we could have gone directly to the power amps from the 896HD.

To make things even more interesting, a separate MIDI track was used to send event changes to a MIDI-controlled lighting board. During the performance, Logic would be turning on and off combinations of lights on the pro lighting rig flown above the stage.

INTERNAL ROUTING

The main output setup in Logic is done from the Core Audio driver window. In our case, once the MOTU 896HD was selected as the go-to I/O box, then every audio track in Logic could be easily assigned to any of the outputs. This became our front-of-house left and right feeds. Setup in quad is just as easy. There is a page in Logic where you can customize interface outputs and assign them to specific speakers. In our setup, most of the tracks were left in their standard stereo mode, but a few of the synth sounds and pads were assigned to a quad panner and mixed into the rear channels.

The headphone mixes were a bit trickier to set up. Four stereo mixes were needed for the musicians' headphone feeds, but we had already used four of the 896HD's 10 balanced XLR outputs for the quad FOH setup. This left us with only six outputs—two channels short. However, MOTU's FireWire Console control software allows the headphone jack on the front of the 896 to mirror any stereo pair of outputs or act as a completely separate assignable output. The fourth head-

phone feed was accomplished by plugging the Shure in-ear monitor straight into the headphone jack. The three other stereo pairs sent signal directly to the Shure wireless headphone transmitters.

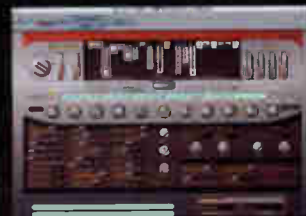
We used an even more circuitous setup to get the bused tracks to the aux sends. It's very handy to send a number of tracks to one of Logic's 64 internal stereo buses and process them as a group. Unfortunately, a bus fader in Logic can only have its output assigned to one physical output at a time, and there are no aux sends on the bus tracks. You can, however, create aux tracks in Logic and receive signal from any of the buses. The aux tracks have the aux sends necessary to feed the VSL submix to the players' monitor mixes.

HEADPHONE AND REMOTE MIXING

Logic gave us a great amount of flexibility in providing for separate headphone mixes. This is attributed to Logic's ability to assign separate controllers to the auxiliaries, as well as control of the main mix faders, letting any number of individuals control the Logic mixer remotely and independently. We used three Motor Mixes from CM Labs as headphone mix controllers for the live players. Mackie supplied an upgraded Mackie Control as a main mix controller for the project. MIDI Express XT handled the two-way MIDI communication to the controllers. Because MIDI only uses three of the five pins on the DIN connector, MIDI-to-XLR connectors enabled the use of mic cables to extend the MIDI feeds across the stage.

Long-distance control of Logic was

AT A GLANCE: OUR SOFTWARE



Emagic's EVB-3: Logic's own virtual instrument, the EVB-3, is a great-sounding Hammond B-3 emulator. It is not a sample, but a virtual model of a B-3, giving the user the ability to tweak every last detail from the volume of the key clicks to the amount of draw bar leakage.



Emagic's Space Designer: Unlike most other convolution reverbs, Space Designer can synthetically generate a virtual acoustic space and give you all kinds of ways to adjust it to your liking. It contains not only rooms, but impulse responses of popular high-end processors. The reverb tails were lush, long and realistic. It is a DSP hog, but the G5 had no problems providing for the needs of this versatile plug.



Spectrasonics Trilogy: Trilogy is all things bass whether it is electric, electronic or acoustic. The detail is incredible. For example, the acoustic upright plucked bass is complete with release samples containing fingerboard noise. Most of the sounds have a feature called "True Staccato," which lays out the same pitches on two different areas on the keyboard. The lower area has the sustained notes and the upper area has the same pitches, but with samples of a real bass player playing staccato muted notes.



Taking the G5 Live!

achieved by using a G4 laptop connected via Ethernet back to the FOH position. The laptop was running Apple's Remote Desktop, which allowed FOH engineer Keith Morris to view an image of Logic's mixer and make changes. If we were wireless, it would have been even simpler, albeit slower.

VIDEO, TOO

We decided to add video to the Logic G5 task list, as well. Adding video to a Logic session is as simple as typing Apple-M or using the Import tab from the Options pulldown. Once the video is imported, it shows up in its own window and is synched directly to the audio. Positional feedback is offered at the bottom of the Video window in the form of Position (bar/beat in our case), SMPTE and Movie Start. The QuickTime movie's output is assignable from Logic's Song Settings/Video pulldown. Because we could get it out to the FireWire port, we wanted to see if the G5 could handle yet another task, but it wasn't meant to be.

Although the video itself did not pose any problems when running within the session, the process of trying to break out the video to its own projector screen didn't work. The proposed video setup was to have one screen go out to the 23-inch cinema display at the keyboard position and a second screen fed out to a projector and large screen onstage. The G5's twin video

output ports made this easy. What didn't work was when we tried to take the QuickTime video out of the second FireWire port to a DV cam, then out to a second projector and screen onstage.

When doing so, we could get the video out to the DV camera, but once we played the song and all was in sync, it resulted in some serious dropouts. At the last minute, we toyed with the idea of using the FireWire 800 port in "dumbed down 400" mode to solve the problem. However, due to a lack of appropriate cabling and time, this was not attempted. We settled for having the video play in one of the Logic screen sets that would be sent to the main projector output via the traditional output.

REACHING THE LIMIT

The day before the tests began, setup started with Conservatory live sound instructor Morris using SIA Software's Smaart Live to tune the system and get our quad setup in place. It was handy to use the Spectrasonics Atmosphere plug-in's 1kHz test tones at 0 dB to set up the room. (It also offers 100 Hz, 10 kHz, a sweep tone and pink noise.) Next, the drums and triggers were tested and set up in Logic. The other audio feeds were tested and set up, which left Brock the task of getting the auxes and controller feeds going.

To keep the players from having to scroll through tracks on their Motor Mix controllers, four stereo aux sends were created, each going to the respective monitor mix output on eight tracks. These included each player's instrument or mic, the click track and a large submix labeled "everything else."

This last submix comprised 25 stereo tracks that included other submixed buses with effects. All of this was sent to the quad front system and four stereo monitor mixes through one FireWire cable without any noticeable latency. Impressive.

To monitor all of this, the channels for all of the live inputs had to be record-enabled. As each track was enabled, you could see the DSP monitor crawl higher and higher. This was especially true for the vocal mics, each of which was running a separate DSP-hungry Space Designer reverb. By the time the three vocal mics, two guitars, two overhead mics and the BFD drums (many with accompanying plug-ins) were enabled, a little more than a quarter of the DSP was being used. And this didn't include playing back the 20-plus prerecorded sequence

—CONTINUED ON PAGE 134

G5 Live Gear and Software

Hardware:

Apple G5 (twin 2GHz processors,
2 Gigs of RAM) running OS X (10.2.1)
MOTU MIDI Express XT USB
MOTU Audio 896HD FireWire Interface
Maxtor 250GB 7,200 rpm SATA Drive
Maxtor OneTouch 250GB 7,200 rpm
FireWire Drive
3x CM Labs Motor Mix
Mackie Control (upgraded)
Alesis DM5
3x Shure PSM600

Software:

Logic 6.3
Spectrasonics Stylus, Atmosphere and
Trilogy Virtual Instruments Plug-ins
Vienna Symphonic Library
Expansion BFD sampled drums
Emagic Space Designer Reverb plug-in

AT A GLANCE: OUR SOFTWARE



Spectrasonics Stylus: Stylus contains a vast number of beats organized by tempo in a very easy-to-use structure. If the tempo doesn't match your groove, a groove control system allows the tempo to be modified without changing pitch.



Spectrasonics Atmosphere: Atmosphere is all about sonic texturing. Our mix ended with using six Atmosphere plug-ins, providing a lot of ear candy.



Expansion B.F.D.: This 9GB sample library lets you pick from a multitude of different models for every drum in the kit. Each is recorded at 30 to 40 velocity layers, with direct mics, overheads, room mics and even PZMs on the floor.



Vienna Symphonic Library VSL Orchestra: One of the best features of the 100GB VSL library is the Performance tool. This is a system written into the code of Logic specifically for VSL that analyzes the MIDI data generated by your performance and automatically triggers various samples to create more realistic articulations.

GIGAPULSE™

The real-time convolving reverb plug-in that lets you sample actual acoustic spaces.

The **Acoustic Space** window displays sound source location or a dimensional drawing of the space.

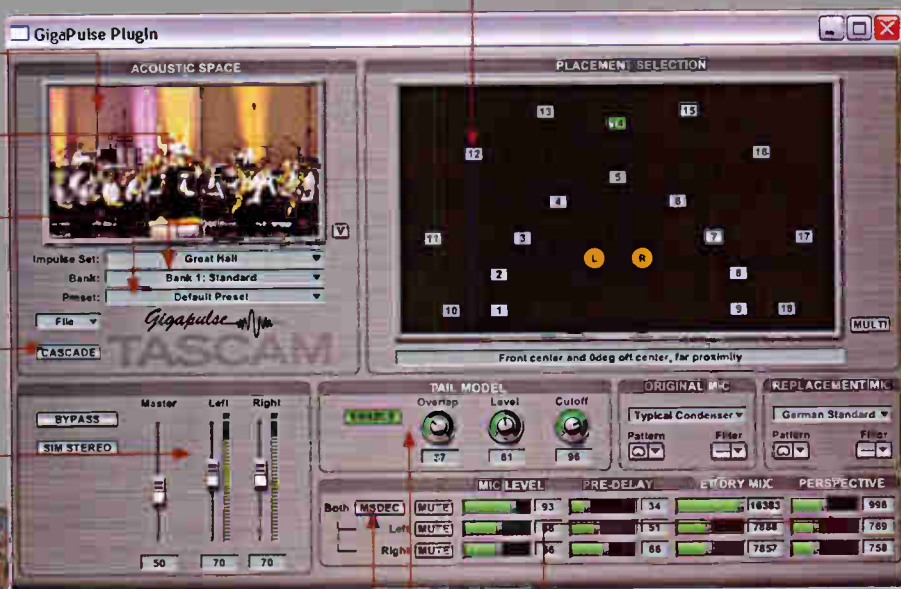
Impulse Sets are organized by bank.

Save a **Preset** with your custom edits.

Use **Cascade** to combine two impulses and create a new reverb.

Sim Stereo turns a mono input into a stereo output.

Position your sound source in the **Placement Selection** grid to choose an impulse taken from an unlimited number of positions.



Even the most "realistic" conventional reverb generators are just a series of synthetic, digital delays looped together. **Convolution** offers a better way to produce reverb by using an *actual recording of a room*, much like samplers use a guitar or a drum set recording to create realistic instrument sounds.

TASCAM's new GigaPulse™ is a *real-time* convolution reverb VST plug-in for Windows®.

It generates the most lifelike reverberation ever by using recordings made in real acoustic spaces. Plus it includes the tools to convert your own



GigaPulse ships with a great collection of drum rooms, reverb plates, echo chambers, classic processor models and a set of modern and vintage mic models.

Integrated Mid/Side decoding. **Tail Model** lets you fine tune the decay of the reverb impulse for more efficient use of your CPU resources.

Change the **Perspective** to model the effect of moving a mic closer to the source, while maintaining imaging and proper phase alignment.

REPLACEMENT MIC

- Neumann M50
- Neumann M150
- Neumann M49
- Neumann U47
- Neumann U67
- AKG C12
- AKG C12A
- Telefunken® ELA-M251
- RCA® 44BX ribbon
- RCA® 77DX ribbon

sampled rooms to GigaPulse format.

Our patent-pending, breakthrough technology also adds microphone modeling, selectable room position and tail model processing to the convolution engine for unparalleled fine-tuning of reverberation parameters.

But the real revolution is GigaPulse's reverb quality — so realistic that instruments, samples and vocals come to life.

Even if you thought you'd heard it all when it comes to reverb plug-ins, you haven't until you've experienced GigaPulse. Visit a TASCAM dealer for a demo today. ◀

TASCAM GIGAPULSE™

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- ▶ Perfect for capturing room characteristics during remote recordings
- ▶ Create new impulses from your own recordings
- ▶ 2D m c/source placement
- ▶ Apply mic modeling from a selection of vintage microphones to the environment or use it alone
- ▶ Impulse libraries will be available from TASCAM or download numerous freeware impulses from the internet



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Virtual Instruments, Real Musicians

Software Emulations of Classic Keyboards

Virtual this, virtual that. It seems like virtually everything is “virtual” these days. And with good reason. Ever lug around a Hammond B3 on tour—with a Leslie cabinet? Not fun in any way, shape or form. I once had a suitcase Stage 73 Fender Rhodes that was heavier than a Volkswagen and a homemade “flight case” I built for my old Roland Juno-6, which weighed twice as much as the synth! What a difference a decade makes!

Soft synths are not all that new, but hyper-realistic emulations of vintage instruments are relatively novel at this stage and very welcome. They are also an exciting option for those of us who have only dreamt of owning certain vintage classics. If you can even locate an operational Minimoog, for instance, then be prepared to drop some serious cash. The same is true for most classic synths (and usually, older equals more expensive).

The earliest virtual versions of classic products typically exhibited a photo-realistic visual interface, but the sound was not quite exact. In most cases, the genuine article had bugs and idiosyncrasies. For example, none of us would carry on about how “fat” Minimoogs sound if their oscillators didn’t drift ever-so-slightly out of tune due to temperature fluctuations. Computers tend to emulate reality a little too perfectly, and thus, can be easily discerned from reality. Just watch computer-animated films and you’ll see

what I mean. The developers of the new generation of virtual instruments have been taking the flaws into consideration, and the results have been dazzling. Let’s take a walk through a gallery of great products and marvel at the work of these modern masters.

YE OLDE PIANOFORTE

Many backaches, headaches and some enormous cartage charges have resulted from touring with pianos, usually of the “grand” variety. An examination of available sample pianos (either as ROM-based sample hardware players or as files for various sampling instruments) could fill an entire book, so we’ll limit the discussion to two “virtual” piano instruments.

The first is Steinberg’s (www.steinberg.net) The Grand VST 2.0 instrument, which uses piano samples but in a much more sophisticated way than usual. There are powerful samplers that enable tremendous performance control, but The Grand is essentially a sample player equipped with unique features that are specific and exclusive to a piano. There are four master timbres: natural, bright, soft and hard. Velocity curves are easily edited to accommodate touch, and it features very realistic emulations of pedal and hammer action. Probably the most important thing is that the samples are not looped, preserving the natural decay of all harmonics. The Grand does indeed sound very good, and at \$199,

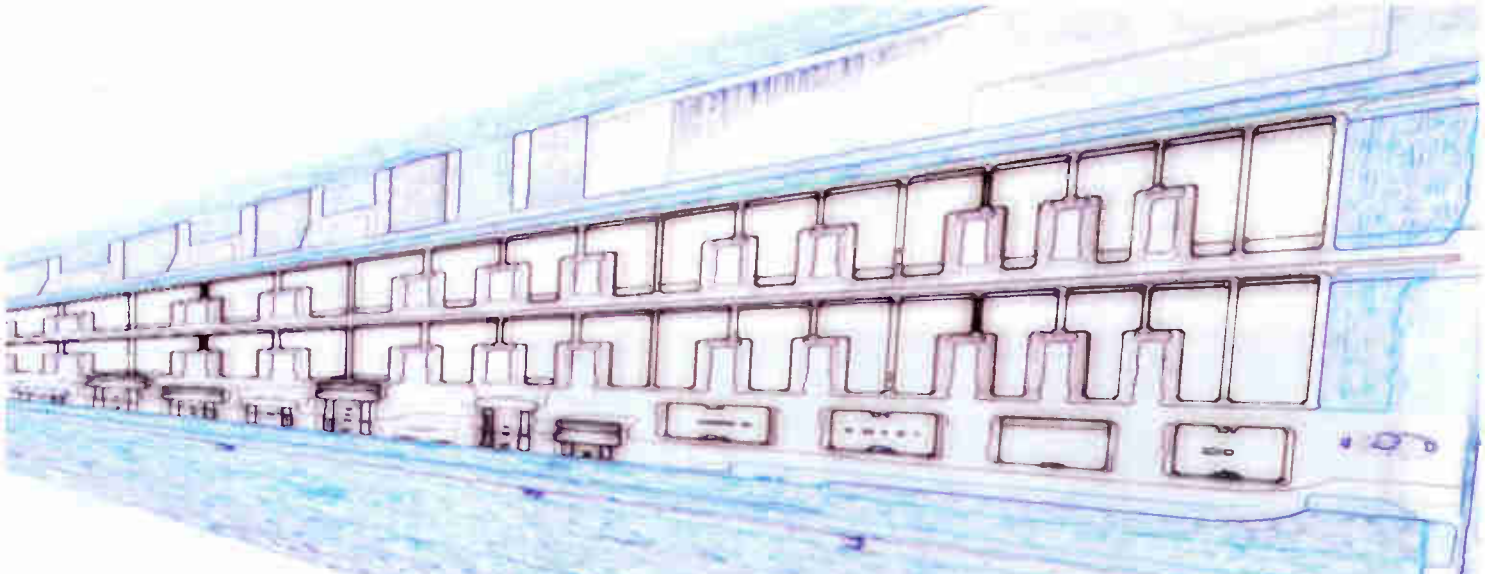
it’s a very practical solution for touring musicians and studios alike.

Our other virtual piano is the storied Maxim Digital Audio (www.mda-vst.com) Piano, a freeware VST piano that has been a part of my arsenal for several years now. It does not sound like a perfect acoustic piano, but for a virtual emulation, it is truly impressive. Moreover, if I really need a true acoustic piano sound for jazz or classical purposes, then I’ll either choose a real piano or a quality sample (or Steinberg’s The Grand, for that matter). For most pop music, on the other hand, the piano ends up EQ’d, compressed, chorused and otherwise brightened and punched up, particularly for areas like house music production. MDA’s Piano plug-in is perfect for this type of use. It has a handful of parametric controls such as decay, release, stereo width, velocity sensitivity, muffle and hardness. It offers up to 32 voices of polyphony, adjustable for optimum CPU usage. One very powerful feature is random tuning, which helps make the sound a bit more real. MDA’s Piano would sound great even if it cost \$100 or more, but it doesn’t. It’s absolutely free!

POWERED PIANOS

Virtual instrument developers have made huge strides in electric pianos. Let’s look at three stunning examples.

The EVP88 (\$199; Logic or TDM sys-



tems) is Emagic's (www.emagic.de) more sophisticated entry into the virtual electric piano field, eclipsing the EVP73's singular ability to emulate the Fender Rhodes. The EVP88 can actually emulate 12 different vintage electric pianos, including Fenders, Wurlicizers and Hohners. This is a true virtual instrument that uses modeling instead of samples, and it features very realistic EQ, phaser, distortion, chorus and tremolo effects. The first time I fired up an Emagic EVP73, I was blown away by the sound's realism and stereo image. With your eyes closed, this instrument sounds just like you're sitting in front of your heavy, old Stage 73. As a matter of fact, it's a little weird, because most MIDI controllers simply cannot emulate that heavy, lumpy action of traditional electric pianos, so when you play, it sounds perfect, but the perfection just feels *odd*. This is true when playing any of these three products we're discussing.

Applied Acoustic Systems' (www.applied-acoustics.com) Lounge Lizard EP-2 (\$199) is another shockingly realistic electric piano. We've already mentioned many reasons why a virtual instrument is preferable, but AAS gives us several more. Imagine if your suitcase Stage 73 had 10 parameters to control the mallets alone, or six parameters by which to alter the forks, or five parameters to alter the nature of the pickups. There is a multitude of control parameters for release, wah, phaser, tremolo and delay. In fact, a physical version of this piano would require something like 38 knobs and 13 switches to sculpt the sound. You can realize timbres here that are not possible with the genuine article. And the sound is simply smashing. Lounge Lizard supports ASIO, WDM, MME, DXI, VST, RTAS and AudioUnits.

Our final electric piano is MDA's ePiano. Once again, this is a freeware VSTi that truly shines. MDA modified the engine of its piano plug-in and used electric piano samples to arrive at a great sound. With parameters

to control decay, release, hardness, treble, pan, tremolo, LFO rate, velocity sensitivity, stereo image, tuning, detuning and overdrive, an enormous amount of timbre sculpting is yielded. Polyphony is user-selectable to optimize the CPU load, as well. This is a tremendous amount of power for a free product, and the sound is truly excellent.

TO B3 OR NOT TO B3

Electric and acoustic pianos are heavy and unwieldy, but the legendary Hammond B3 organ has caused its share of back pain and sore muscles. There have been some pretty good samples of tone wheel organs available during the years, but all of the inherent difficulties with samples resulted in a less-than-realistic performance. Here are three virtual organs that use modeling to achieve a wonderful organic sound that can't be done with samples.

First, Native Instruments' (www.native-instruments.com) B4 (\$235) features modeling of deep attributes like harmonic fold-back, drawbar crosstalk and loudness robbing. Bet you never put much thought into things like that while listening to Booker T nailing down "Green Onions"! But NI's engineers did, and the result is a realistic and punchy emulation that can usually fool all but the most strident B3 experts. This instrument features a great-looking, photo-realistic interface. If you really want to get crazy, then you can set up two MIDI keyboards and use them in the dual-manual fashion with a foot-pedal rig to play bass, just like the genuine article. You can set up MIDI faders to con-

rol parameters like Leslie speed and drawbars, and a swell pedal is a nice addition, too. The Leslie and scanner vibrato emulations are astonishing and can be used like a plug-in for any signal you like (fun for imitation of Pink Floyd-esque female backing vocal effects!). NI also offers alternate tone wheel sets to enable emulation of the Vox Continental, a Farfisa and even a Harmonium. The B4 sounds incredible and makes it so easy to add a nice Hammond to your tune. NI apps are VST 2.0, ASIO, Sound Manager, Direct Connect, MAS, AudioUnits, RTAS, DXI, MME, CoreAudio and CoreMIDI compatible.

Emagic's people also dug deep to capture the nuances of the B3 with its EVB3 (\$199; Logic and TDM systems). The modeling takes very subtle things into consideration, and the results are dazzling. The EVB3 is virtually indistinguishable from the genuine article, even when soloed and with no effects. Once mixed in, it's nearly impossible to tell the difference. All of the noise and grit that you'd expect are there. Like NI's emulation, the Leslie, scanner and tube overdrive DSP are available for other signals, as well. Also, the MIDI implementation enables you to create a true dual-manual organ with bass pedals, a swell pedal and faders to control the drawbars.

Hot off the presses! Just a few weeks ago at the Winter NAMM show in Anaheim, Calif., Ultimate Sound Bank (distributed by Ilio, www.ilio.com) introduced Charlie. Billed as "The Retro Organ Module," Char-

By John McJunkin

Virtual Instruments, Real Musicians

lie is an all-new, all-organ virtual instrument designed to bring the sounds of your favorite classic electric organs to the desktop. Powered by USB's award-winning UVI-En-

and speaker effects. Charlie's parameters include percussion, classic synth controls and reverb. MachFive™ compatibility is even included. Charlie retails for \$299 and is available for the PC (VSTi), Mac OS 9 (MAS, RTAS and VST) and Mac OS X (MAS, RTAS, AudioUnits and VST).

control over tuning, stretch tuning, warmth, filtering, stereo imaging and damper control. Excite and Click controls also grace the interface, along with seven different parameters to control the virtual strings. This instrument not only emulates the clavinet but also stringed instruments like harps. High-quality phaser, chorus, flanger, wah and distortion effects are also present, enabling near-perfect emulation of the famous funky clav sound of the 1970s. The wah wah and distortion effects are available as DSP for external signals, as well. Modeled changes in the physical placement of the pickups are also adjustable by the user. This thing sounds great, too—not only for clav sounds but for the harp, too. The EVD6 supports Logic and TDM systems.



CreamWare Minimax—the virtual Minimoog

gine, Charlie's 3GB sample library delivers authentic organ sounds, as well as CPU efficiency. All of the samples are available with and without a rotating speaker effect, allowing the user maximum flexibility without needing a sampler. Hundreds of drawbar combinations are provided, along with real-time crossfade control between presets

JUST LIKE STEVIE

The clavinet occupies a very important place in pop music production, and while not quite as large and unwieldy as other keyboard instruments, it can still be cantankerous. Emagic offers a portable and high-quality solution in the EVD6 (\$179). This realistic clavinet emulation enables parametric

SYNTH YOU ASKED

There are literally hundreds of soft synths available today, so we have limited our examination to products that emulate real physical products. This is an exciting area, as operational vintage synthesizers can fetch a pretty penny (if you can find them) and they can be difficult to maintain and/or repair when problems arise. Here we look at eight computer-hosted and nine hardware-hosted virtual synths.

Arturia (www.arturia.com) introduced



THE HEAVYWEIGHT

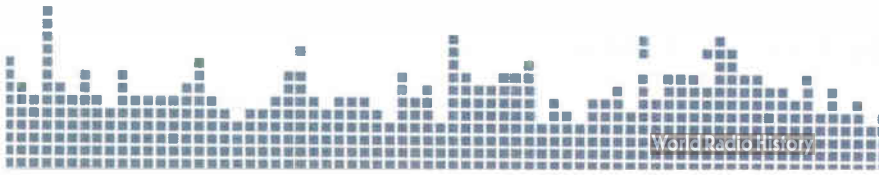
NI KOMplete is a truly massive collection of software instruments and effects. Native Instruments has taken the best synthesizers, samplers, classic emulations and effects and made them into the ultimate complete software package: nine outstanding instruments provide you with a gigantic selection of first-class sounds, gripping rhythms and unique effects.

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www.ni-komplete.com

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 <small>classic analog emulation</small>	 <small>revolutionary FM synth</small>	 <small>vast instrument collection</small>
 <small>breathtaking soft synth</small>	 <small>ultima vocoding toolkit</small>	 <small>truly unique delay effect</small>

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- Focusrite TwinTrak Pro Channel Strip featuring Dual Class A Mic Pres and Instrument Level Inputs, unique "Scoop" EQs, Dual/Mono Compressor, Stereo Latency-free Monitoring, and available 24-bit/96 kHz A-D (additional cost)
- Bluebird Mic w/BirdNest & BirdCage (Pop/Shock) & Blueberry Cable

SRP: \$1685 - SPECIAL BUNDLE PRICE: \$1099

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

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World Radio History

Virtual Instruments, Real Musicians

the Moog Modular V (MMV) several years ago and stunned the world with how truly realistic a virtual emulation could be. Even Bob Moog signed off on this one. It sports nine oscillators, three filter slots (into which a filter bank may be placed with 14 different bandwidths), two LFOs, six ADSR envelope generators, 18 VCAs (16 with modulation inputs), a 24-step sequencer and a handful of non-Moog features such as stereo delay and chorus. Featuring 64-bit floating-point precision, the MMV allows sampling rates up to 96 kHz and exhibits no aliasing from 0.1 Hz to 16 kHz—an absolute necessity for a realistic emulation. Although the MMV can operate in monophonic mode, true to the original synth, it also enables polyphonic function. (I'll bet

Wendy Carlos would have loved *that!*) It can also create some nice soft clipping, like real analog circuits do. Many traditional Moog Modular power users have publicly praised this product. The kicker is the price. You couldn't even rent an original for its going rate—\$329 (for VST, DXI, MAS, RTAS, HT-DM, Direct Sound and CoreAudio).

Arturia also announced its new CS-80V (\$249) at the 2003 AES show. This emulation of the legendary Yamaha CS-80 is every bit as realistic as the company's Moog instrument. When the CS-80 came out in 1976, it was a breakthrough, bringing polyphony to the world. The virtual version gives us two oscillators, four filters, two LFOs, four ADSR envelopes, two VCAs, a suboscillator (an LFO dedicated to vibrato), an arpeggiator, a stereo delay, a chorus and a ring modulator.

Obviously, some of the attributes go beyond the original product's feature list. Likewise, expression and sustain pedals are here, along with a ribbon controller, polyphonic aftertouch, multitimbral capabilities and, in the "modulation matrix," a choice of 12 sources and 38 destinations. As a kid building PAIA modules, I used to dream about this! Once again, Arturia nails down every

enables an envelope retrigger function. Polyphony is limited only by CPU horsepower, and the product ships with 576 programs, 64 of which were developed by John Bowen, an original Prophet 5 developer. The original unit had no velocity sensitivity, but that feature can be switched on or off in the Pro-53. Real-time MIDI automation of all parameters is available, as well. Effects include chorus, flanging and echo, and all are MIDI-synchable; external audio can be piped through the effects. One feature that clearly demonstrates the depth of this emulation is the fact that original Prophet 5 SysEx data can be introduced, allowing users to import all of those patches so lovingly micro-tweaked back in the '80s.

The Pro-53 is a great example of pure emulation, warts and all. The original oscillators suffered some pitch drift, which lent to the warmth of the sound. NI allows for two operating modes: analog warmth,

which includes the inaccuracies of the original synth, or digital accuracy, which represents the synth with perfect circuits that never drift. The Pro-53 is so sophisticated that it allows variable control over the amount of analog inaccuracies. This is a truly great virtual synth, and I use it in some way in almost every project.

NI's other entry is the FM7 (\$299), an emulation of the classic Yamaha DX7 introduced in 1984. The FM7 can reproduce the programs of many Yamaha FM synthesizers, including the DX11, TX81Z, DX21, DX27, DX100, DX200 and TX802. Unlike the original DX7, there are no fixed algorithms, which allows for much more sophisticated programming. The synth has full matrix frequency modulation with six regular waveform operators, a distortion operator and an "analog" filter operator. In 1985, many a DX7 programmer would have killed to have graphical editors like those present in the FM7. Graphical envelope editing yields an unlimited number of stages and looping. An effects section with chorus, flanging and delay can accommodate external signals in addition to those generated by the synth. I'm pretty sure that every record that came out in 1985 (even country and metal records) used a DX7 somewhere. The Dyno Piano patch defined the ballad sound for the rest of the decade, and the wild, growling lead patches helped people like Don Henley and Howard Jones top the charts. The FM7 is VST 2.0, ASIO, Sound Manager, Direct Connect, MAS, AudioUnits, RTAS, DXI, MME, CoreAudio and CoreMIDI-compatible.

GForce (dist. by Digidesign, www.digi-design.com) won a considerable amount of



Emagic EVP88, channeling a Wurlitzer

tiny detail with this synth.

Native Instruments broke into the "virtual emulation of a real product" market with its Pro-Five, which imitated the classic Sequential Circuits Prophet 5 that was first introduced in 1981. A subsequent upgrade, the Pro-52 brought improvements, and NI ultimately nailed down all of the original characteristics of the Prophet 5 and made a few improvements with the Pro-53 (\$199). It has two oscillators per voice, each with pulse, triangle and sawtooth waveforms, and they can be detuned or synchronized. The filter exhibits a slope of 24 dB per octave, resonance and self-oscillation, with an additional highpass filter mode. Discrete ADSR envelopes are dedicated to the VCA and VCF, and the VCF envelope can be inverted. An LFO with multiple assignments

Tube Pre's From Speakeasy Vintage

Virtual instruments continue to improve in terms of dead-to-rights perfect emulation, but they're not all there yet. One way to help add real analog punch to your software electric piano, organ or even synthesizer is with an instrument preamp. **Speakeasy Vintage Music** (www.speakeasyvintagemusic.com) makes a line of tube preamps intended to provide some real warmth and fullness to any signal, but particularly for both real and virtual keyboards. From the Speakeasy Shotgun at \$249 designed specifically to warm up digital organ clones with tube circuitry modeled right out of the original Hammond B3 preamp, to the Rhodes Vintage Suitcase Tube Pre-Amp System at \$819, an entire line of tube-based amps are available to punch up your signal. The Shotgun model simply amplifies the signal and adds tube warmth, but subsequently more sophisticated models add tonal controls and stereo tremolo, among other things, with all units delivering Class-A output. Units that are specifically intended for organ even ship with multipin Leslie connections (or Motion Sound control, for that matter). While there are wonderful plug-ins that approximate the effects of quality tube amplification, there's nothing quite like the real McCoy, and Speakeasy makes it available.

—John McJunkin

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praise a couple of years ago with the introduction of Oddity (\$249), the virtual version of the ARP Odyssey for VST and AudioUnits. This was one of the first hyperrealistic virtual synths. It features two synchable oscillators with sine, square and PWM waveforms, with white and pink noise also available.



The GForce Oddity weighs a lot less than an ARP.

Resonant lowpass and highpass filters are onboard, along with an LFO that can sync with the host. Like many 1970s synths, the Oddity also sports Sample and Hold, and Portamento. There are two envelope generators, and modulation can be routed very flexibly. The original Odyssey was a duophonic instrument; the virtual version is the same. No polyphony here, a true-to-life emulation.

The Mellotron has proven one of the most important instruments in pop music history. This was the original "sampler," with keys that literally put tape heads in contact with tape loops. The string and choir sounds of hundreds of records from the '60s to the current day have come courtesy of this mechanical beast. GForce has given us the M-Tron (\$69; VST and AudioUnits), which is a relatively unsophisticated virtual instrument, essentially a sample playback unit just like its ancestor. With controls for volume, tone, pitch, and attack and release times, it's not superdeep, but that's not necessary. GForce makes three additional "tape" libraries available, getting into some nice orchestral instruments, organs and percussion, among other things. When you need that Mike Pinder string sound for your Moody Blues sound-alike or that Kraftwerk human choir thing, dial up the M-Tron!

GForce's most recent foray into the virtual synth world is the impOSCar (\$179.95), which owes its existence to the classic British synth, the OSCar. With impOSCar, GForce is getting on the bandwagon with other manufacturers that enable the virtual synth to accept SysEx data to import patches. But the company goes a step further by allowing patches stored as modulated-carrier audio on tape to be imported via .WAV files. Very cool! The synth features mono,

duo and four-voice modes, with two oscillators and a choice of 13 waveforms. A programmable, additive wave matrix made the OSCar very powerful; it's here, as well. There are nine filter types in the unique filter section with drive, cutoff, Q and separation. Two envelope generators are present, along with an arpeggiator that works in a monophonic, duophonic or polyphonic fashion in four different modes. There are five keyboard triggering modes, along with extensive LFOs that can be synced to the host. An astonishing six portamento modes are available, and like most virtual synths, effects that didn't exist in the original have been added. GForce ships the synth with more than 500 patches, some developed by original OSCar users. GForce once again nails down a hyperrealistic virtual unit. The



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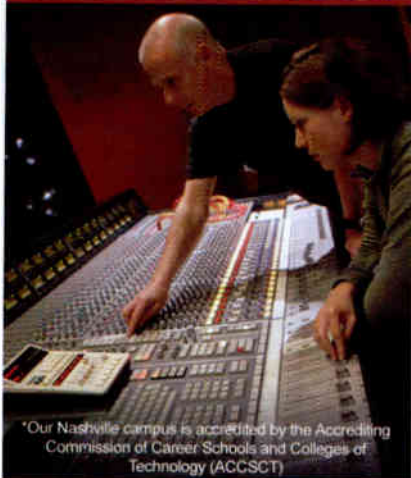
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impOScar is available for VST and AudioUnits.

One of the earliest specific-product synth emulations was Waldorf's (www.waldorf-music.com) virtual PPG Wave 2.2 (\$199; VST 2.0), which nicely emulates the wavetable synthesis that Wolfgang Palm pioneered in the early '80s with PPG. Unlike the genuine article, the virtual version is eight-part multi-timbral, with 32 wavetables available and two oscillators per voice. A resonant lowpass filter, an LFO and three envelope generators are available (two ADSR and one AD). Graphical editing of the envelopes is a nice touch, too. Polyphony can get as high as 64



USB Charlie: all organs, all the time

voices, and all parameters are MIDI-automatable. Among the hundreds of patches shipped from Waldorf are the original factory presets from the early '80s. I found myself saying, "Oh, yeah, that sound was in that song by..." This is an excellent virtual synth that you must have if you want the ability to create wild, new sounds.

HAPPENIN' HARDWARE HOSTS

All of the virtual synths covered so far are intended to be used with Mac or Windows computer hosts. There are two dedicated hardware-hosting systems that bear mention here. CreamWare (www.creamware.com) makes a rackmount unit that not only hosts virtual synths, but also handles all kinds of digital audio-oriented tasks. Known as Noah (\$2,075), this two-rackspace box adds a lot of power to a system. CreamWare also offers the SCOPE Fusion Platform, a PCI card with similar functionality. With either unit, there is a wonderful collection of quality virtual synths and keyboards. The B-2003, as you might imagine, is a virtual B3. The Minimax knocks off the Minimog, of course. A slightly more obscure vintage synth, the Prophet VS, is parroted in "Vectron Player." Another classic Sequential product, the Pro-One is also emulated. And if GForce's Odd-

ity isn't the ARP Odyssey emulation for you, CreamWare has the Prodyssy. Finally, Roland's Juno-6 is virtually portrayed by CreamWare's "U Know 007." Hardware-hosted soft synths are particularly appealing because they do not have CPU overhead; all processing is handled by third-party hardware, leaving your CPU available to handle all of the DSP, mixing and signal routing you can throw at it. CreamWare has partnerships with a number of third-party organizations that develop software for these units, and you can expect even more virtual synths in the future.

Roland (www.rolandus.com) has a rack-mount digital audio hardware host—VariOS (\$1,495)—with two virtual synthesizers available: the VariOS-8 and the VariOS 303.

Quite obviously, the VariOS 303 is an emulation of the much sought-after TB-303 Bassline, and it accomplishes the job very effectively. The VariOS-8 is best described as an amalgam of Roland's collection of vintage Juno and Jupiter synthesizers. It's nice to have a high-quality virtual representation of a group of synths that would be quite expensive to purchase if you could even find them. Expect that Roland, like

CreamWare, will continue to develop more virtual synths for its hardware platform.

As of this writing, Korg (www.korg.com) is showing a preview trailer on its Website of new products due out in spring 2004. Namely, the company will introduce the "Legacy Collection Volume I," which includes virtual renditions of the classic MS-20, Polysix and WaveStation, among other things. By implication, there will also be Volumes II, III and so on. This will be the first time that the virtual synth is not developed by a third party. Stay tuned!

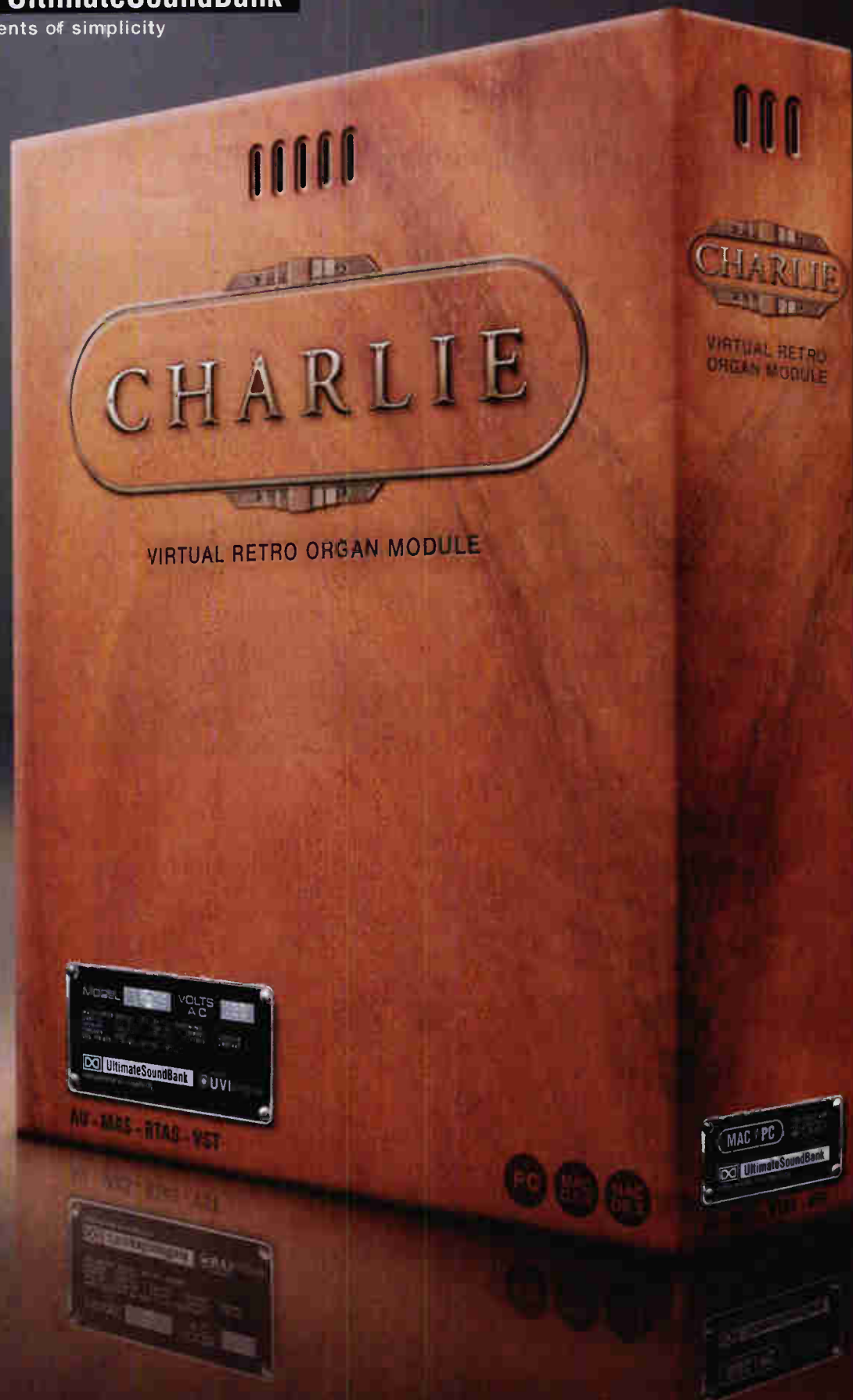
IT'S A VIRTUAL CERTAINTY

The writing's on the wall. I predict that within the next five to 10 years, you'll be able to purchase multiplatform virtual emulations of nearly any favorite old instrument you like. It will still be very chic and prestigious to own rooms full of hardware, but if space, upkeep and cost (above all) are issues for you, virtual instruments may solve your problems and give you a powerful toolbox to accomplish your musical dreams. ■

John McJunkin occasionally (but rarely) emerges from the laboratory/studio of Avalon Audio Services in Phoenix, but may take a virtual vacation soon!

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Gary Rydstrom

Oscar-Winning Sound Designer on the Road to Pixar

It's the rare individual who is able to go out on top, to walk away from a career while still at peak performance. It's a move we tend to associate with star athletes, the Michael Jordans and Jim Browns of the world, and after the initial, "Oh, no, say it ain't so" reaction, we generally greet their decision with respect and awe. They did the right thing.

And so it is with Gary Rydstrom, arguably the finest sound designer and re-recording mixer of his generation. At the ripe old age of 44, with seven Oscars (out of 12 nominations), a slew of BAFTA, Golden Reel and C.A.S. Awards, and a 20-year filmography remarkable for its range and quality, he is leaving Skywalker Sound. But rather than opt for the speakers' circuit or the golf course, Rydstrom is headed for the director's chair at Pixar, a company that he's been associated with since creating the "voices" for *Luxo Jr.* back in 1986.

But we've come to praise Rydstrom, not to bury him, as there is no believable scenario in which he will be able to completely sever ties with Skywalker or the world of sound-for-picture.

Rydstrom was raised in the Chicago suburb of Elmhurst, Ill., and by the age of 12, he knew that he wanted to work in movies. "The ironic element of my career is that I got interested in movies by watching old silent films on TV," he says. "In the '60s, there was this revival of interest in Chaplin and Keaton, then I also discovered the Marx Brothers, W.C. Fields, Preston Sturges, Billy Wilder and Warner Bros. cartoons, of course. I've always been interested in comedy, and though I was probably not gutsy enough to *perform* comedy, I've always wanted to make comedy films."

In 1977, Rydstrom headed west to the highly respected USC School of Cinema. Though he dreamed of being a writer/director, he quickly learned that he had an affinity for post-production. After completing his bachelor's degree and "too scared to go out into the world," he enrolled in the master's program, where one of his film projects was a cutout-animation spoof of his professors watching their former student George Lucas' *Star Wars*. Then, one day in 1983, Professor Ken Miura called and asked if he would be interested in working at Lucasfilm, just as he had suggested Tom Johnson a year before and Ben Burtt years before that.

As we settle into one of the sound design suites at Skywalker Ranch, on the final days of the final mix for *Peter Pan*, we pick up Rydstrom's story as he packs up his car, his dry wit and his enduring humility and heads north to the great unknown of the San Francisco Bay Area.

That's a big jump. Were you nervous about leaving the industry town?

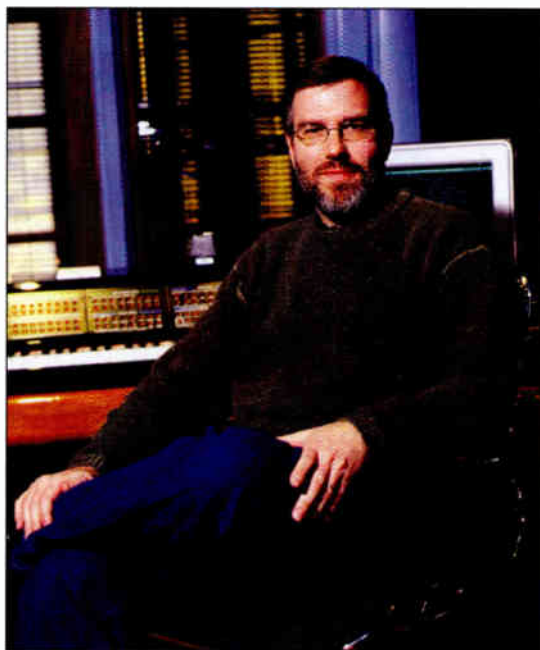


PHOTO: MORTEN KETTEL

Well, I didn't have a job in L.A. I was doing odd jobs like being Francis Coppola's projectionist. So this was my first real job, and George Lucas' company—and what was becoming Skywalker Ranch—had a Xanadu-like mystical hold on the film business. People hadn't seen it; it was this foggy nirvana off in the hills. It was at a time when Northern California was a big part of a golden age of sound: Ben Burtt, Walter Murch and Alan Splet; Richard Beggs; Fantasy; and Sprocket Systems. For me to get a job in sound at that place at that time was like someone who wanted to be an animator getting a job at Warner Bros.' Termite Terrace in 1945. It was ideal. The work that was being done, that had just been done in the early '80s—*Jedi*, *Raiders*, *Empire* and *Black Stallion*. *Apocalypse* in '79. It was sound heaven. The first thing I did was work in the machine room with Tom Johnson loading the dubbers for Ben Burtt.

Let's talk about mentoring, then. You have some assistants who have moved on to pretty stellar careers.

My mentor was Ben Burtt, who was great to watch because he had redefined how sound design work was done, essentially by becoming a director of the soundtrack. He took over and made it as much a single vision as possible. The audio version of the word "vision" I guess would be "ausion." [Laughs]

Skywalker Sound, Sprocket Systems at the time, handled all the aspects of sound under one roof: effects recording, editing, Foley, mixing. There was a real collaborative spirit. When I started, I performed Foley and

“I Switched”

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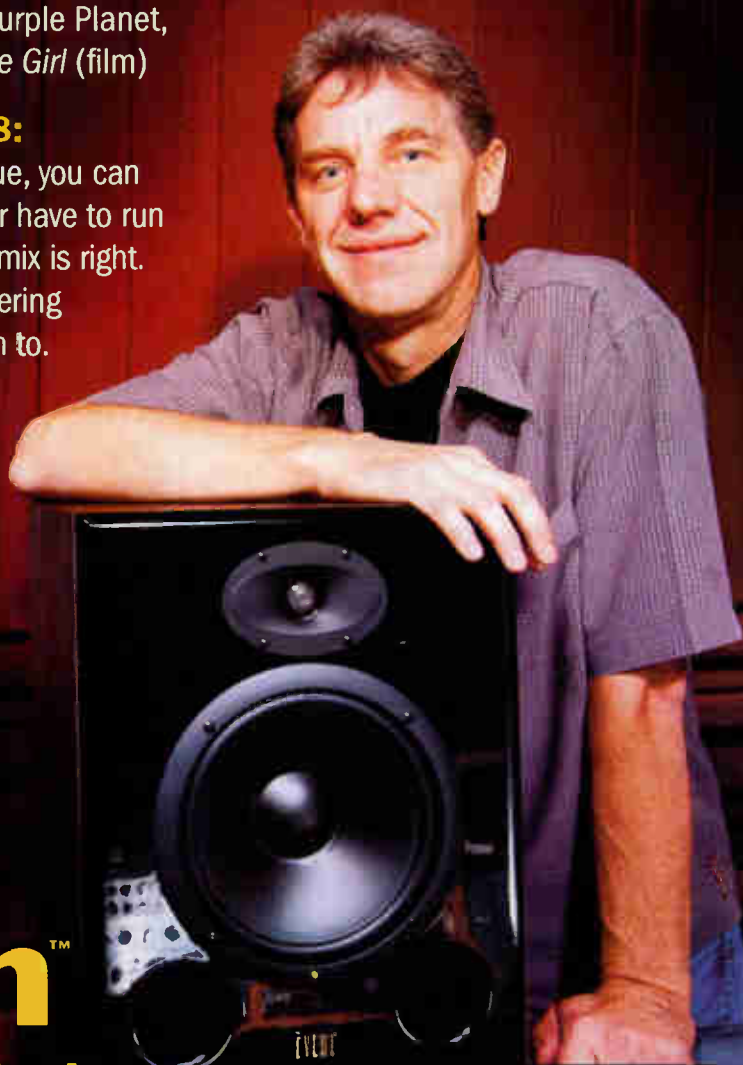
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EVENT
ELECTRONICS

recorded dialog and sound effects, a little bit of everything. One of the first sound design jobs I did was *Cocoon* in 1986, assisting Gary Summers. I was lucky to work with Randy Thom on several projects.

When I was able to, I had assistants working for me. I didn't think of it as mentoring, necessarily, but I suppose it was. And I'll point out the sad, sad fact that the last two times I've been nominated at the Academy Awards, I've lost to former assistants of mine [Chris Boyes for *Pearl Harbor* and Ethan Van der Ryn for *The Lord of the Rings*]. When you start losing to the people who used to work for you, then it's time to move on. [Laughs]

There's another kind of mentoring that happens at Skywalker that comes from the history of the place. It's in the bones of the building. You are reminded that this is the place where Ben Burtt did revolutionary work on *Star Wars*, and you feel pressure to live up to that. The building in a funny way becomes a mentor, too.

Early in my career, I would get work that was deflected from Ben Burtt. On the first Pixar short I did, *Luxo Jr.*, they wanted Ben to do the sound. They couldn't get Ben, so the job deflected to me. On *Titanic*, James Cameron was someone I had worked with before, and it was a great opportunity to deflect work to Chris Boyes. Skywalker Sound tries to find these films, these opportunities for people: Chris Boyes and Tom Myers and Steve Boeddeker, Chris Scarabosio. We have a large group right now of young—younger than me, anyway—and very talented sound designers.

Did the experience on Cocoon convince you to stay in sound?

The sound design work on *Cocoon* was so much fun: taking sounds that were one thing and turning them into something else. On *Cocoon*, we had to do alien glow sounds. We tried all these different things, and Cindy, who I eventually married, and I had these crystal champagne glasses, so I did the glass harmonica trick by rubbing my finger on the top of these glasses that meant a lot to me. A little echo and pitching and layering, and it became an alien glow sound. I thought, "This is the greatest thing in the world." I remember how exciting it was to be able to say, "Oh that's my champagne glass or that's my dog in there. That's my refrigerator creak up on screen." Then of course, people start making odd sounds at you when you're a sound designer: "Look what I can do!"

Around the same time, you created the sound for Luxo Jr. [a small metal lamp that bounces about], perhaps the signature Pixar sound.



Peter Pan marked the final mix for Rydstrom at Skywalker Sound.

I'll give you the short history of what became Pixar. George Lucas hired a group of people to work on computer graphics, starting with Ed Catmull. They started making these short films, animated by John Lasseter, who they hired from L.A. The first one they did was *Andre and Wally B* to test out their animation software and hardware, and Ben did the sound.

Then *Luxo* was made in 1986 for Siggraph, one of three short films to show off what the computer graphics people could do. At the time, computer graphics was in its infancy, and John Lasseter's short stood out because it had a warmth to it, a sense of humanity that people hadn't seen in computer graphics. It's still hard to get, and he got it from a lamp! The film is a tour de force of character animation. It was a real defining moment of my career, being part of something so revolutionary, meeting John Lasseter and working with what then became Pixar.

I wanted to give the lamps in *Luxo Jr.* character through sound. I told John that I'd come up with these voices. He'd never imagined they'd have voices and was wary of the idea. But I experimented with taking real sounds—a lot of it as simple as unscrewing a light bulb or scraping metal. Every once in a while, a sound would be produced that would remind you of sadness or glee. I always think of sound design being like prospecting for gold. Start by, say, goofing around, making lots of sounds, then find the one percent that has something interesting about it. Put this against the film, and there's a magical moment when the sound, if it's right, merges into the image, brings it to life. They were not cartoon-y. They were fun, reality-based sounds. It felt like the birth of something new, even then.

In the sound world, you have Ben Burtt and George Lucas, Alan Splet and David

Lynch—these partnerships that grow up together. Mine was with John Lasseter. Great timing.

I'll get back to Pixar later. Let's talk technology. You still work with the Synclavier and you're not alone. What is it about that box?

Tom Kobayashi, who ran Sprocket Systems at the time, went to a trade show in 1987 and came back with a Synclavier. The idea of using a sampler for sound effects work had astonishing potential. With sampled sounds in RAM, you can instantly pitch-bend it and layer it and play it and shape it, without using any processing time. You can layer on the same key and very finely manipulate the pitch and delay and merge them together in ways that were harder to do in the tape-to-tape days. It allowed me to create the dinosaurs in *Jurassic Park*, in which I took several layers and blended different animal sounds into what sounds like one animal.

With the Synclavier, I have a library of sound "parts," little snippets that are like phonemes in language. Interesting bits of sound that can be rearranged in multitudes of ways. It's a library of raw material, and it's valuable still.

You started cutting on mag, done all the jobs the same as they did in the '30s.

When we cut on mag at USC, we had three dubbings available. We could cut up to three tracks—very limited. But you learned to work within this limitation. It makes no sense today to learn to cut mag or align a tape machine. But if you go right to Pro Tools, you have almost too many possibilities right out of the gate; it's harder to focus on the essence of what sound editing is through all the bells and whistles. Maybe Digidesign and the other companies could come up with special software for education that eliminates all of the especially cool features. [Laughs]

But I have to say that there's still a place

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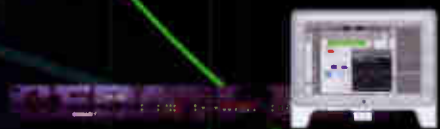
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for some of the old technology. I remember on *Saving Private Ryan*, I was trying to come up with weird sounds for these incoming tanks as they approached the village. Spielberg wanted scary, odd sounds bouncing between the buildings. I put sounds of metal scraping and engines beating on quarter-inch tape and rocked the tape back and forth by hand—like record scratching—and coming up with strange sounds and rhythms. I could only do that with a quarter-inch tape deck.

What's the next step? What's coming for dub stages or edit suites?

I've been long fascinated by this paradox: There has been no revolution in sound to parallel the revolution in visuals in the last 10 years. What ILM or Pixar can create visually is approaching photo-real. This has led to a real change in how movies are made and in what kind of movies are made. But there's no sound equivalent. I can't go into a computer that I know of and create a lion roar, synthesize it entirely and make it a believable, interesting lion like ILM can make a lion. I would think that creating a lion visually is harder than creating a lion roar, but I guess I'm wrong.

On to creativity. When we talked during *Titanic*, you said that your first law of sound is to always have variation.

Sound comes to us over time. You don't get a snapshot of sound. Therefore, what you notice with sound, the essential building block, is change. So in putting together a soundtrack or making a basic sound, I'm always thinking in terms of how it is changing over time. Even the simplest sound can have a rhythm to it, dynamics, changing pitch. Orchestrators must think about these things all the time. Even Philip Glass' orchestrator.

What about level?

I love having digital playback in theaters, where the great benefit is dynamic range. So dynamics become a useful tool for getting a sense of contrast. In an action film, say *Terminator 2*, contrasts, sometimes even massive contrasts, are essential.

But it's also about how frequencies work together. There's a trick to making a gunshot big using multiple layers of elements. You take the high snap of a pistol and add to it the low boom of a cannon and the midrange of a canyon echo. You orchestrate it. On an über scale then, we do that to the whole soundtrack, making sounds work together. **You also said that while you strive for dynamics and movement, you've come to appreciate silence.**

Silence can be thought of as a type of sound. It's like when somebody years ago figured



Rydstrom was sound designer and re-recording mixer on *Finding Nemo*, the top-grossing film of 2003.

out that zero was a number. And silence is just as valid as an amazing sound. Every sound editor can't help but think of how to fill up a track; it's what we're paid for. I remember a scene in the first *Mission Impossible* in which Tom Cruise breaks into a computer room at the CIA, for which we'd added all these sound details for equipment he was using to lower himself in. Yet the idea was that if he made any sound over a certain level, he would trip the alarm. Brian De Palma ultimately said, "No, take it all out." And for the most part, that scene plays with nothing on the track. I went to see it with an audience and it had the desired effect: It made everyone lean in, pay closer attention, get nervous. Tension comes from the silence of that scene.

In *Punch-Drunk Love*, Paul Thomas Anderson wanted the soundtrack to express the character of Barry Egan, who could explode at any minute. Often, there would be dead silence, almost nothing on the track. Then a car crash shocks us or a truck goes by or even a phone ring. From silence to a nasty loud sound. He loved playing with that silence, setting the audience up with it.

That's interesting, because you said once that the big scenes can often mix themselves. The quiet scenes can be the challenge. As an example, you noted the glass crack in *The Lost World: Jurassic Park*.

Oh yes, that's just a single glass crack, so is that the right glass crack? There's nothing else on the track, it better be! [Laughs] In a big action scene, the biggest challenge often is to make the track articulate. The mixing and editing challenge is to make the track not turn into mush. That's its own challenge. That's a *Hulk* kind of challenge. Then you

have what Randy Thom did on *Cast Away*. That's a stunning example of what sound can do in a movie. There are stretches of that movie in which very little or none of the sound recorded on the set is used. And there's no music. So Randy's job was to build up a perfectly believable, subtle, realistic yet dramatic soundtrack. No place to hide sounds, so they have to be the right sounds. Every detail becomes awfully important.

Throughout your career, you've been a big proponent of the musicality of effects and the interplay between music and effects.

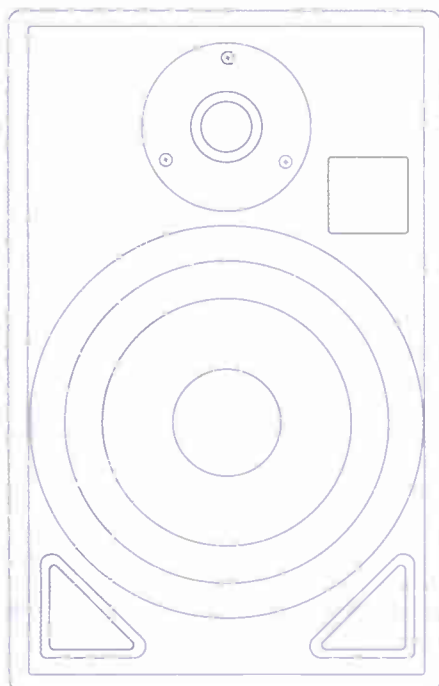
I don't think an audience is going to care which parts of the soundtrack are coming from an orchestra and which parts are sound effects. Alan Splet was the best at using sound effects in an overtly psychological and musical way. His ambiances were stunning: applying rhythms and pitches of sounds as evocatively as a composer would. Some people think that there should be a hard line between realistic sound effects and emotional music. But I don't heed that delineation. In *A.I.*, we made a real effort to make the sound effects very, very musical. We were lucky to have the John Williams score early enough to design and edit our sound effects within it. Obviously, the amount of cross-pollination between music and effects depends on the movie, but it should be an option. It doesn't matter to an audience what department the sounds come from, it only matters that the mix of sounds works.

You have quite a range here on your resume. In the same year you might do *A Bug's Life* and *Saving Private Ryan*, or *Minority Report* and *Monsters Inc.* Is there any difference in your approach between

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Terminator 2, for which Rydstrom received two Oscars, was a study in sound contrasts.

a Finding Nemo and a Titanic?

I'm not sure if I have a range or if I was lucky to work on a wide range of movies. I went from *Terminator 2* to *A River Runs Through It*, from *Strange Days* to *Toy Story*. This kept things interesting.

I think in any career you have to be careful not to get pigeonholed. Early on, I could have been considered someone who did action movies, but then along came Robert Redford, Disney and others, thank goodness. The luckiest thing I've had going in my career is that I've had good projects.

I'm going to throw out a few issues facing the industry and let you speak to your peers. As you exit, what would you like to say to both students and professionals?

The first thing I would say, which sounds both simple and almost insulting, is that people in sound have to keep thinking of themselves as a key part of the movie. Sometimes we have to fight against the feeling that we're not. If we do our jobs well and throw in a little evangelizing, we can make sound as important a part of filmmaking as it should be.

How about loudness?

We have to be careful. We get overly loud striving for impact. It's counter-intuitive, but sometimes we'll get more punch from a mix by being less loud, by putting big moments in the proper context. *Terminator 2* is a very contrast-filled and fairly simple track. It has an apparent punch and loudness to it, but probably wouldn't compare to a lot of what we hear today.

Track counts?

If we have thousands of tracks to deal with, both as an editor and a mixer, we can easily lose the forest for the trees. The sound process is a big funnel, narrowing tracks and making choices as it goes forward.

The edit and the mix, and how they are blurring?

I've been able to do both, and I see that

there's great potential in blurring the line between them. There will always be a place for mixers and for editors, but I agree, generally, with the trend to do sound jobs with a smaller core group of creative people who collaborate and cross over traditional roles.

What about schedules and budgets?

The fight for money and time gets harder every year. Schedules and budgets are under downward pressure, while expectations are as high or higher.

We have to keep proving through the quality of our work that it's worth spending the money.

Okay, now what's all this about Pixar?

It all came about because I've had this long, great relationship with John Lasseter and Pixar. I've felt involved throughout the whole filmmaking process on their films. They offered me an opportunity to develop and direct films, maybe because I bring an outsider's perspective while still being a Pixar guy through and through.

My friends there know that I've had a long-standing love of comedy. When I first told Steven Spielberg and George Lucas that I was doing this, they were touchingly supportive and generous with advice. To think what I've learned just watching Spielberg and Redford and George and Cameron and Paul Thomas Anderson and Ang Lee and all of these directors—what a great education it's turned out to be. I'm grateful for my sound career. It gave me the equivalent of 50-yard-line seats, second row, during a fascinating era in film history.

Can you let someone else mix your movie?

I'm looking forward to making someone's life a living hell! I don't know whose. [Laughs] By the time I make a feature animated film, which takes a very long time, God knows what mixing technology will look like, probably something with holograms and balls of light. But I do know that I'll always do the work at Skywalker Sound.

Do you have any projects?

I have such a love of the Pixar shorts: *Luxo* and *Knickknack* and *Tin Toy*. They're in my blood. So I want to do a Pixar short and take it from there.

Full circle. From film school shorts to Pixar. See, there's another lesson for people. I left film school and it took me a mere 20 years to get a directing job. ■

Tom Kenny is the editor of Mix.

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Nick Launay

Globe-Trotting Englishman Finds Punk Success on the Fringes

Some people work fastidiously to build a career while others naturally fall into one. For Nick Launay, his transformation from British punk to respected music producer with a perennial punk spirit was kismet—pure and simple. Born in England but raised in Spain between the ages nine and 16, Launay returned to England when the punk movement exploded in the late '70s. Entranced by the scene and inspired by his lifelong passion for music, he decided that he wanted to make records.

The aspiring producer's big break came after working as an assistant engineer at Townhouse Studios, where his mentor, Hugh Padgham, had worked with The Police and Peter Gabriel and was collaborating with producer Steve Lillywhite, who had worked with XTC, Siouxsie & The Banshees and The Members, and who was Launay's favorite producer at the time. Launay worked on Queen's *Flash Gordon* soundtrack, The Jam's *Sound Affects* and XTC's *Black Sea* album (with Lillywhite and Padgham). The budding engineer absorbed the knowledge he was accruing, particularly from the generous production duo who answered his eager questions and taught him their craft.

After the XTC gig, Launay worked as an assistant engineer on a one-day session for John Lydon, who was mixing a dub track by his band, Public Image Ltd., called "Home Is Where the Heart Is." The main engineer was clueless as to how to work the studio's SSL console, and because Launay displayed a technical talent and an acute understanding of what the former Sex Pistol wanted, Lydon locked out the engineer and spontaneously hired Launay. The members of PIL liked his remix efforts so much that they hired the relative novice to produce their next album, *The Flowers of Romance*.

And a producer was born.

Since then, Launay has produced a truly eclectic series of recordings by the likes of The Church, David Byrne, Midnight Oil, Gang of Four, Killing Joke, the Birthday Party, INXS, and recently Silverchair's *Neon Ballroom* and Nick Cave's *Nocturama*. Most recently, he has been working with Lou Reed and preparing the next Cave album.



PHOTO: MARTIN PHIBBEY

After working with PIL on The Flowers of Romance, you engineered Kate Bush's album, The Dreaming. How did that come about?

Hugh Padgham, who during that year had become very popular doing Sting and Phil Collins, was engineering the Kate Bush album but didn't have time. He heard some of the Public Image stuff, realized that I'd very quickly learned how to get those kind of big drum sounds, which were his thing, and I knew how to do it and got the whole vibe of that. So he suggested to Kate Bush that she should talk to me and maybe I should work with her because he couldn't. He was basically producing The Police and Kate was producing herself, so all she wanted was an engineer.

So I got put on the Kate Bush album, which I did for about two months. That was just incredible. Kate is still to this day one of the most gifted people I've ever met. She was just born with incredible talents.

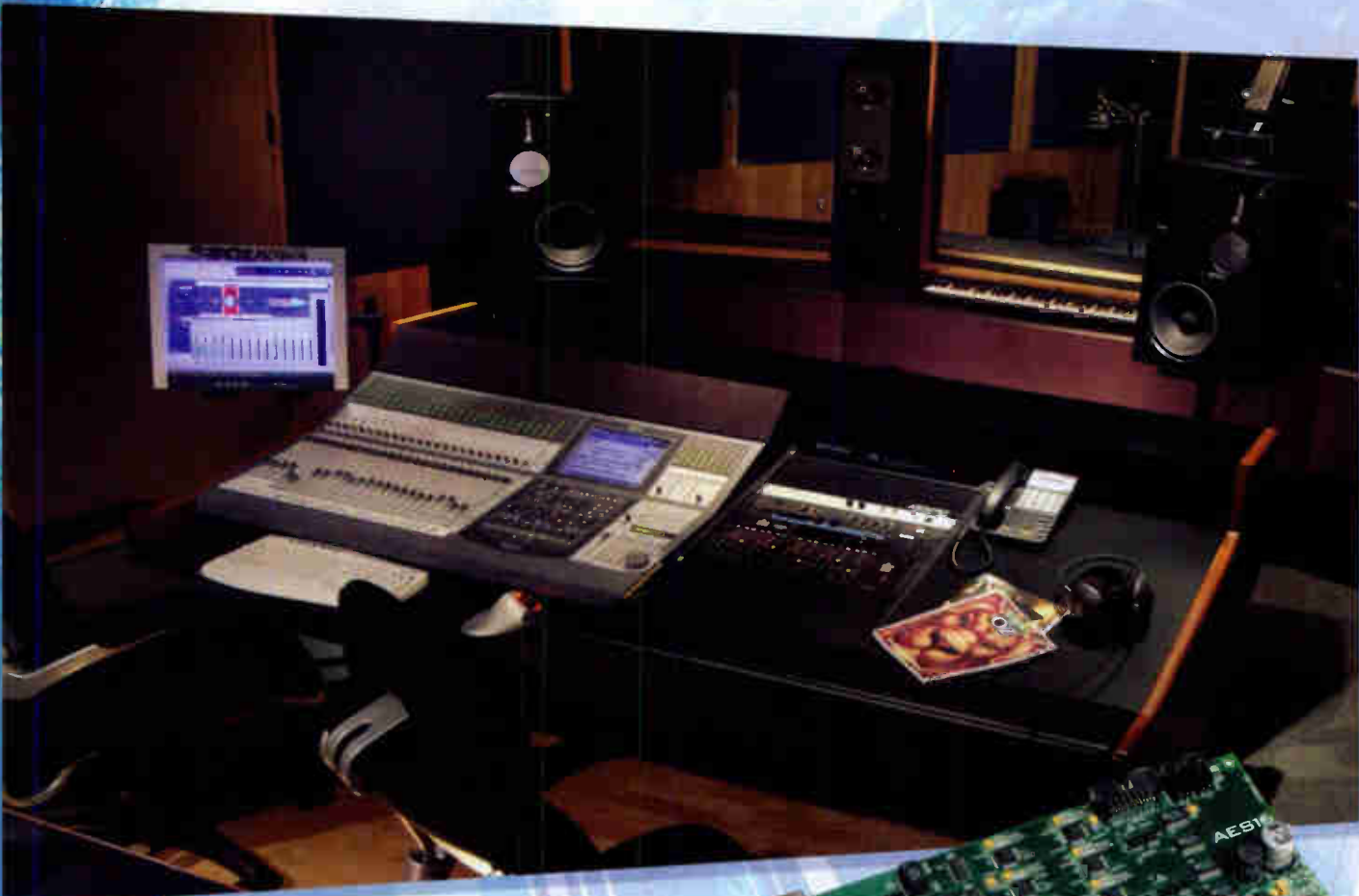
That's a wild album, The Dreaming.

It is a very wild album. It was the first one she produced on her own. If you listen to *The Flowers of Romance*, that's an incredibly insane album. It was all written in the studio; literally, all the lyrics were written on the spot. It's very trippy. I mean, anybody who listens to that album pretty much assumes that we were all very high when we were doing it, which is not true. I didn't take any drugs until I was about 35 years old. I really didn't. For whatever reason, I just didn't go there. And John was very sober at the time, because he was very worried about going to jail because of some fight he got into in Ireland. There was a court case coming up and he was very concerned about that, so he wasn't doing anything.

The Kate Bush album has a similar feel to it because



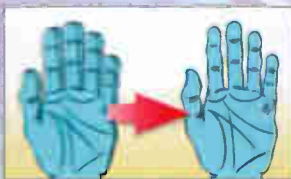
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it was her first attempt at producing. She had all these wild ideas. She would come in in the morning and go, in her very high voice, "Nick, can we make the drums sound like cannons?" So we would go in and try to make this drum kit sound like it was cannons going off—every kick drum, every snare. We made up these corrugated iron tunnels coming out of the drum kit, and we would mike up the tunnel. It was very interesting, and it was just one of many things that we did, like miking up the piano in different ways.

The thing about Kate Bush, and I'd say this about quite a few artists that I've been very lucky to work with, is that basically they're all born with talents. These people are born with this talent that not only gives them the ability to play instruments, but songs come to them in complete form. It's not just the lyrics, it's the whole music, and whenever you work with these people who are rare, they usually tend to succeed. The people who I've worked with who were like that are Kate Bush, Nick Cave and Daniel Johns, the singer from Silverchair, who is probably one of the most gifted people I've ever worked with.

You have maintained a very organic approach your music, even when you had your big drum sounds in the '80s. I was listening to one of the recent Silverchair songs with a lot of loops going on and you still seem concerned with trying to make it sound real.

I EQ things a lot. I always have, and I think that's more of an English thing. It's something I noticed when I came to America: People don't EQ the tape as much as in England. I've been lucky. I've worked with some incredible people, incredible musicians and incredible songwriters, and I kind of started with that. The first couple of bands I worked with were bands like Killing Joke, the Gang of Four, Public Image. I guess if you assessed their musicianship on a technical level, you might go, "Well, they're not very good." But there's no doubt that their creative side is enormous, and I think listening to those records, they were actually bloody good musicians.

Coming right now to today, where things are made a little bit different, you can get a band that really doesn't know what they're doing and doesn't have focus and doesn't know how to play, [but] you can still go into the studio and make them sound amazing because you've got Pro Tools. You can chop them up and replace bits. If the drummer doesn't play the whole song very well, you can take the best chorus and use that on every chorus and take the best verse and use

that on every verse and cut and paste.

To me, that doesn't actually feel good. To me, it sounds better if the drummer speeds up and slows down and has a bit more of a mood. To me, the best musicians are not the ones that are technically proficient and can get from that note on the guitar to that note the quickest, but the ones that have a feeling and an emotion in what they play. They want to go to that detuned, out-of-key chord because it feels right and makes you feel a certain way, not because it's the correct chord. It's a whole other aesthetic, and that's what I'm into.

So what is Nick Launay's formula for making a record?

[Laughs] My formula is, first of all, to really like the band, really like the people in the

To me, the best musicians are not the ones that are technically proficient and can get from that note on the guitar to that note the quickest, but the ones that have a feeling and an emotion in what they play.

band, understand what they're into and what they're about, and get into that. Usually, I go into rehearsals for about two weeks. We'll experiment with the songs, we'll pull them apart, we'll try putting them back together in different ways, and between us, we'll work out what feels best as an arranger for the song. Generally speaking, the band, by the time they get to me, have rehearsed and rearranged all these songs so many times, they won't know what's good anymore. So I'll go in with a fresh mind and a book that I've written all my notes in, and I'll have very strong, solid ideas about how a song should be arranged. So I will put that to them.

What happens first is they'll play it to me live, and I'll go, "Well, I think it's all good except this bit of the second verse, which really doesn't work and it doesn't help the song. Try this." And I'll explain to them and they'll play it, and it will either be a great idea or a really bad idea. Basically, by the end of the two weeks, we've got all the songs arranged and hopefully better. We'll then go into the studio.

I always work in studios where the whole band can be in the same room looking at each other. Usually, I'll put the actual amps that are being recorded in the other rooms, so we'll have long cables between the heads of their amps to the actual speaker boxes that will be in a separate

room. The idea is to set it up so that I can record every instrument with no spill or the least spill possible, but the whole band is in the same room looking at each other. Sometimes, there aren't headphones—depending on the band, depending upon how they feel. But the main point is to have fun and to basically capture that band at that point in their life doing the absolute best performance of that song. And if it takes 20 takes, then we'll do 20 takes. If they do two takes and the first one is just killer, then I might push them to do five just to see. And we might go back to that first take and use that. Whatever it takes, that's the process: to just get them to do it as a band.

I record on analog because it sounds the best. There's nothing in the digital area yet

that sounds as good as analog. Anybody who says there is hasn't listened to analog or hasn't lined their tape machine up properly. *Wouldn't you agree that old analog recordings that have been remastered sound fine in digital?*

They sound better. That's why I still do it to analog, because I still believe the longer you keep it in the domain where it sounds warmer and with more depth, the better. It depends on the band. This is not a rule for me. If I'm working with the rock band that can play, I will record it all analog, edit it all analog, mix it to analog and only go to digital at mastering.

The only time I use Pro Tools now is when I need it. In other words, I use it for vocal compiling because it's much easier. I use it if I work with a band that is more dance-oriented, using more rigid drum beats, then Pro Tools is a much better thing to use. I use it for the plug-ins because some of the plug-ins used in the digital domain are way more outrageous than anything that analog could come up with. I don't use it as a tool to correct bands that can't play because I simply don't work with bands that can't play.

How do you edit songs?

With Pro Tools, you can go in and move kick drums and edit the drums and use the same verse all three times for the verses. What I do is I edit the whole tape, so I edit

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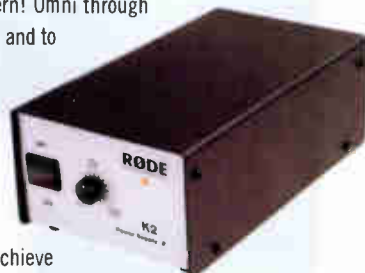
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performance rather than individual instruments. So what I will do is get a band to do, say, 10 takes of a song. I listen through it meticulously and make a little graph. I'll write down all the different takes and work out that the first verse is best on take three, the second chorus. I'll write down all the different bits that sound the best and I'll chop that together.

So your multitrack of the song will end up with maybe 20 to 30 edits that go all the way through the song. But it will be editing their performance. In other words, none of the original bass, drums and guitars are overdubs. They're all played at the same time, and anybody who has done this will know that it doesn't matter how good a player you are, you cannot overdub a guitar part to a drum kit with the same accuracy or vibe.

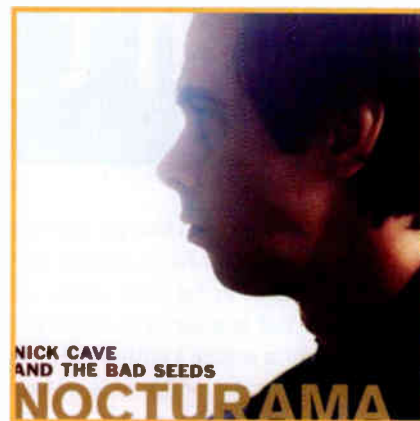
When you listen to early Rolling Stones records, their playing is all over the place. They're out of tune, they miss parts, but the vibe is amazing and far more pleasurable to listen to than their newer records. That's ob-

Nick started plinking
and plunking at the piano.
I thought it was a great
song; it sounded like
a classic. I thought it was
like a Nina Simone song.
So I just pressed Record.

viously a band that has been going on for a helluva long time, but the same thing applies to any band. When they're young and naive, and they don't know what they're doing but they're doing it with enthusiasm, that's what it's all about. That's what making records is all about to me.

You currently split your time between Australia and Los Angeles, correct?

Yes. I was born in London, grew up in Spain, went back to London, which is when punk happened in 1976/1977, and stayed there for 10 years. I made a lot of records in England during that time. Then for one reason or another, I started working in Australia. One [reason] was I got approached by [the Australian band] Midnight Oil and did a record [10, 9, 8, 7, 6, 5, 4, 3, 2, 1] with them in England, and that record is a great record. It's probably one of the best I've



made. It had a very big impact all over the world. It was quite a big college record in America. It's gone on to sell way more than a million records, but it wasn't a hit commercially in America at the time. I was hanging out with Primus, and they were fans of the second album I did with Midnight Oil, which was *Red Sails and Sunsets*.

I was younger and had more of a punk attitude toward things at that time, having worked with the Birthday Party and Gang of Four. Midnight Oil was more of a rock band in the more traditional sense than those bands, but they wanted to make a more radical record. So we went into the studio, and I kind of pulled their songs apart a little bit and got them to do things like play the whole drum kit without any cymbals because I wanted to get this huge drum sound, which involved a lot of compression. And if you played cymbals, they were so loud that they were 10 times the volume of anything else.

What about the hi-hat?

We did do the hi-hat because it was an integral part of the rhythm. But all the cymbals were overdubbed, and for the hi-hat, we made this box to make it quieter because the room was [made of] stone. We basically put two microphone stands above the hi-hat and then put several towels and blankets over the microphone stands so they created a little tent. So he could still play the hi-hat from where he was sitting, but the sound of the hi-hat wouldn't go to the microphones in the room, which were compressed to death. So that's how that was achieved.

We experimented a lot on 10, 9, 8... There are a lot of unusual sounds that were done. We did things like [create] unusual guitar and piano sounds, which were done in the wrong key. We would speed the tape up, and they would have to transpose their whole part up, and then we'd play the tape back and it would sound lower, which is not that uncommon. But what we did was got them to play at a normal speed, but play the guitar or piano two semitones up. In

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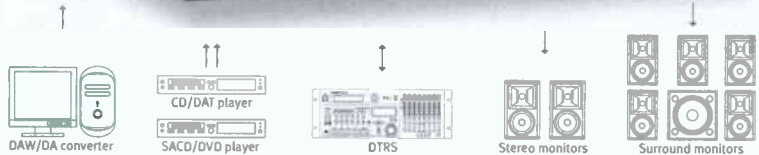
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other words, in completely the wrong key, so if you heard the guitar, it would sound completely wrong. But then I put it through Harmonizers and would pitch-change the whole thing down two semitones. And the warbling effect of the Harmonizers would make the guitar sound unusual and more low-toned. Crazy stuff like that.

What was it like recording Nick Cave's last album, Nocturama?

That album is by far one the best albums I've ever made. It's a fantastic album. It was recorded pretty much in five days. No A&R'ing, no management whatsoever. It went Top 10 or Top 5 in most countries in the world, but not in America. It sold lots with minimal promotion—promotion in the right areas.

Nick Cave has built up a great following, is really respected and does things his way or how his band, the Bad Seeds, really wants to do it. They just do it for themselves with no restrictions whatsoever, put it out and it sells. The thing that's great about *Nocturama* is we basically flew down to Melbourne [Australia] because they were about to start a tour, and the idea was to go in for about four days and do demos. It was the first time I had worked with them for more than 20 years. It was a chance for us to get to know each other again and see if it was going to work. It was like a trial-period-cum-demo to see if Nick had any songs.

They all lived in different parts of the world so they all flew in, and I went in the day before and set everything up so that it would be easy for them. They walked in, picked up their instruments and Nick started plinking and plunking at the piano. I thought it was a great song; it sounded like a classic. I thought it was like a Nina Simone song. So I just pressed Record. They were basically still setting up. People were still coming in and I was recording it all. They all sat down, and Nick played the song all the way through. Nick wanted to play it again. He shouted out, "Launay, any chance of recording this?" I said, "Well, I actually recorded it." So they came in and listened and thought it sounded great. So we basically did all these songs, 13 or 14 songs, as demos, just playing one or two or maybe three takes of each until the arrangement was down. He was singing live, totally relaxed.

Then we took a break, they did a tour and I came back to America for two weeks. Then I flew back there, and the plan was to get together again, maybe review some of the songs, work out what we're going to do and where we're going to do the album. So I got back there, and meanwhile, I've lis-

—CONTINUED ON PAGE 131

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Tom Jones



Photos and Text by Steve Jennings

Tom Jones will never go out of fashion, so *Mix* caught up with his guitarist/musical director Brian Monroney and the sound engineers when he hit San Francisco's Fillmore Auditorium.

Monroney: "We have Metric Halo gear with us: three Mobile I/O 2882s, with two of them offstage connected to a pair of Mac G4s used for playback of backing tracks, and a third one in the keyboard rig. [Keyboardist Frank Strauss runs Native Instruments' B4 and Pro-53 soft synths on a G4 PowerBook.] The two offstage systems are identical, both running Digital Performer, and are used to play back tracks on about a quarter of the songs in the show. We send three stereo submixes to FOH, and monitors get the same stems, plus

two click/count-off channels: one for our drummer, Herman Matthews, and the other one goes to keyboards and Tom.

"We're basically taking advantage of only a fraction of what the Mobile I/Os can do, but they sound exceptionally good and they've been rock-solid, both in terms of their physical design and the stability of the software/drivers. Tom's tour manager, Sandy Battaglia, provides and maintains all the backline gear through his company, Gig Productions, and he gave me carte blanche in setting up these systems."

FOH engineer Tom Woodcock mixes on a 48-channel Yamaha PM 4000 using 46 inputs, while monitor engineer Ed Ehrbar uses a Yamaha PM4000M, with 52 input channels. "I'm running 14 in-ear mixes for the band and Tom, and two wedge mixes. Tom has been using Shure mics live for his entire career. He says he bought his first one while singing in clubs in Wales during the early 1960s. We are currently using a Beta 58A."



Pictured from left: Dave Nelson, backline; Sandy Battaglia, tour manager; monitor engineer Ed Ehrbar; Brian Monroney, guitarist/musical director; and FOH engineer Tom Woodcock

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News



PHOTO: GETTY IMAGES
The San Diego Symphony and audio reinforcement specialists **Power Plus Sound & Lighting** (San Marcos, CA) hosted Doc

U2's Bono and Beyoncé Severinsen's Latin Band. Violinist Ilmar

Gavilan was outfitted with a **DPA 4061** miniature condenser mic, a perfect fit because it doesn't "leave any marks on the instrument or change its timbre."...High-profile human rights advocates such as **Bono, Beyoncé, Peter Gabriel** and **The Eurythmics** were on hand to support **Nelson Mandela's AIDS Awareness Concert** last November. **Sennheiser** provided two dozen **SKM 5000 N** handheld transmitters and **EM 3532-U** dual-channel receivers, and **Neumann KK 105-S** capsules...**Elizabeth Baptist Church** (East Point, GA) brought **Mike Hedden**, president of **dB Acoustic and Sound** (Gainesville, GA), to consult on its latest upgrade to **Sound Physics Lab** loudspeakers, including a left/center/right sound system comprising two **SPL-triks**."

Sacramento Music Circus Finds New Home

The Sacramento Music Circus, a destination for more than 100,000 patrons a year and the site of some of the city's most creative theater production, moved from the canvas tent that the company used for 52 years and into the 2,200-seat Wells Fargo Pavilion. The relocation called for drastic improvement to the venue's structure—including reinforcing the walls with Teflon-coated fabric, insulation and soundproofing materials—and an equipment upgrade.

To create an acoustically intelligent space for the new structure and to mimic its circus tent motif created a challenge because of its round, bowl-like shape. A team of experts was called in, including sound designer Bob Sereno (California Musical Theatre), representatives from Meyer Sound, Robert F. Mahoney and Associates' Curtis Kasefang and Audio Analysts (Colorado Springs, Colo.).

The Sacramento Music Circus' new system comprises 12 Meyer UPA-2P loudspeakers with 16 UPA-1P cabinets as rear reinforcement. The system was enhanced using four CQ-1 loudspeakers for dedicated effects, four UPM-2Ps for aisle fill (opposite the CQ-1s), nine for downfill and four as stage monitors. Frontfill was provided by 19 MM-4s, four USW-1P subs provided bottom end and Meyer's RMS networked the entire system.



PHOTO: CHRISTOPHER MACSWAIN

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World Radio History



On the Road

Martina McBride

John and Martina McBride started dating in April 1987, married a year later and landed in Nashville in 1990. Shortly thereafter, Martina began cranking out the hits and John struck gold in the sound reinforcement business. On tour and in the studio, Martina stands by her man when it comes to her sound.

Who is easier to get along with: John McBride husband or John McBride audio engineer?

Martina: He really is easy to get along with no matter what role he's filling. Knowing that he cares so much about me and that he is a perfectionist about audio really puts my mind at ease on-stage. I always say he's my "secret weapon."

Care to respond to that, John?

John: Regardless of whether we're on tour or in the studio, when I step behind the console and have to mix for her, she's fantastic because she sings right into the microphone. Around our house, you don't sing into the mic, that's grounds for divorce!

What mic do you have her singing into these days live?

John: I've tried six to eight different vocal mics on Martina, and every time, it all comes back around to a hardwired SM58. That's the best thing I've ever heard her on. That's not to say we don't use wireless, however. On tour, we go with Shure UHF as needed—using a transmitter with a 58 capsule—and we also latched onto the Beta 54 headset recently. It's the finest headset mic I have ever heard. Tonally, it is magnificent, it has great quality and I really like the hypercardioid pattern. I've never had to use external outboard EQ with it.

Now Playing

.moe

Sound Companies: Rainbow Concert Productions, Firehouse Productions

FOH Engineer/Console: Steve Young/Midas Heritage 3000

Monitor Engineer/Console: Bill Emmons/Midas Heritage 3000

P.A./Amps: Meyer Sound MILO

Monitors: Shure PSM600 hard-wired

Outboard Gear: Eventide H3000, TC Electronic M2000, 990, Delta Labs Effectron 2, dbx 120 Sub-harmonic Synthesizer, Summit DCI2 compressor, dbx 166A, Drawmer gates

Microphones: Shure Beta 91, Beta 88, SM57, SM98, KSM32; Audio-Technica 4050, Neumann KMS105, 414s

Dashboard Confessional

Sound Company: Audio Analysts

FOH Engineer/Console: Mike Fanuele/Midas Heritage 3000

Monitor Engineer/Console: Brian Bavido (also production manager)/Midas Heritage 3000

P.A./Amps: Audio Analysts' Alto Front-of-House System

Monitors: Sennheiser Evolution 300 Series wireless

Outboard Gear: Drawmer compressors/gates; TC Electronic M4000, M2000; BSS DPR901; Avalon tube compressor

Mics: Sennheiser Evolution E 935, E 609, E 604, E 421



PHOTO: SCOTT ELMSHIE



DK Capital Joins the Leasing Business

Doug Kocsis, a 15-year veteran of the leasing business, has formed DK Capital Inc. (Okemos, Mich., just outside of Lansing), a new leasing company primarily dedicated to serving the pro audio, lighting, A/V presentation and staging industries.

DK Capital offers numerous financing options for both new and used equipment, including various deferred billing scenarios, application-only financing and master lease programs. Kocsis, who was formerly with Accent Leasing, brings with him relationships with Midas, Klark Teknik, Electro-Voice, L-Acoustics U.S., Martin Audio, Nexo, Lab.gruppen, Creative Stage Lighting and Penn Fabrication, among others.



DK Capital can be contacted at 2109 Hamilton Rd., Okemos, MI 48868; 517/381-2848; fax 517/381-2815; doug@dkcapitalinc.com.

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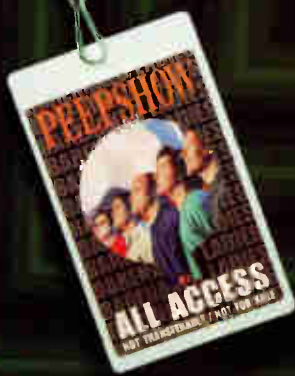
World Radio History



Barenaked Ladies

• Photos & Text by Steve Jennings

Mix caught "An Evening With Barenaked Ladies" on their stop at Berkeley, Calif.'s, Community Theatre in early December. While each BNL show is a unique experience, fans were treated to an extensive set list culled from the band's (Steven Page, vocals/guitar; Ed Robertson, vocals/guitar; Jim Creeggan, bass/vocals; Kevin Heam, keyboard/guitar/vocals; and Tyler Stewart, drums/vocals) latest CD, *Peepshow*, and other classic alt-rockin' tunes from the band's catalog.



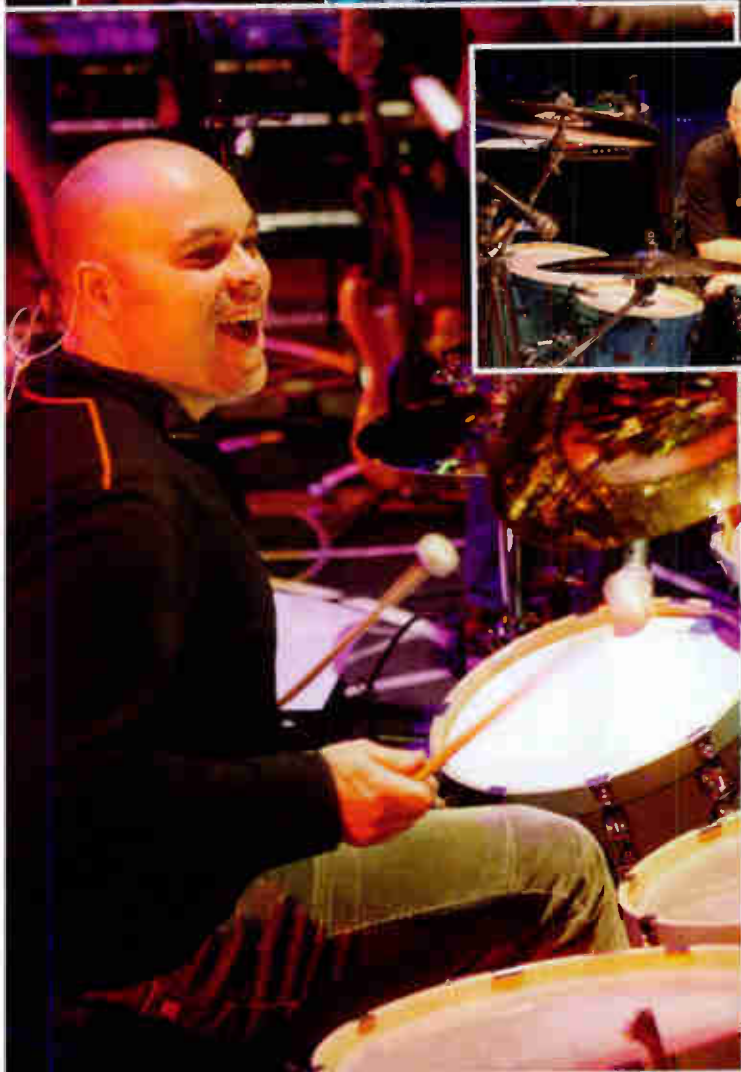
Front-of-house engineer Robin Billinton, who has been working with Barenaked Ladies for 12 years, is using an InnovaSon Grand Live 48-input console. "It was my first choice because of its small size, good sounds and ease of use. Sound Art from Toronto is providing the P.A.: four Meyer Milos, four MSL4s, three 650Ps, two UPA-1Ps and two UFA-2Ps per side. This tour has been all theaters, so the Milos are flown for the balcony and the rest is ground-stacked. The Milos have worked very well for balconies.



FOH engineer Robin Billinton (left) with systems tech Mike Smeaton

"I was told [Barenaked Ladies] would decide after 15 years if I get the gig. Hopefully, it will work out, but meanwhile, I'm fortunate to work with a band who's open minded about trying different gear to make the show sound better."





Drum/stage tech Robert "Tiny" Menegoni: "Tyler's [Stewart] kit is all Shure. Kick is Beta 52A; snare top and bottom is Beta 57A; hats are KSM141; toms are SM98A, overheads are KSM32; and for percussion, Beta 57A. Tyler uses a hardwired Shure P6HW beltpack for his ear mix, augmented with a Meyer USW-1P subwoofer."

On the other side of the venue, monitor engineer John Sulek (right) relies on a Midas Heritage 3000. "I take 48 inputs from the stage, plus eight reverb returns, and I use just about every output for the six stereo ear mixes [Ultimate Ears UE-5s], stereo sidefill, drum sub, six reverb sends, four stereo matrixes for hardwire ear mixes and three submixes to FOH as backup. The band's RF rack contains a Shure U4D receiver for Steve's [Page] vocal mics and six PSM700 mixes. I'm using TC Finalizers as insert EQ/compression/limiting on the ear mixes. Steve's vocal mic is a Beta 87C capsule on a Shure UHF wireless. The rest of the band is using Beta 58As, except for Ed, who has been trying out a hardwired Beta 87C lately with good results.

"I still have fun mixing these guys after 11 years! They are amazing to work for, and they own the monitor rig, which makes my life pretty stress-free at pre-production time."





Seal

**Standout Vocalist
Returns With
Sophisticated
World Tour**

By Heather Johnson

Save for a red light emanating from his wireless mic and the white glow of a Macintosh's Apple logo, Seal and band seemed nearly invisible as they stepped onto the dark stage at the sold-out Warfield Theater in San Francisco. Hands raised—some in celebration, others reaching for the singer's black cargo pants—the audience warmed up on one of the chilliest nights of the year by listening to a lengthy set from Seal's four-album catalog, including his latest release, *Seal IV*. Released last September on Warner Bros., the album earned a Grammy nomination this year for Best Remixed Recording for the single "Get It Together."

Though the England-bred vocalist/songwriter emerged from the house music scene of the early 1990s, Seal's music elegantly blends jazz, soul, pop, rock and dance, as evidenced on "Crazy," his first Top 10 U.S. single. His self-titled, multi-Platinum follow-up, released in 1994, yielded the Number One single "Kiss From a Rose" and a Grammy Award for Record of the Year and Song of the Year. *Human Being*, released in 1998, fared reasonably well, almost reaching the Top 20 with yet another batch of gently grooving melodies and lush production. But with the funk- and Stax-era soul-informed *Seal IV*, however, the chiseled performer with the warm, sensual voice makes a welcome return by delivering one of his most accessible and danceable albums to date.

PHOTOS: STEVE JENNINGS



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World Radio History

Veteran engineer Orris Henry began working with Seal as monitor engineer in 1994, the year the artist first wowed the U.S. with his sophisticated pop. When an offer came to work front of house for the soulful 40-year-old singer, Henry promptly quit working on a tour with KISS and accompanied Seal to Europe last fall for select promotional dates (to Henry's delight, hitting both Paris and Milan's Fashion Week), where he ran both monitors and FOH. When the U.S. tour kicked off in November, Clair Bros. engineer Blake Suib, ruler of monitor world for star acts such as Destiny's Child, Alicia Keys, Madonna and Prince, assumed backline duties.

For the Warfield date, both Henry and Suib mixed on Midas Heritage 3000 consoles. "We're using it as a front-of-house board mainly because there weren't any XL4s available," Henry says during a pre-soundcheck break. "And I'm such an adaptable kind of guy I can make it work!" he adds, laughing.

Opening act Wilshire occupied 12 of the console's 64 inputs, with another 12 reserved for Seal, keyboardist Dave Palmer, keyboardist/programmer Tim Weidner, bassist Chris Bruce, guitarist Eric Schermerhorn and drummer Earl Harvin.

Henry's sparse array of out-board gear includes a Lexicon 480L, an Eventide Orville—"the latest and greatest Harmonizer," he says—and a TC Electronic D2 digital delay. Henry uses the Lexicon and the Eventide for both vocals and drums, and leaves the TC unit open. "With those effects, I can re-create all of the sounds that are on the records," Henry says. "Sometimes I hit 'em, sometimes I don't. When you're doing them live, your next chance is the next show."

Appearing as uncluttered as Henry's FOH area, Seal's stage contains no wedge monitors and very few microphones. "Except for the cymbals, everything on-stage is electronic," Henry says. "We want to keep a dead-quiet stage so that the vocal mic has nothing feeding into it, which gives you optimum sound. He's got such a spectacular voice that you don't want to mess it up." Production manager Tom Mayhue, who, like Henry, has worked with Seal for nearly a decade, says that

they haven't experienced any problems with this setup, though it is a bit "more technical" than previous tours. "It's historically been a computer-oriented kind of music," Henry adds of Seal's work. "From his first single, 'Killer,' there were computers involved."

Electronic drums—specifically, kick, snare, rack and floor—run through a Roland TD10 VDrum Module, cymbals get miked with Audio-Technica 4050s and the hi-hat is miked with an AKG C 535 EB. Bass and keyboards are run through SansAmp DIs. Henry also uses Audio-Technica 4050s on the two electric guitars, although the amplifiers remain isolated in a small box to the side of the stage. "The guitarists can get the tone they need by playing as loud as they want, but it doesn't affect the stage sound because it's not too loud," adds Suib.

Seal's silken vocals are miked with a Neumann Sennheiser hybrid wireless mic, which combines the Neumann KMS 105 capsule with the Sennheiser 5000 wireless transmitter. Henry also uses a Focusrite ISA 430 Producer Pack and the BSS 901 compressor for "some serious de-essing," Henry says. "He really empha-sss-izes his 's-s-s-s's' a lot." Acoustic guitar and bass receive treatment from a dbx 120 subharmonic processor.

The glowing white Apple icon that greeted the crowd resides on a Pro Tools-equipped Macintosh G4 laptop. Keyboardist/programmer Weidner uses the computer to fly loops in and out during the show. "It's no secret we use Pro Tools," Henry admits, noting Seal's interest in new technology. "The music doesn't rely upon it, it just enhances it." Seal, who also uses Pro Tools in the studio, requested the unencumbered, computer-enhanced stage setup. "There's only one guy's name on the marquis, so we make him happy," Henry says, laughing. "He's a really great guy; very easy to deal with. And he knows what he's talking about. He's a real tech-head—into toys and gadgets and whatnot."

Although Seal's sound crew regularly travels with Clair Bros., for the artist's North American tour, they rented racks 'n' stacks from local production companies. Bay Area-based Sound on Stage provided an L-Acoustics line array P.A. system for the Warfield date, which included 20 L-Acoustics V-DOSC cabinets: two clusters of five flown and two clusters of five on the deck. L-Acoustics SB 218 subwoofers were stacked four on the floor per side, with three more flown at



Monitor engineer Blake Suib (left) with FOH engineer Orris Henry

the center of the stage. Four Sound on Stage Power Physics 222 Proprietary speakers rounded out the system. Crown Macro 5000 IS-8 amplifiers powered the P.A., with support from three XTA DP226 loudspeaker-management systems and three XTA GQ600 dual/stereo gates.

Seal and band used Ultimate Ears UE7 in-ear monitors with Sennheiser EW 300 IEM wireless systems. Suib also wears the Sennheiser backpack and sets it to the same volume as Seal's, "so we're hearing the exact same thing. I'm wearing the same ears as him, and I just do a front-of-house-style mix with full effects."

Those effects include a TC Electronic 2290 delay unit, a Lexicon PCM90 digital reverb and a Yamaha SPX 990 used only as a chorus/flange during the "Bring It On" intro. "That's a specialty effect," Suib says. "Seal's voice is affected with that sound. I reproduce the same effect that's on the record. For Seal, I mostly use the reverb and delay, but 'Bring It On' has to have [the SPX 990]."

The rest of the band is set up with pre-fader mixes, "so their mixes are just sort of 'set it and forget it,'" Suib says. That said, he still aims to "nail" the mixes for each song, which obviously benefits the band but is crucially important to the vocalist: "On a particular song, if he's pitching off a keyboard and I don't have it up at the right level, that can mess him up," Suib explains. "You've got to be on it 100 percent of the time. You've got to be listening. For example, if I have to take my ears out to troubleshoot a problem, his mix would cease to be happening, which might screw up his pitch; he's reliant on [that mix], because there's no other sound. If I don't make sure the mix is right for every song, if I miss a cue with in-ear monitors, it's pretty easily noticed because it's right in their ears." Suib sends bass and kick through the subs, allowing the musicians to hear their natural rhythm. Everything else is fed through the ears.

The crowd erupted as Seal launched into his two-song encore, which included "Bring It On," complemented by standout lighting and, of course, top-notch sound. Henry says that he's wanted to work front of house for Seal for years, and, apparently, it's a gig worth waiting for. "This tour is a mixer's dream," he says. "You've got a great band, great songs and a world-class singer. You'd have to be a real bozo to screw this up." ■

Heather Johnson is Mix's editorial assistant.

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ALCONS "THE RIBBON" LINE ARRAY

Alcons Audio (www.alconsaudio.com) is now shipping its LR16 "The Ribbon" line array, an active two-way system that can be stacked or flown in vertical arrays. The compact and flexible design makes it ideal for small to medium venues, and with a maximum SPL of 135 dB per unit (and 1,000-watt peak handling), it's also suitable for larger applications when used in extended arrays. High frequency is provided by Alcons' powerful RBN601 ribbon driver, offering superb intelligibility/throw and excellent gain before feedback. Frequencies below 1,200 Hz are via two 8-inch mid-bass drivers, allowing true full-range use down to 55 Hz.



ALTAIR ELECTRA E-3 CONSOLE

Altair Audio (www.altairaudio.com) debuts Electra E-3, a semi-modular console designed for front-of-house or monitor applications. Offered in 32/40/48-input channel configurations, Electra E-3 features eight subgroups, 16 auxes, eight VCAs with motorized faders, an 8x16 matrix and LCR output masters. Eight mute masters can store 128 mute scenes, and digital parametric equalization and onboard dynamics complement the aux outs. Inputs have 4-band EQ, with peak-shelf switchable LF/HF bands and fully parametric mids. Metering is extensive with nine-step LEDs next to each fader, along with 24 LED meters on the auxes and groups, and four mechanical VUs for PFL and LCR masters. A connector for an optional redundant power supply is also standard.

INTER-M L SERIES AMPS

Ranging in size from the 830W L-800 up to the 2,400W L-2400, the new L Series 2-channel amps from Inter-M Americas (www.inter-m.net) occupy only two rackspaces. Features include rear-exit forced-air cooling, switchable clip limiting, 30/50Hz highpass filters, and front panel status indicators for levels, clip, stereo/parallel/bridged modes and activation of protective circuits. The rear panel has binding post and Speakon outputs and Combo TRS/XLR inputs.



RANE PERSONAL MONITOR PROCESSOR

The MM 42 Monitor Processor from Rane (www.rane.com) lets performers and engineers optimize personal monitors while ensuring a safe, dynamic mix. Connecting in-line between a console and a wired/wireless monitor system, the MM 42 processes a single stereo mix (or two independent mono mixes) using shelf/cut filters, 3-band compression, 5-band parametric EQ and 3-band peak limiting. An assignable low-frequency output with adjustable bandpass filter allows direct connection to powered subs or bass "shakers" without an external crossover. The onboard headphone amp (¼- and ⅜-inch jacks) and Cue Bus functionality permit easy setup and monitoring of multiple mixes. Retail is \$999.



SPL "THE RUNT"

Sound Physics Labs (www.soundphysics.com) debuts "The Runt," a compact, powerful loudspeaker usable as a main P.A., pole-mount, monitors or as sidefills. Placed on its side or upright, The Runt's boundary-compliant design allows placing the unit directly on a physical boundary for improved gain before feedback without the "self-interference" that other designs produce. The Runt features two 8-inch woofers and a 1-inch HF compression driver, with a common Baltic birch horn in SPL's patented Unity Summation Aperture configuration. Response is 65-20k Hz (± 3 dB), power handling is 400W continuous and coverage is 90°x55°. The 65-pound unit is 24x14x13 inches (HxDxW) and has two NLA connectors.



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Snails and Puppy Dog's Tails

Filling Up the Open Source Tub

Holy Juno, readers, it's February and that gives me a chance to talk about my love. Though my family is first in line, right up there in third place is gadgets, those geeky toys we all love to mess with. During the last few months, we've been discussing Open Source Software (OSS) in general and audio in particular. But if you're into desktop production, you'll get a kick out of all the other things you can do with OSS and an old computer.

Not all OSS is operating systems. Starting with practical stuff, SourceForge, currently the largest repository of Open Source code and applications, lists several hundred results just from searching for the string "MPEG." Though many are either in perpetual alpha or pure pie in the sky, FFmpeg is "a complete solution to record, convert and stream audio and video." It includes a simple player, codecs, a command line tool and streaming server, along with libraries containing parsing executables. There's another project cooking up an FFmpeg Cocoa GUI just for confessed CLI lightweights.

Asset management is increasingly becoming an issue for media producers, so you may want to evaluate MPEG Database, "a collection of PHP scripts and classes that allow you to catalog and search your MPEG files [MP3] and their header info." MPEG Database is intended to be used with MySQL, a popular and highly regarded Open Source Structured Query Language (SQL) database. SQL, pronounced "see-kwull," is an ANSI/ISO standard method to create, update and query big-time relational databases. Examples of relational databases are Microsoft's SQL Server, cross-platform lightweight Filemaker Pro, IBM's DB2 and category pioneer Oracle Corporation's Oracle9.

For fans of that other "open" paradigm, namely open standards, there are a few SourceForge projects for implementing MPEG-7 metadata infrastructure. None of these efforts have released any results, but the OpenIPMP Project, addressing MPEG-21 plumbing, currently has a 0.8 release. OpenIPMP is an "Open Source DRM for MPEG-4 adhering to ISO/MPEG IPMP Intellectual Property Management and Protection open standards...ISMA [Internet Streaming Media Alliance] streaming and OMA DRM [Open Mobile Alliance Digital Rights Management] specs." (By the way, I'll be covering the ISO/IEC's MPEG-7 and MPEG-21 standards in a future column if I can just get past all of those three- and four-letter acronyms!)

For those of you with something to hide, there are many tools and applications that provide AES functionality. Not our AES, the other AES—the Advanced Encryption Standard. AES has been selected by our trustworthy government as the official replacement for triple DES, the



old-school way to securely encrypt data. The National Institute of Standards & Technology adopted AES because of its "combination of security, performance, efficiency, ease of implementation and flexibility." Also hiding (yuk yuk) within SourceForge are five different steganography applications—in various states of completion—that conceal data within audio, typically lossy coded files. I wrote a bit about stego' back in August 2002 but, in brief, steganography is the science of hiding information within other information. Audio watermarking is an increasingly common example of steganography.

For those of you, poor things, who simply cannot do without "Windoze," there are several Open Source DOS and Windows emulators along with a .NET workalike, Microsoft's next great hope for future revenues and competitor obfuscation. Don't forget the infamous Lindows, which serves as the heart of WalMart's \$199 PC. For those who can take or leave Windows but think they need Microsoft's other popular offering, there's OpenOffice/StarOffice/NeoOffice, depending on your operating system of choice. This bevy of productivity suites reads, edits and writes Office files, all without the costs associated with the original.

Fans of Max, Cycling '74's geeky, object-oriented signal processing framework, will appreciate GStreamer, a set of building blocks for the "construction of graphs of media-handling components, ranging from simple MP3 playback to complex audio [mixing] video [nonlinear

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 Kahne (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."

Andy Huxford (Grammy-nominated engineer/producer; Ray Charles)

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

Steven Barkan (Grammy-nominated engineer/producer; ET, 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")

Studiophile BX8 | BX5 | SBX | LX4

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editing] processing." Not many folks know about Max, but everyone I know who has a TiVo or other PVR says it's changed their life. So, why not check out the well over a dozen hacks and workalike variations that are floating around the Open Source community? For boatloads of TiVo fun, check out Raffi Krikorian's *TiVo Hacks* from O'Reilly. Speaking of transformative tech, you may have heard of several fellows who've cobbled together low-cost Seg-way™ clones without the safeguards—wear a helmet!

Something that we all need to do more

of is advertise and promote our services. If you don't get the word out, then the bidness doesn't come in. A Website, that essential "silent salesman," is pretty simple to brew up, and the overwhelming choice for serving it is the Open Source donation from the Apache Software Foundation. For every dozen Web servers out there, eight are running Netscape, Microsoft or another server software. Also, if you want a database-driven site where you don't have to handcraft every page, then the potent Open Source combination of Linux, Apache, MySQL and

Perl/PHP/Python for scripting makes it all happen in a powerful, low-cost package.

Of course, if you *do* run your own site, then you probably also spend some serious time thinking about security. You should, anyway. Along with all of the other OSS out there, several firewalls, sniffers, spam killers and honeypots are available for a free download. Firewalls inspect network traffic and impose predefined rules on what traffic is allowed to pass in or out. Think of it as parental controls for your network, except in this case, the parent is the sysadmin, or system administrator. As the IPCop team says, "The bad packets stop here!"

Honeypots are lures—virtual flypaper for hackers. Hackers who make it past a firewall may find themselves exploring what appears to be a legitimate server or private network, searching for vulnerabilities. All the while, their intrusion has been anticipated and their activities in this mock environment are monitored and logged in an effort to glean information on their identity and modus operandi. This may, in turn, help a sysadmin move against the hacker, spammer or malcontent. Be aware, though, that many of these tools, in the wrong hands, can be used by those self-same "Black Hats." Take AirSnort, an example of several wireless LAN tools that crack encryption keys on WEP-protected 802.11b networks. As I mentioned back in July '02, 802.11b networks are none too secure and administrators should be aware of these chinks in their armor.

As I've mentioned before, OSS is, by and large, for advanced computer users and not your average punter, though if you're familiar with Unix, then you're probably ahead of the game. I've also said before that unless you really enjoy screwing around with software at the most basic level, then OSS probably isn't for you. If, however, you are growing disenchanted with Microsoft but still enjoy the thrill of mastery over an arcane magic, then take heart: There is an alternative and you may just find an affinity with what Open Source evangelist Tim O'Reilly calls Open Source's "architecture of participation." It may "open" up a whole new world for you. ■

This month's column was written under the influence of Amnon Wolman's Dangerous Bend on the c74 label and PentaTone Classics' hybrid multichannel SACD reissue of the Academy of St. Martin in the Fields' 1971 performance of the Four Horn Concertos by Wolfie A. Mozart. For tips, books, links and an expanded version of this column, visit www.seneschal.net.

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InnovaSON has years of experience in digital live sound with hundreds of consoles in use every day around the world. Our new Sy80 control surface has been specifically designed for live mixing, providing the fastest most direct performance control without the need for multiple channel strips, hundreds of pots and switches, or layers.

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Neil McDonald • Tour Manager, Stereophonics



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Tools of the Trade



E-MU SYSTEMS EMULATOR X STUDIO

Two new PC-based desktop sampling systems from E-mu Systems (www.emu.com) offer tools for automated sampling and preset creation, an integrated waveform editor, synthesis and a mastering-grade 24-bit/192kHz audio interface with hardware-accelerated effects. The \$599.99 Emulator X Studio has two TFPPro mic preamps (with phantom power), six balanced analog inputs, eight balanced analog outs, turntable input and eight speaker outs (configurable to 7.1). Also included are ADAT I/O, S/PDIF I/O, S/PDIF out, two sets of MIDI I/O and a FireWire interface, word clock I/O, SMPTE I/O and MTC out. The more basic \$299.99 Emulator X has two channels of balanced analog I/O, ADAT I/O, S/PDIF I/O, MIDI I/O and a FireWire interface.

ATR 2-INCH 8-TRACK HEADBLOCK

ATR Services (www.atrservice.com) debuts a 2-inch 8-track headblock designed to fit Studer A827 analog 2-inch recorders. Made in-house by ATR, the plate is machined to close tolerances from a solid block of aircraft-grade aluminum. The package can include a set of Flux Magnetics Mastering heads (including an extended response play head) and is optimized for use with the Aria Reference Series Class-A discrete electronics. (Aria electronics are also available separately.) The headblock is \$2,595, or \$11,595 with Flux Magnetics extended response heads.

ATI AV8 SERIES

ATI (Audio Technologies Inc., www.atiaudio.com) has released the AV8 Series, a new product line of Cat-5/6 twisted-pair transmitters and receivers for composite or S-Video and stereo audio (balanced or unbalanced). These are the first products to be delivered in ATI's compact XFORM size, a 1/2-rack-width package, with 1RU and 0.5RU-high variations.

The AV8 can transmit video and audio signals up to 1,000 feet over twisted-pair UTP cable such as Cat-5/5e/6. UTP cable is a fraction of the size of coaxial cable, much lighter, more flexible, easier to terminate and less expensive.

SENNHEISER HD 650

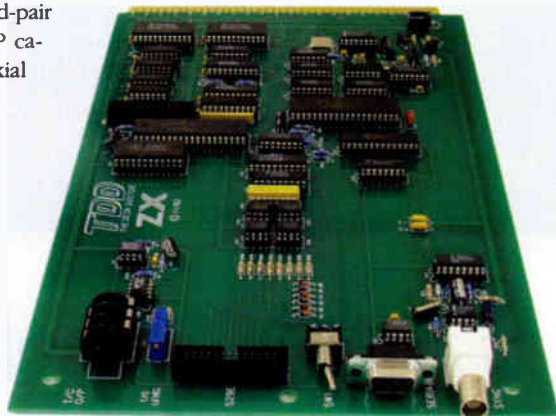
Sennheiser (www.sennheiser.com) released an enhanced version of its popular HD 600 headphones. The new HD 650s feature hand-selected matched transducers, lightweight aluminum voice coils, specially developed OFC copper cable



with Kevlar reinforcing to eliminate handling noise, gold-plated 1/4-inch plug and a two-year warranty. Price: \$499.95.

ROLAND MC-909 EDITOR

Roland (www.rolandus.com) has released the new MC-909 Editor for Mac or PC. The editor allows users to adjust everything from envelope generators, oscillator parameters, effects parameters or even system-wide settings. Supported platforms include Mac OS 8.6, 9.x and OS X (10.2 or later) or Windows 98/ME/2000/XP. MC-909 owners can download the software free at www.mc-909.com/downloads.html.



DESK DOCTOR ZX CARD

The ZX card from Desk Doctor (www.deskdoctor.com, www.proaudiodesign.com) allows SSL E and G computers to act as a timecode master and reference locator for any DAW, video deck or code-only slave. The card has outputs for timecode and Sony 9-pin protocol, making it compatible with a wide variety of existing audio and video gear. Price: \$2,495.

SK ENGINEERING MINI-SAM II

The Mini-SAM II from SK Engineering (www.skeng.com) digitally records and plays back synchronous 2-channel digital audio and control information at up to CD quality into nonvolatile solid-state memory for message repeating and control applica-

tions where cost and space are a concern. The unit's message and control information can be changed an unlimited number of times, and files are mastered via the included Windows-based software. Message play can be triggered from sources such as motion sensors, switches, logic signals, door pressure sensors and more. Price: \$595.

CONTOUR DESIGN NOTERISER

Perfect for audio laptop users with sore necks, Contour Design (www.contour-design.com) debuts the NoteRiser, which enables laptop notebook users to position the computer for optimal ergonomic integrity, optimizing it for use with an external keyboard. The aluminum-alloy unit weighs less than 14 ounces, and places the screen at the appropriate height/angle to help decrease eyestrain and improve posture. The 11.8x10.6-inch unit flattens to approximately 1/8-inch for portability. Price: \$129.95.

IZOTOPE OZONE 3

iZotope (www.izotope.com) has released Ozone 3, the latest upgrade of its PC-based mastering plug-in. Features include MBIT+



wordlength reduction, tape modeling, tube modeling, intersample clipping prevention and 64-bit acoustic-modeled reverb. There are also more than 30 additional features covering automation, performance, metering, processing and more. Price: \$199 (download) or \$229 (CD-ROM); as an upgrade from Ozone 2. Ozone 3 is \$49 (download) or \$79 (CD-ROM).

PRINCETON DIGITAL SP2016 PLUG-IN

Princeton Digital has released Pro Tools HD plug-in versions of the legendary Eventide SP2016 reverbs. The \$699 plug-in set, called Reverb 2016, includes the stereo room, room reverb and high-density plate algorithms from the original hardware unit. The set requires a Pro Tools HD or Accel system running under Mac OS X, 10.2 or newer. The initial release supports 44.1/48kHz sample rates; a 96kHz upgrade for Accel hardware is planned for release soon, and Rev. 1.0

purchasers will receive free upgrades. A fully functional 30-day demo version can be downloaded by visiting www.princeton-digital.com.

YAMAHA VST PLUG-INS

Yamaha has released three VST plug-ins for the Mac (9.x or X) and Windows (XP, 2000, ME, 98 or 98SE) platforms. The trio includes Pitch Fix (\$299), providing formant pitch correction; Vocal Rack (\$199), a suite of vocal processing tools; and Final Master (\$199), a group of tools for audio sweetening. The plug-ins will operate with any VST/AU-compatible software. For more info, visit www.motifator.com.

GARRITAN PERSONAL ORCHESTRA

From the high-end Garritan Orchestral Libraries (www.personalorchestra.com) comes the new, affordable Personal Orchestra. The package is a library, sample player and notation program in one convenient package. Personal Orchestra con-

Yamaha MSP10 Studio

Note: The following product was inadvertently omitted from the Mix roundup of new studio monitors in the December issue. Our apologies.

YAMAHA MSP10 STUDIO

The MSP10 Studio from Yamaha (www.yamaha.com/proaudio) is a bi-amped design, featuring an 8-inch woofer driven by a 120-watt amp and a 1-inch titanium-dome tweeter with a 60W amplifier. The MDF cabinet has an integrated waveguide that achieves uniform dispersion over 120°. The rear panel has balanced XLR inputs, input-sensitivity control, response trim switches for both the woofer and tweeter, and an 80Hz low-cut switch (recommended when using the MSP10 Studio with the optional SW10 subwoofer). Retail: \$999/each.



tains samples of all the major instruments in a symphony orchestra, in addition to a Steinway concert grand piano, Stradivarius violin, Wurlitzer and Venus concert harps, Haynes flutes, Heckel bassoons, Mustel celeste, Rudolf von Beckerath concert pipe organ, harpsichord and many more. Price: \$249.

Genex GXR PC control software (Windows XP), enabling cut/copy/paste/erase operations on up to 48 channels of audio data. Connection is via USB 2.0. The GX9MB meter bridge (\$1,000) provides up to 48 channels of 24-segment level metering in a 19-inch, 4U chassis that can be freestanding, rackmounted or mounted onto the

tures three sets of monitor outputs, each with their own trim pots and three sets of analog stereo analog inputs. Two of these inputs feature balanced TRS jacks and the third has RCA inputs with trim control for matching signals at different levels. It also accommodates two digital inputs (S/PDIF or Toslink), providing



CYCLING '74 RADIAL 1.1

Radial 1.1 from Cycling '74 is a loop-based composition and performance tool designed for Mac OS X's CoreAudio and CoreMIDI, allowing the use of multiple audio and MIDI interfaces at very low latency. New features include a convenient file-grouping mechanism and improved sync capabilities. Radial is \$199 and is available for purchase or download from www.cycling74.com.

AIRR SUPPORT MIC STANDS

AiRR Support (www.networkpro.mktg.com) has improved its line of mic stands, substantially upgrading reliability and adaptability. The larger, steel-reinforced height-adjustment crank has an improved gear ratio for smoother operation, while the counterweight features a higher-quality screw mechanism for greater sturdiness. For extra stability, a second sandbag is now included as an additional counterweight. The overall look of AiRR stands has also changed, with an all-black electroplated finish. The stands are available in three sizes and are priced from \$335.

GENEX GX ACCESSORIES

Genex (www.genexaudio.com) releases new accessories for its GX9000 and GX9048 multitracks. The GXR948 Remote Controller (\$2,500) enables direct control of up to 48 channels of record arming and monitoring, with no bank switching via dedicated buttons for each function, plus displays for critical parameters. The GXPC Edit is a \$500 plug-in waveform editor for

GXR948 remote. Features include timecode display, recorder status and signal present LEDs. Meter dynamics, fine-scale calibration and over-sensitivity can be controlled remotely from the GXR PC software or the GXR948 remote.

PRESONUS CENTRAL STATION

At the recent Winter NAMM show, PreSonus (www.presonus.com) debuted Central Station, a passive studio control center aimed at DAW users. The unit fea-

D/A conversion up to 24-bit/192 kHz. Also included are two headphone outs; mute, dim and input select; cue select; and output select. An optional remote is available for talkback, mute, dim, input and output selection, as well as level adjustment. Price: \$699.95.

AUDIO EASE IMPULSE RESPONSES

Audio Ease now offers acoustic samples (impulse responses) of Australia's famed

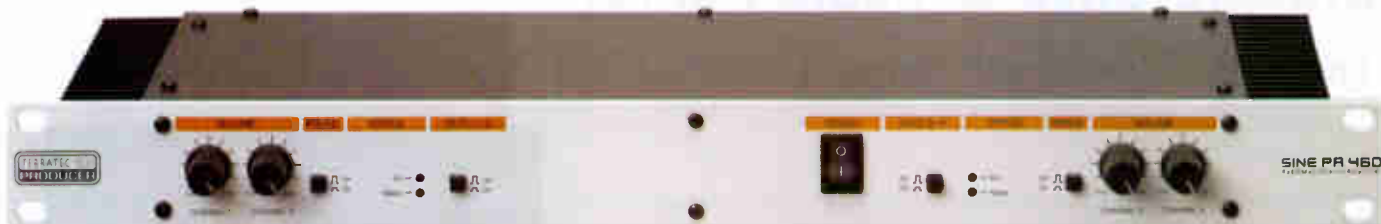
Trackdown scoring stage for use in Altiverb, a sampled acoustics plug-in. Located in Sydney, Trackdown is one of Australia's largest, independently

owned, purpose-built orchestral film scoring stages. Built in 2003, it features the latest in acoustic design for a world-class scoring environment. Samples can be demoed and purchased at www.audioease.com/IR.

SONIC STUDIO SONIC MAGIC

Sonic Studio LLC (www.sonicstudio.com) now offers Sonic Magic, a custom version of Dark Matter's Media Magic EDL translation utility for the Mac. Media Magic format can read/convert many of the disk and file formats used in pro audio post/music facilities, allowing source projects and audio files to be interchanged between a variety of different systems/standards. Sonic Magic is a cost-reduced version of Media Magic for Sonic Studio owners to translate both source sound files and EDLs between Sonic Studio and Pro Tools 5.0 systems. Features include converting region definitions, locations of those regions on the timeline and crossfade approximations. Sonic Magic





also supports AES31 import and export of Sonic Studio projects. The upgrade is free for registered owners of UltraTools|HD 2.2 and 2.3 bundles, as well as for registered owners of SoundToy's individual HD-compatible plug-ins.

ECHO INDIGO IO

Echo Digital Audio (www.echoaudio.com) offers the Indigo io portable recording system for Mac/PC laptops. The new unit offers the same hardware and software as the original Indigo but adds a stereo analog input. Indigo io features one stereo 1/4-inch analog input, one

stereo 1/4-inch analog out, headphone amp, eight "virtual" outs through software and 6-foot audio adapter cable for RCA and 1/4-inch connections. In addition, the original Indigo has been enhanced for pro users to include software support for Echo's multicient drivers and eight "virtual" outputs. Price: Indigo io, \$229; Indigo (original), \$159.

TERRATEC SINE AMPS

Terratec's (www.terratec.com) SINE PA Series offers three studio power amps (2x60, 4x60 and 2x100W) that are designed for use with near-field speakers.

These single-rackspace amps boast a S/N ratio of 97 dB (@ 30 watts and 1 ohm) and feature onboard overheat protection and switch-on delay circuits, eliminating power-on thumps. A special feature of the PA 460 model is a cascaded circuit allowing its output power to be switched from 4x60 watts to 2x120 watts. Also offered is the SINE HP 48 stereo headphone amp (with four stereo amps to drive eight pairs of headphones) and up to four different signal sources. Prices: PA 120, \$199; PA 200, \$269; PA 460, \$320; and HP 48, \$139.

Upgrades and Updates

Mackie (www.mackie.com/uad-1) and Universal Audio have released **Version 3.3 software for the Mackie UAD-1 DSP Powered Plug-Ins** card. The upgrade supports OS X on all Mac platforms including G5 processors...**Cakewalk has launched www.Project5.com**, a virtual community for the Project5 enthusiast. The new site offers free tutorials and tips, in addition to providing an online community where users can exchange project files, synth patches and patterns...**Metric Halo's Mobile I/O 2882 has been upgraded** with an onboard DSP chip, providing access to the company's signal processing effects without sacrificing computer processing power. The 2882+DSP is bundled with a variety of MH plug-ins, including MIO-Comp, MIOLimit, MIOEQ-6, MIOEQ-12, MIO M/S Processor and MIOStrip. The \$2,195 2882+DSP is OS 9- and OS X-compatible. Visit [\[audiogroup.com\]\(http://audiogroup.com\)...**SoundToys** \(formerly Wave Mechanics\) released **V. 2.4 of the UltraTools bundle**, adding support for Digidesign's Pro Tools|HD Accel card. The gang of four plugs include SoundBlender, PitchDoctor, PurePitch and Speed, as well as two pro producer libraries with some 70 new remix, guitar and mixdown presets for SoundBlender. The upgrade is free for registered owners of UltraTools|HD 2.2 and 2.3 or SoundToy's individual HD-compatible plug-ins. Price: \\$1,195. Visit \[www.soundtoys.com\]\(http://www.soundtoys.com\)...**TC Electronic** announces that **Native Bundle V. 3.1 is now available** and includes the Sonic Destructor plug-in and a newly reduced price of \\$295. The new version is a free download for 3.0 owners or can be purchased for \\$149 as an upgrade from Native Bundle 1.0/2.0...**GRM Tools** \(\[www.grmtools.org\]\(http://www.grmtools.org\)\) now offers both volumes of its Clas-](http://www.trans</p>
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sic VST bundle for \$130 (originally \$199). For \$50 more, users can upgrade to be compatible with OS X or Windows XP...**Native Instruments'** (www.native-instruments.com) **Battery 1.3 update brings the drum sampler to Mac OS X** and Pro Tools users on OS X. Battery 1.3 now supports AudioUnits, RTAS, VST and stand-alone operation with CoreMIDI and CoreAudio. The update is available to registered users as a \$29 direct download or \$49 on CD...**Celemony Software** has released **Melodyne 2.1**. The latest version of the audio recording software now supports the DXi interface under Windows XP and is optimized for Macintosh OS 10.3 and Apple's G5 computer. The upgrade is free for registered Melodyne users and is available for download from www.celemony.com...**M-Audio** (www.m-audio.com) is **shipping the new Studiophile SBX subwoofer**. The sub features a 120W amp, 8-inch woofer and accepts both XLR and TRS inputs. Additionally, the rear panel controls allow control of level, phase and crossover frequency (50-180 Hz). The SBX is designed to integrate with the company's BX5 active bi-amplified reference monitors and sells for \$499.95. ■



Mackie Onyx Console Family

The Little 1604 Mixer Grows Up

Set your time machine back to 1989, and you'll enter a different world. It's hard to believe, but just 15 years ago, everyday audio technologies and products like Pro Tools, ADATs and DA-88s simply didn't exist. That year's "affordable" digital 8-track was defined as Yamaha's \$30,000 DMR8; a Sony PCM-3348 48-track would set you back a cool quarter million and the first digital audio sequencers were still a year away. Even the Mac IIci—that year's hottest computer—was priced at a hefty \$6,700 for a then-blazing 25MHz 68030 processor with an 80MB hard drive and a whopping 4 megs of RAM.

The MIDI keyboard revolution was well underway and musicians everywhere were seeking a mixer that was affordable, solid and good-sounding. The outlook seemed bleak for anyone looking to make great music on a budget. Fortunately, help was on the horizon in the form of Tapco founder Greg Mackie, who, in 1989, launched a new company bearing his name and sold a couple hundred of its first LM-1602 line mixers. But it was Mackie's CR-1604 compact 16-channel mixer unveiled about a year later that spawned a revolution of its own.

Besides offering rock-solid construction (frequently described as "built like a tank"), the CR-1604 ushered in some slick new concepts. Although a rackmount design, it could easily be used as a desktop mixer; its clever Rotopod chassis allowed connections to be accessed either from the front or the top of the unit. The CR-1604 also had a rugged internal power supply, a feature that's almost unheard of in a market flooded with "budget" mixers equipped with flimsy wall wart supplies. But best of all, the CR-1604 did the impossible: It sounded great and carried a rock-bottom price that anyone could afford.

Soon, Mackie had sold tens of thousands of the mixers. The audience included not only struggling bands and musicians, but also working pros everywhere who used them as submixers in high-end studios, on top tours, during post-production for feature films and on live broadcast events such as the Olympics. The CR-1604 was unquestionably a hit, but Mackie didn't stop there. Several years later, the original CR-1604 was replaced by the VLZ and current VLZ Pro Series, which featured expanded EQ capabilities and XDR™

(Extended Dynamic Range) premium, studio-grade mic preamps. Retaining the pro build quality while expanding the capabilities of the classic CR-1604, it's no surprise that its predecessors have encountered such worldwide success.

At last month's NAMM show in Anaheim, Calif., Mackie unveiled the next generation in its legacy of compact mixers. Known as "Onyx" (the name is taken from a reference to the Onyx XDR low-noise, all-discrete mic preamps used in other Mackie pro mixers), the series includes three models, all with new equalizers by noted designer Cal Perkins.

The top-of-the-line Onyx 1640 is a 4-bus, 16-channel (16 mono mic/line inputs) mixer with a 4-band (two sweepable mids) equalizer and the popular Rotopod chassis for flexible cable interfacing. The other two Onyx models are both 2-bus designs. The 16-channel (eight mic/line and four stereo line inputs) Onyx 1620 shares the same EQ as the Onyx 1640, while the compact 12-channel (four mic/line and eight line inputs) Onyx 1220 has a 3-band EQ with a sweepable mid-band. All have individually switchable 48VDC phantom powering as standard.

With just the new EQ, the Onyx line would be an impressive upgrade, but the mixers go much further. Each channel has a 4-segment LED input meter for more flexibility than a simple clip light, especially useful when optimizing the gain trims on highly dynamic sources. The talkback section operates with either an external mic (via a rear panel XLR input) or the condenser mic element built into the top panel. The first two channels of each mixer can be switched to handle a hi-Z direct instrument input, offering precise impedance matching for connecting electric guitars, basses, etc., without needing an outboard direct box. Speaking of direct connections, the rear panel has balanced +4dB analog direct outputs for every mixer channel on D25-sub connectors using the industry-standard Tascam DA-88 pinout, so users can use off-the-shelf XLR or ¼-inch TRS snakes for fast interfacing to pro recorders or workstations.

Perhaps the most exciting and useful new



function in the Onyx line is an option for a 24-bit/96kHz FireWire (IEEE 1394) interface, which plugs into a rear panel card slot. The option allows streaming of up to 18 channels of multitrack audio to a computer and simultaneously returns two channels (the L/R mix) back to the console for monitoring through the control room/phones/talkback matrix, creating an effective front end for any DAW. In remote recording applications, the FireWire option offers a powerful multitrack interface for live recording. In the most basic application, a band could simply add an Onyx mixer, a FireWire cable, recording software and a laptop computer and create fast, quality portable recordings—anywhere. In a more complex arrangement, the Onyx could be used as a bank of high-end preamps, feeding a house rig via the D25-sub direct outs, monitors via the subgroup outs and the FireWire routing to a DAW. The possibilities are nearly endless.

Fifteen years after the company's founding, Mackie is set to spark another recording revolution with the introduction of the Onyx line. "Like the original CR-1604, the Onyx mixers continue Mackie's tradition of bringing high-end performance within the reach of working professionals," says Mackie senior VP of marketing and product development Ken Berger. "We can't think of a more appropriate way to celebrate 15 years of Mackie innovation than to redefine the category that we created."

For more information, visit www.mackie.com.



George Petersen is Mix's editorial director.

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GENELEC 1029APM

Compact 2-Way Active Nearfield Monitor

Virtually performance comparable to much larger systems, the 1029A's sensitive dispersion and precise imaging together with its compact size, make it ideal for near field monitoring, studio work, home studios, multi-track and live situations.

Two-way near field active monitors, never had precision drivers and two power amplifiers, one for each driver. The 1029A has a LP crossover (1.5kHz at 40dB) for most monitoring applications. (If a lower cutoff frequency is required, it can be complemented with the 1029A subwoofer.) Genelec's unique Damped by Control Waveguide (DCW) technology provides excellent stereo imaging and frequency balance, even in difficult listening environments. Virtually true stereo allows further widening of the system to its surroundings. A pair of 1029As can produce peak acoustic levels of over 110 dB SPL at 1m. The speakers can be used vertically or horizontally, and are easy to set up and use. The 1029A's improved design allows the amplifiers and drivers to be contained in a single unit ensuring consistent quality. The rugged cast aluminum cabinet has rounded corners and a hard painted metal surface. Available in black, grey or white colors. (The protective grille and volume and power buttons are black regardless of cabinet color.)

FEATURES

- Crossover Filters** - Although more commonly used in large and expensive speaker systems, the 1029A has a 1.5 kHz and 40 dB crossover. The 1.5 kHz and 40 dB crossover is the most advanced crossover for 100Watt active near field monitors. The crossover and driver are precision matched that maintain the correct time and phase in the system. This makes the entire monitor to contribute and operate again.
- Amplifiers** - The two-way active monitor produces a high level of output power with very low THD and distortion. The two-way active monitor is designed to operate for 100Watt continuous power. The amplifier and driver are precision matched that maintain the correct time and phase in the system. This makes the entire monitor to contribute and operate again.
- Drivers** - A 2" (50mm) tweeter is treated by a DCW and treated to reproduce the high frequencies. The DCW is designed to be the same size as the driver. The 7" (178mm) woofer is a two-way active monitor. The 7" (178mm) woofer is of the 1029A's improved design. The 7" (178mm) woofer is of the 1029A's improved design. The 7" (178mm) woofer is of the 1029A's improved design.
- Mounting Options** - On the board the monitor is a 1/2" (12.7mm) thick which can accommodate a standard 19" rack mount. There is a provision for a rack mount on 10" (254mm) high, which has 100mm holes on 10" (254mm) centers.
- Accessories** - The speaker can be hung on its own 100mm (4") stand by use of the three vertical slots on the backplate. The speaker can be hung on a horizontal or vertical position. Vertical poles are available for professional use in a rack.

GENELEC 1030A

6 1/2" Bi-amplified Active Monitor

The Genelec 1030A is a very compact bi-amplified active monitor system, which has performance comparable to much larger systems. The central speaker enclosure has an amplifier and two 6 1/2" drivers. The unit contains an active crossover, precision drivers, one for each driver. The system's sensitive dispersion and precise imaging together with its compact size make it ideal for near field monitoring, broadcast and TV sound rooms, studio work, home studios and recording studios. Genelec's unique Damped by Control Waveguide (DCW) technology is used to provide excellent stereo imaging and frequency balance, even in difficult listening environments and the variable monitor allows further widening of the system to its surroundings. A pair of 1030As can produce peak acoustic levels of over 110 dB SPL at 1m. The speakers can be used in a variety of horizontal orientations.

Some features of the 1029APM EXCEPT...

- Two-way active monitor (1.5 kHz and 40 dB) crossover and two 6 1/2" drivers.
- 1" (25.4mm) tweeter driver, treated by DCW and mounted to reproduce the high frequencies.
- Two-way active monitor (1.5 kHz and 40 dB) crossover.
- 6 1/2" (165mm) woofer driver, treated by DCW and mounted to reproduce the low frequencies.
- 100Watt continuous power.
- 100Watt continuous power.
- 100Watt continuous power.

Accessories

Vertical Wall Mount Kit - 1029A
Landscape Carry Bag Kit - 1029A

	1029APM	1030A
Peak acoustic level at 1m	110 dB SPL	110 dB SPL
Frequency response	20 Hz - 20 kHz	20 Hz - 20 kHz
Power consumption	100 W	100 W
Dimensions (H x W x D)	110 x 110 x 110 mm	110 x 110 x 110 mm

DCW (Damped by Control Waveguide) Technology

Genelec's unique Damped by Control Waveguide (DCW) technology is a means of improving the performance of a driver by using a waveguide to control the sound field. The DCW is designed to be the same size as the driver. The DCW is designed to be the same size as the driver. The DCW is designed to be the same size as the driver.



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Digidesign Accel PCI DSP Card

More Muscle for Pro Tools

Digidesign's new Accel PCI DSP cards deliver nearly double the DSP power of the original Pro Tools|HD DSP cards, resulting in almost a 50-percent increase in the number of available voices across all sample rates, from 44.1 kHz to 192 kHz, as well as support for DSP-intensive plug-ins that will work only on an Accel-enhanced system. For those of us who jumped directly from Pro Tools|24 Mix systems to Accel, that's quadruple the power of the old Mix DSP cards and triple the voice counts at 44.1 kHz/48 kHz. Accel cards retain two of the HD Process Card "Presto" chips, but add new 321 chips for DSP processing.

Configurations include HD 2 (an original Pro Tools|HD Core Card and one Accel card) and HD 3 (HD 2 and another Accel card). HD 2 supports 64 channels of I/O with Pro Tools audio interfaces, while HD 3 supports 96 channels. With either HD 2 or HD 3, you can have up to 192 simultaneous audio tracks at 44.1 kHz or 48 kHz. At 88.2 kHz or 96 kHz, the number drops to 96 tracks, and at 176.4 kHz or 192 kHz, you get 36 audio tracks.

If you already have a Pro Tools|HD system, then you can add Accel cards to your system—they'll co-exist peacefully. The only caveat is that systems using an expansion chassis must use a certain card order: core card first, then Accel cards and then HD Process cards. All plug-ins that work with Pro Tools|HD first-generation systems, including TDM, HTDM, RTAS and AudioSuite formats, should work with Accel-enhanced systems, because the new systems include the older Core card.

To run an Accel-enhanced Pro Tools|HD system, you'll need a supported PC running Windows XP Professional or Home with Service Pack 1 or a Macintosh G4 or G5. G4s require Mac OS 10.2.6, 10.2.8 or Panther with Pro Tools 6.2. G5s need OS 10.2.7, 10.2.8 or Panther with Pro Tools 6.2r2. Users should check www.digidesign.com/compto/ for updated requirements and new revisions.

HD3 ACCEL AND IMPACT

I chose to order an HD 3 system and two extra Accel cards. This arrived with the current HD pack of bonus plug-ins that included Impact, an "Accel-only" compressor, and Pro Tools Version 6.2, which is required to support Accel configurations.

My Pro Tools|HD 3 Accel "plus two" arrived with Pro Tools|HD Pack V. 5.0, a collection that varies in number depending on the size of the purchased system. For HD 3 Accel, it included the Digirack plug-ins, as well as d2 and d3 by Focusrite, Virus Indigo by Access Music, Amp Farm by Line 6, Speed by Wave Mechanics, Oxford EQ by Sony and five other plugs by Digidesign: Maxim, D-Fi, Reverb One, Bruno/Reso and SoundReplacer.

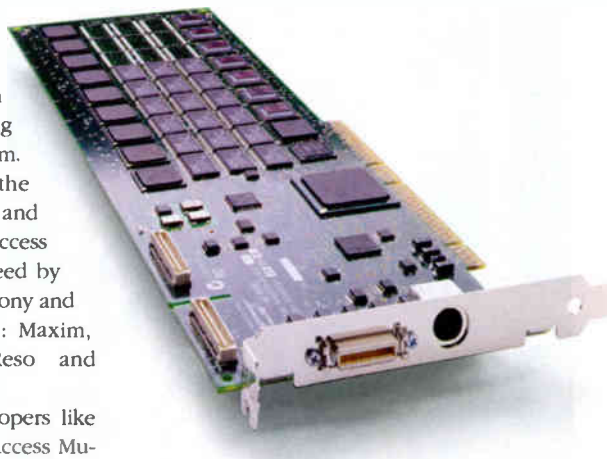
Fortunately, third-party developers like Waves, Wave Mechanics, Sony, Access Music, Eventide, Aphex, Crane Song, Focusrite, Line 6, Emagic, INA-GRM, DUY, Massenburg Design Works, McDSP and TC Works provide Accel-ready updates for their plug-ins. To check on current compatibility, visit www.digidesign.com/developers/plugin_info/.

Also in the pack was Impact, a mix bus plug-in designed to emulate console-style compressors. It supports up to 7.1 channels and up to 192 kHz, but not both at the same time. (7.1 is not supported at 192 kHz.)

Controls for Impact include four selectable compression ratios and variable controls for attack, release, threshold and makeup gain. Sidechain accepts a Pro Tools audio track for external keying, and you can listen to the key audio program. There's also an analog-style gain reduction meter. While novices may be perplexed by Impact at first, those who have used the SSL Quad Compressor "make it bigger" button know exactly this plug-in's purpose: monster drums that punch and pump. You can make subtle changes with Impact, too, but to hear it at its best, run a slammin' rock mix through it and squash to taste.

PRO TOOLS 6.2 FOR ACCEL

Pro Tools 6.2 includes a few new features in addition to Accel support. It is the first release to support the new 96i I/O audio interface, a 96kHz-capable audio interface for HD only with 16 inputs and two outputs. It also adds support for Windows Media Audio 9 format on the Windows platform, with import and export. Version 6.2 offers cross-platform compatibility with systems running Pro Tools TDM/LE 5.1, as well as import for



older Pro Tools sessions. Additional features include Tempo Query and Custom Shuttle Lock Speed. Tempo Query is supported by some delay plug-ins such as Mod (or Medium) Delay II. This allows the plug-in to check the session tempo and align delay times accordingly. Custom Shuttle Lock Speed is used for transcribing. You can custom set the speed of <ctrl>9 in Preferences/Operation.

SPEED TO SPARE

I ran the HD 3 Accel system on a dual-Gig G4 with OS 10.2.6 with very few snafus. Armed with plenty of FireWire drives, I often gobble up lots of hard drive space recording at 192 kHz. There's something about recording guitars with, say, an AKG C426B with figure-8 capsules in X/Y configuration at 90° that is difficult to put into words, but rich detail, clarity of perceived depth of field and palpable room ambience are certainly some of the phrases that come to mind.

Was it worth it to upgrade? Definitely. We have a few other Pro Tools 24|Mix systems at JamSync and though I still use them, they're first on my list to replace when we write the new acquisition budget. Once you've driven the Accel system, it's hard to go back.

Digidesign, 650/731-6300, www.digidesign.com. ■

Composer/engineer/producer K. K. Proffitt is the co-owner of JamSync, a surround production/mixing facility on Nashville's famed Music Row.

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Native Instruments Absynth 2 and Reaktor 4

Unique and Affordable Software Synthesis and Sonic Toolkits

Berlin-based Native Instruments is known for its innovative approach to software synthesis, with unique sound creation tools that appeal across the professional spectrum, from producer to sound designer to DJ. The company recently released upgrades of two of its most popular applications, Absynth 2 and Reaktor 4. Both are reviewed here: first, we'll take a look at Absynth.

HAVE A LITTLE SHOT OF ABSYNTH

Absynth is a quasi-modular synth created by Brian Clevinger. Version 1.x has become one of the most popular instruments in the world, but if you haven't toyed with it yet, allow me to explain. It's conventional in some ways and unconventional in others. It has three double oscillators, each with a big collection of waveforms and a Double mode, in which the two elements are mixed, frequency-modulated or ring-modulated. Your own hand-drawn waveforms are available to you in addition to the factory presets and imported samples. Granular synthesis can be used to modify your samples, too. Absynth sports conventional but high-quality filters and LFOs for modulation of many parameters.

Envelopes are one of Absynth's more unconventional features. Up to 68 breakpoints can be drawn in, and because the envelopes can be synced to tempo, a snap-to-grid feature is available, as well. Another unconventional feature is the Waveshaper, which adds nonlinear warmth and punch to your sound. There's also an unorthodox effects section, which offers traditional delays, but the Pipe feature is the real news: It enables swirling, Doppler-esque motion, and really adds to the timbre.

ABSYNTH 2.0: A NEW FLAVOR

Absynth 2.0 (\$299, upgrades range from free to \$99) debuted almost a year ago. A major new feature in the revision is OS X compatibility, although Absynth is a cross-platform product, having been available for Windows for quite some time now. As with numerous other apps, porting Absynth to OS X brings compatibility with CoreAudio, which results in much higher



Absynth features a combination of multiple synthesis techniques, with granular sampling and flexible envelope control. Its semi-modular architecture includes more than 800 presets, high-quality filters and LFOs for modulation of parameters.

efficiency and quality. Latency is reduced, and CoreMIDI is now implemented in the app, as well. Other good news: Previous versions allowed you to import a tiny piece of a sample, but 2.0 facilitates the import of any-sized sample you like for further tweaking with Absynth's powerful modules. Don't think of it as a sample player, though. I played with this feature and discovered that it's a great way to invent new timbres and textures.

A Sample Jump feature allows you to retrigger from any point in your user-developed envelope. This can be very interesting for live performance. Granular sampling has also been added. Various parameters of the Granulation algorithm such as the grain length or density can be modulated, which can create wild textures. For that matter, nearly any parameter can be assigned a continuous controller, and I achieved some very innovative sounds by modulating these parameters; sound designers will love this. I introduced a sample of an ARP synth string section and tweaked the granulation to arrive at some downright frightening sounds. (Absynth was used extensively in the *Matrix Reloaded* soundtrack, by the way!) Synchronization to the host is included, and effect times. LFOs and envelopes can now be automatically synced with song tempo. (Ab-

synth 1 users had to attempt this type of sync manually.) I love being able to easily create loops with very specific timbres that can be creatively modulated. It has profoundly impacted the way I think about loops.

Cleavinger's superpowerful 68-point envelope has been one of Absynth's most attractive features since V. 1, but now becomes eminently more powerful with new control modes in V. 2. In control-driven mode, a MIDI controller now has the ability to modify envelopes. In Link mode, multiple envelopes can be linked together. By linking to the master envelope, you can affect tweaks that have a universal effect. Say you've developed a loop and you want to make the whole thing brighten over the course of four bars. This new feature enables you to create a swelling envelope four bars in length and effectively "add" it to the existing envelope, assigned to filter cutoff. The result is that your original filter modulation just gets brighter over those four bars.

LFOs can now be introduced and microscopically edited in envelopes. I found this feature handy for creating rhythmic features in my envelopes. Envelope breakpoints can also be affected by MIDI controllers, and the envelopes themselves can now control many new parameters. At a

more fundamental level, the filters have been improved to sound better, and the oscillators have a new anti-aliasing mode that makes the waveforms superrealistic throughout the frequency range. By switching the anti-aliasing mode on and off, I found different and useful timbres, because even aliasing creates an interesting digital jitter. Of course, it's also nice to turn the anti-aliasing on when you're trying to emulate more traditional synth sounds. Each oscillator is independent in the stereo image, resulting in really cool sound design. I was able to create very wide stereo patches that exhibit motion in the stereo field. And, of course, this can be exacerbated by the effects section. Version 2 also includes 128 new presets. It bears mention that many, if not most, of the upgrades in V. 2 are user-motivated as they are based on feedback from the Yahoo Absynth user group.

A SONIC SUPERSTAR

To the aforementioned features, add deep and comprehensive MIDI implementation, a powerful note-scaling utility, user-defined tunings, and the fact that many parameters, such as waves, envelopes and the like, can be stored in a library, and it



Reaktor features a library of modules, including oscillators, filters, envelopes, LFOs and other mathematical operators. These building blocks let users create their own software synthesizers, samplers, drum machines or signal processors from scratch.

becomes eminently clear that Absynth is much more than just another semimodular soft synth. The factory patches feature a boatload of very realistic acoustical instru-

ment sounds; a nice selection of traditional, subtractive, analog-style plinky synthesizer sounds; ambient patches that grow out and evolve over time; and even sp-

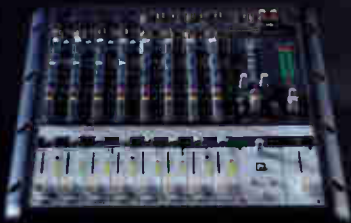


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ONYX 1220



- Premium 12-channel small-format analog mixer with all-new circuitry
- 4 new ONYX mic preamps with sound comparable to boutique preamps
- New 3-band Perkins EQ with sweepable mids
- 96K FireWire option card for streaming 12 independent channels of audio to computer with absolute zero latency
- 2 channels of monitoring from computer via FireWire option card
- 2 Aux sends w/ Pre/Post switches
- 4 stereo line-level inputs
- Built-in Talkback section for use with internal or external mic
- True hardware EQ Bypass
- "Planet-Earth" power supply
- Individual 48v Phantom Power switches on all mic inputs
- Linear taper 60mm faders with ultra-smooth response on all channels
- Balanced direct outs for every channel via DB-25 connection
- Selectable instrument inputs on first two channels—no DI box needed



ONYX 1620



- Premium 16-channel small-format analog mixer with all-new circuitry
- 8 new ONYX mic preamps with sound comparable to boutique preamps
- New 4-band Perkins EQ with dual sweepable midrange controls provides warmer, more musical sound
- 96K FireWire option card for streaming 16 independent channels of audio to computer with absolute zero latency
- 2 channels of monitoring from computer via FireWire option card
- 4 Aux sends w/ Pre/Post switches
- 4 stereo line-level inputs
- Built-in Talkback section for use with internal or external mic
- True hardware EQ Bypass
- "Planet-Earth" power supply
- Individual 48v Phantom Power switches on all mic inputs
- Linear taper 60mm faders with ultra-smooth response on all channels
- Balanced analog direct outs for every channel via DB-25 connection
- Selectable Instrument on first two channels—no DI box needed



ONYX 1640



- Premium 16-channel/4-bus small-format analog mixer
- 16 new ONYX mic preamps comparable to boutique preamps
- New 4-band Perkins EQ with dual sweepable midrange controls provides warm, musical sound
- 96K FireWire option card for streaming 16 independent channels of audio to computer with absolute zero latency
- 2 channels of monitoring from computer via FireWire option card
- 6 Aux sends w/ individual Pre/Post switches and Solo controls
- 4-bus architecture for flexible sub-grouping of channels
- Built-in Talkback section for use w/ internal or external mic
- True hardware EQ Bypass
- "Planet-Earth" power supply
- Linear taper 60mm faders with ultra-smooth response on all channels
- Balanced direct outs for every channel via DB-25 connection
- Selectable Instrument inputs on first two channels—no DI box needed
- Rotating I/O pod for desktop or rackmount operation



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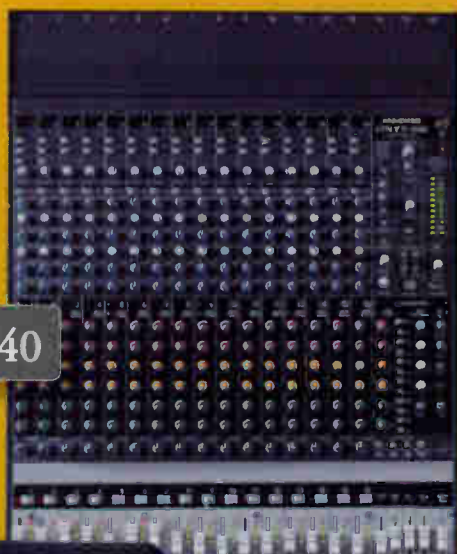
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Engineering Director Chris Jubien puts an early Onyx prototype through its paces. Chris is from Canada, where he often tests audio gear in igloos.

The first premium analog mixers for the digital era.

The goal for the Onyx Series was no short order: small-format analog mixers with more useful features, better sound quality, advanced tonal shaping and full FireWire connectivity options. To accomplish all this, we assembled a hybrid engineering team led by famed analog engineer Cal Perkins and digital guru Chris Jubien. We also couldn't keep Greg Mackie from adding things as we went along (like 4-segment LED metering on every channel). Two years and almost nine thousand cups of coffee later, we had our flagship Onyx Series.



Mackie's Onyx Development Team was comprised of veteran analog and digital engineers from the great Pacific Northwest (aka Woodinville, WA). As a side note, this is the first time the elusive Viking Santa has been captured on film.

Delivering the premium goods.

The Onyx 1220, 1620 and 1640 start with Mackie's new Onyx mic preamps, which meet or surpass any standalone mic preamp on the market in terms of pure fidelity and headroom (and yes, we have the specs to prove it).

Perkins

EQ

Next up is our completely new Perkins EQ circuitry, a "neo classic" 3- and 4-band design which gives you the sweet musicality of British EQ with greater filter control and minimum phase

shift (plus a true hardware EQ bypass).

This analog brilliance is

paired with a full-featured discrete Auxiliary section, a completely redesigned mix bus and summing amp section, and a built-in Talkback section with onboard mic.

(Because Mackie® mixers are still made for the real world of mixing, not just audio testing equipment.)



Engineers Rene Jaeger and Dan Bishop chat with industrial designer Jim Young about some Onyx mixer development minutia.



Optional FireWire I/O

OK, so we saved the best for last. In addition to DB-25 balanced direct outputs on every channel (a first for any small-format analog mixer), the Onyx Series sports an optional FireWire I/O card, which lets you stream either 12 or 16 independent channels of 24-bit/96k audio, plus a stereo mix, directly to your Mac or PC. You can also monitor a stereo mix via FireWire from your computer, making our Onyx Series mixers superb audio interfaces to your digital world... or any other world you plan to rule.



**15 years ago,
Mackie introduced
a workhorse.**

synthesis. This synth proves to be a very complete tool kit for sound and patch design and presents a unique sonic flavor that's not available elsewhere. There's a reason why Native Instruments was so keen to connect with Clevinger and make this product one of the most sought-after soft synths in the world.

THE REAKTOR CORE

Reaktor is a powerful solution for anyone who wishes to create their own software synthesizer, sampler, drum machine or signal processor. And that's a bit of an understatement, in that Reaktor can do even more than that. From a library of modules—oscillators, filters, envelopes, LFOs and various other modulators and mathematical operators—you can construct any design your brain can conceive. This might seem like overkill, but imagine how much better your previous projects could have been if you had the ability to develop an instrument that behaved and sounded exactly as you wished. That's what Reaktor does.

The fundamental building block in Reaktor is the module, and indeed, hundreds of modules ship with the product. Modules are developed from instruments, which can, in turn, be combined into "ensembles." For example, you could have a suite of analog drum synths controlled by a sequencer. Ensembles can be stored and edited by anyone with the application. There is also a version of the product known as Reaktor Session, which essentially only lacks the ability to design your own stuff. You can use any ensemble developed by anyone else. And there are a lot of ensembles available—well in excess of 1,000. Almost any classic synthesizer you could want is successfully emulated by someone out there, and you can download them from Native's Website and elsewhere.

THE NEW REAKTOR

Reaktor 4 (\$499, upgrades ranging from \$19 to \$279) is the latest revision of this world-class, "roll-your-own" virtual synth application. Among other things, V. 4 updates the application for Apple's OS X, which places the speed and quality of audio very high on the priority list, and the result for Reaktor users is high-quality, low-latency audio. Reaktor 4 is compatible with Mac OS 9 and OS X; Windows 98 through XP; and VST 2.0, DXi, ASIO, AudioUnits, Core Audio and OMS interfaces.

Version 4 also offers improved VST support, enabling automation of all parameters by your host sequencer, and Mac users finally have multiple instances available,

limited only by CPU overhead. It also improves the way snapshots are handled, enabling morphing from one snapshot to another (a very powerful feature) and randomization, which is a nice sound design tool. You can create new patches by inserting randomized values into the parameters. There is actually a dedicated Snapshot window that free-floats on-screen and gives you the ability to take a snapshot at any given moment to preserve what you're currently doing.

Version 4 integrates elements from the powerful sample-mapping technology from the company's Kontakt sampler.

Overlapping zones and crossfades are not available as they are in Kontakt, but velocity splits are. I'm a Kontakt user, but I find myself turning to Reaktor when I need to engage in wild, nontraditional twisting and bending of my samples. In V. 3, only 16-bit samples were usable; now, 32-bit samples can be used. Another feature new to V. 4 is the anti-aliasing oscillator borrowed from NI's Pro-53. Aliasing has been the bane of soft synth designers who are forced, de facto, to work in the digital domain. Higher resolution enables the elimination of the phenomenon, and it's a very welcome improvement here, allowing for

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Solution-D is featured on the John Pizzarelli Trio's new Telarc release "Live At Birdland"

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near-perfect emulation of traditional analog circuits. For that matter, NI ships Reaktor 4 with a whole new library of improved modules with the idea of creating the highest-quality sounds possible.

Version 4 also brings a grain-cloud granular delay module with freezing and live sampling. This opens a whole new world for the growing number of people who use Reaktor in live situations. There are a number of wonderful grain-oriented ensembles available. Traditionally, I have avoided working with granular synthesis because it was difficult to achieve usable results. However, with Reaktor, I could

create very useful and fresh timbres very quickly. It's going to have a profound impact on all of my future projects. Also available are advanced filters, saturation and signal routing, as well as new mathematical functions and support for "C"-style code writing for event processing. Open Sound Control (OSC) is supported, allowing multiple applications or even computers to communicate in a much more sophisticated way than what is possible with MIDI.

There are also many new modules or improvements on existing versions. The user interface is enhanced, which makes

operating Reaktor much easier. There are many new graphic options, including the ability to display image sequences. There is even a "Pong" ensemble, approximating the classic Atari game. Reaktor's all-important toolbar has been streamlined and only takes up half as much vertical space as before. Ensembles can be minimized on screen, which is important when many windows are open. Free-floating browser windows are also implemented allowing for quick navigation.

COULD THIS BE THE FINAL WORD?

An issue to consider with Reaktor is CPU overhead. As one might imagine, a sophisticated ensemble in Reaktor can chew up and spit out your CPU, leaving only bones and gristle for other open applications. With my G4 dual 1GHz machine, Pro Tools got a little squirrely (and actually crashed a few times) when I opened large, complicated Reaktor ensembles, so be prepared with as much host horsepower as you can muster. You might even consider a multi-CPU setup, dedicating a computer to CPU-hogging soft synths.

So, is Reaktor the only synth you need? For the moment, other products still exhibit quirky personality traits that Reaktor (or any other roll-your-own synth product) cannot perfectly emulate. Don't kid yourself, though—Native Instruments is knocking on the door. The meticulous control over every tiny detail will get continually more sophisticated and microscopic, and eventually you'll be able to successfully knock off any existing product you'd like, given enough time and motivation. You can already build in things like thermal drift or noise. As computers and operating systems get faster and more efficient, hardware will become obsolete, and I would submit that Reaktor is getting marvelously close to making this happen. One of the included ensembles is called Junatik, which is a revved-up version of Roland's classic Juno 6 (or 60, which has patch memory). I compared Junatik parameter for parameter with my Juno-60, and it's pretty much smack on the money, right down to the cheesy (and noisy) chorus effect. I'll put it this way: Reaktor may not be the only synth that you need, but if you have a robust CPU, you won't need much more.

Native Instruments USA, 323/467-2693,
www.native-instruments.com. ■

John McJunkin is the principal of Avalon Audio Services in Phoenix, and is now struggling to convince his wife that he needs all that space for real synthesizers when the virtual synths sound just as good.

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Lawson L251 Tube Condenser Microphone

Classic Telefunken Design and Sound In a New Mic

The Lawson L251 is a side-address, dual-diaphragm tube condenser mic that offers many extras, including an infinitely variable polar pattern, two bass-frequency contour settings and a 10dB pad. The mic's model number is derived from its faithful reproduction of the 1-inch, 6-micron capsule used in the venerable Telefunken Ela M 251 tube mic. Like Lawson's other mics, the L251 oozes artistic coloration and has a distinctly vintage vibe.

MAINTAINING FAMILY TIES

The L251 will look familiar to anyone who has worked with the company's L47MP. Both mics have a cylindrical shape and roughly the same dimensions. There are two cosmetic finish options: Buyers can order the L251 with either a nickel-plated or 24-karat-gold head grille and base for the same price. All of Lawson's head assemblies (capsule and grille) are interchangeable, allowing you to easily mix and match capsules with different mic bodies and electronics. The company also offers head assemblies for sale a la carte.

Weighing a full two pounds and measuring 9½ inches in length and 2¾ inches in diameter, the L251 demands a sturdy mic stand with a short, counterbalanced boom arm to keep it from sagging out of position. The included mic stand adapter secures the L251 via an integral O-shaped ring that slips over and tightens around the mic's connector housing. This is a bomb-proof design that allows the L251 to securely hang upside down. As the L251's capsule is internally shock-mounted, an external shock-mount is not required.

The L251 connects to its remote power supply using the supplied 30-foot cable with latching 7-pin, gold-plated Neutrik connectors. The cable is long enough in most situations to place the power supply in the control room while tracking with the mic in the studio. That's a real advantage, because most of the controls for the L251—including the infinitely variable polar pattern control, 10dB pad and bass frequency contour switch—are on the power supply, and they change the response of the mic quite dramatically.

The rotary polar pattern control smooth-

ly transitions through all possible responses, from omni mode through cardioid to figure-8. The L251's 10dB pad lowers the capsule's polarizing voltage, thus lowering the input level to the vacuum tube. The bass frequency contour switch provides two alternate settings: One, labeled "-BASS/L251," introduces a 6dB/octave roll-off at 100 Hz to emulate the original Ela M 251's bass frequency response. (A fixed roll-off was engineered into the vintage mic to counteract its gargantuan bass proximity effect.) The other setting, labeled "+BASS/L47," flattens the response to provide extended lows and a more dramatic proximity effect. Lawson generally recommends that users choose the +BASS/L47 setting when using the power supply with a Lawson L47MP MKII mic, but there's no reason why you can't use this setting with the L251, as well. I generally preferred using the -BASS/L251 setting, because it lent more transparency to the mic's overall sound.

POLAR STROLLER

Turning the power supply's polar pattern control knob yields different frequency responses for the L251. The supplied specs and frequency response charts are not exact enough to cite responses down to the precise dB and kHz, but here's the general scoop: All patterns produce a broad 3 to 4dB peak at around 10 kHz and a response roughly 7 to 9 dB down at 20 kHz, yielding a nice presence peak and a soft vintage-style top end. As the polar pattern becomes increasingly more directional, a smooth hump between 3 and 7 kHz develops, culminating in roughly a 5dB boost in bidirectional mode in this band. Likewise, bass response below 200 Hz increases as the pattern becomes more directional.

A switch on the bottom of the L251 disables the power supply's polar pattern control and puts the mic into fixed-cardioid mode. (A cool-looking blue LED lights up inside the windscreen when you're in multipattern mode—a nice reminder.) This "cardioid-only" mode takes the mic's rear diaphragm completely out of circuit, resulting in 3dB lower self-noise and 3dB hotter output. Sensitivity is specified to be 18 mv/Pa (at 1 kHz) in cardioid-only mode vs. 11.6

mv/Pa in multipattern mode.

The L251 uses a dual-triode 6N1P (6922) tube—currently in production and widely available—in a configuration that uses both halves of the triode wired in parallel. This scheme lowers the noise floor an additional 3 dB (resulting in a conservatively rated 13dBA equivalent noise level in cardioid-only mode) and halves the tube's output impedance, reducing the possibility of current limiting and therefore increasing headroom. Maximum SPL is rated to be 134dB SPL (for 3% THD at 1 kHz) with the pad switched out, and 144dB SPL with it switched in. One other touch: The tube socket uses gold-plated beryllium-copper contacts with secure grip and low contact resistance to further thwart noise.

Lawson includes a foam-lined, water-



and air-tight Pelican case to store and transport the L251 and all accessories. It's a tight fit to get everything in the case, but there's no denying that this is a great extra.

TAKING THE L251 FOR A RIDE

My first test with the L251 was an A/B comparison with an original Lawson L47MP (not the newer mkII version), with both mics recording male vocals in cardioid (cardioid-only mode for the L251). To avoid additional coloration, I used my ultratransparent, Millennia HV-3D 8-channel mic pre and Apogee Rosetta 96 A/D with the two mics. The L251 in -BASS/L251 mode reproduced much more depth than the L47MP, as well as a fuller bottom end, more highly resolved midrange and more detailed (yet still soft) highs. The L251 also exhibited markedly lower noise and a tad higher output compared to the L47MP.

Recording another male vocalist with the L251 set to cardioid-only and -BASS L251 modes, I was struck by the mic's warm, velvety character and sweetly articulated highs. In order to achieve the pop sound I was after, I needed to apply a highpass filter at 105 Hz and a fair amount of high-shelving EQ boost to the track, but that's typical treatment for a pop mix with almost any mic. The end result sounded gorgeous, brimming with sweet tube character. On female vocals, the L251 reproduced a similarly full bottom, soft highs and velvety texture.

I once again chose the -BASS/L251 setting when using the L251 as a room mic to record drums. I found the +BASS/L47 setting captured too much kick drum and was too boomy in this application. In -BASS/L251 mode, however, the L251 is an outstanding room mic. The creamy texture it lent to the sound was the perfect complement to the solid-state mics placed close in on the kit.

Finally, when recording acoustic guitar, the L251 lacked the high-end sparkle and detail I was after and had too round of a bottom end for my taste.

CONCLUSIONS

At \$2,495 (factory-direct), the L251 is fairly pricey, but no more so than other mics of the same ilk. The mic's plethora of controls produce many useful timbres, while always maintaining a creamy texture. For those who seek a new tube mic with vintage character, the L251 is a very worthy candidate.

Lawson, 615/269-5542, www.lawsonmicrophones.com.

Mix contributing editor Michael Cooper is the owner of Michael Cooper Recording, located in beautiful Sisters, Ore. Cooper's studio offers recording, mixing and mastering services.

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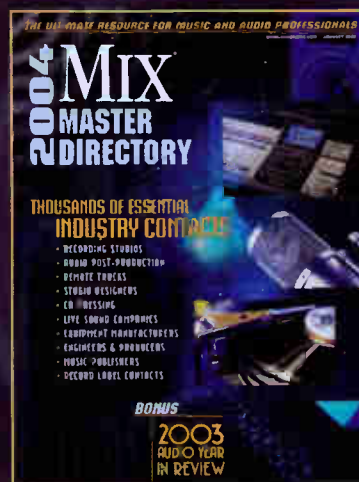
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Yamaha SPX2000 Multi-Effects Processor

The SPX Legacy Continues With Added Functionality

Using the new Yamaha SPX2000 is like visiting with an old reliable friend. The SPX2000 has the familiar interface and all of the common programs of its SPX predecessors but adds 24-bit/96kHz DSP, new REV-X reverb algorithms and editor/librarian software for the Mac or PC. Yamaha says it brought the original design team from the old SPX days onboard for the new unit to update and improve this popular multi-effects processor.

lit buttons for input/output metering and mono/stereo input switching. Two indicators show either analog or digital I/O and external or internal clock sources. The LCD is familiar with two lines of 16 characters each, but the six attractive backlight color choices are new. You can assign the backlighting along with other parameters for each preset. I found this an excellent idea when moving quickly through presets on the unit—live sound engineers will find this useful. You can set the same color for re-

Bypass buttons. Utility offers extensive MIDI implementation setup, clock source, frequency selection, and analog or digital input I/O choice. It also has the ability to set tempo source (MIDI clocks or Tap), dump memory and load to and from an external editor/librarian, rename presets, backlight colors and program overwrite protection. The large Tap button lets you manually tap in a tempo on delay programs. I was disappointed with the Bypass function, which merely mutes any effect and connects the in-



NEW DIGITAL ENGINE

The SPX2000 uses a switchable 44.1, 48, 88.2 or 96kHz internally clocked audio DSP engine and 32-bit fixed-point internal processing with a 58-bit accumulator. Even though all of the presets in the SPX2000 were done at 24-bit/96 kHz, all programs work no matter what clock speed you use. I stuck to the internal 96kHz setting, which made a big difference over the old SPX90 with its 31.25kHz sample rate, 16-bit word length and limited frequency response.

There is an external word clock BNC connector to accept rates from 39.69 kHz to 101.76 kHz (double-rate) because the SPX can act as master clock or slave. The Cirrus Logic CS5361 24-bit A/D and AKM AK4393 128x oversampling D/A converters deliver 106dB dynamic range and flat response from 20 Hz to 40 kHz at the 96kHz rate. The rear panel has AES/EBU XLR digital I/O connectors, MIDI In/Out/Thru jacks and a USB connector for computer interfacing. Connections on the rear include XLRs with parallel 1/4-inch TRS jacks and +4dBu/-10dBu selector switches.

FAMILIAR FRONT PANEL

The single-rackspace SPX2000's front panel starts with a ganged input level pot and a 12-segment LED meter. There are two back-

verbs, another for delay, and on and on. Red is reserved for warning messages.

There are the well-known Recall, Store and Increment/Decrement buttons for recalling and storing changes to a preset. The lighted Undo button lets you revert to the last recalled preset and then back to the new recalled preset. This button lets you compare two presets quickly; after you push it, it flashes until you've recalled the last preset or pushed it again to keep your new choice.

Once a preset is selected, there's an improved editing interface with the Increment/Decrement or Up/Down (parameter value) buttons and the Back and Next parameter buttons. You can step through the parameter list with the Parameter button and then drill down to the less frequently used settings with the Fine Parameter button. I found this editing system very easy to use and liked the Compare button for instant "snap back" or toggling between the new setting and the original parameter value.

The front panel controls finish with Utility, Tap and

put to the output. That's okay if you patch the unit as an insert and mix internally. but if you send to the unit and return it to your console, then Bypass will cause whatever you are sending to it to appear on the return faders. There is a slight delay (A/D and D/A combined latency) marked by a "phase-y" sound that indicates the SPX's output is mixing with the direct sources that you're sending to it. I think there should be an option for both this type of bypass and a simple input mute.



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MONEY IN THE PRESET BANKS

There are three banks that are selectable by a single button: Preset, Classic and User. The Preset bank contains 97 programs, 17 of which run one of the three mysteriously named REV-X reverb algorithms: REV-X Hall, REV-X Room and REV-X Plate. The company states that it has completely started from scratch to create new algorithms with new controls to allow a "smoother and more open quality," taking full advantage of Yamaha's new DSP7 chip sets.

The other 80 presets comprise the popular trademark SPX programs such as gated reverbs, delays, pitch effects, modulation,

distortion and other special effects. Yamaha edited the programs so that none are the same as in previous effect processors or in Yamaha's digital consoles. The Classic bank has 25 programs that are reminiscent of the original SPX90 presets; the User bank has room to store 99 user-modified presets. To store changes to an effect, you must recall any write-protected effect from the Preset and Classic banks, do your editing and store it into any User bank slot.

At the time of this review, computer-based editing software for the SPX990 wasn't available. However, when you select a reverb, the program graphically shows the

room's parameters with real-time metering. It can also control up to eight SPX units at separate USB addresses. In addition, the software organizes large libraries of patches and makes archiving much easier. Your computer connects by way of a USB jack, and the software will be a free download at Yamaha's Pro Audio Website.

IN THE STUDIO

The first thing I noticed was how quiet and smooth all of the effects sounded. All of the big reverbs are natural and warm-sounding—not electronic. I found every patch useful in some way. The Classic bank sounded like "high-definition" versions of the original SPX90 patches. The first dozen reverbs (cyan backlit) in the new Preset bank are long, lush halls and chambers that edit easily to fit your needs. Next are plates and brighter room reverbs (also cyan) with delays (white), followed by pitch change, flange, phase, chorus, tremolo and auto panning effects (magenta). The Preset bank is rounded out with excellent dynamic filter patches, distortion and amp simulator, and combined effects (yellow).

I tried all of the reverb patches on drums, vocals, electric guitars and keyboards and found them to have good dynamic responses. They stood tall in my mixes with minimal application of these effects. For making pitch centers ambiguous, I found that small amounts of either "Classy Gassy," "Voice Doubler" or the new version of "Symphonic" worked well on vocals and guitars. Hardcore harmonizer-like effects come from the wide stereo "Vocal Shift" or "Stereo Pitch" presets. There is also a high-quality pitch changer called "Roger on the 12" that is very good for fixing an out-of-tune note here and there. Even if the SPX2000 did not have any reverbs, it would be worth the money just to have access to all of the unique pitch effects that work with minimal glitching.

CONCLUSIONS

The Yamaha SPX2000 acknowledges its legacy with impressive-sounding, high-quality versions of the classic SPX units and adds a whole new class of reverbs via the new REV-X algorithms. Engineers and producers, regardless of their familiarity with the original SPX units, will discover a new instant favorite with this "go to first" multipurpose effects processor.

The SPX2000 sells for \$1,249.

Yamaha, 714/522-9011, www.yamaha.com/pro/audio. ■

Barry Rudolph is an L.A.-based recording engineer. Visit his Website at www.barryrudolph.com.



Chris Shepard and the TRUE Precision8

"The TRUE Pre's are one of the best tools in my rack," says Chris Shepard, studio manager at Chicago Recording Company and the owner of Tour My Studio. "I've never heard anything like this. The noise floor is phenomenal. It's like the microphone isn't even plugged in!"

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Studio Electronics C2s Compressor

Time-Tested Analog Design With New Mods

Studio Electronics started rackmounting Minimoogs and retrofitting them with MIDI in 1988. Soon after, the California-based company began to manufacture its own version of the Minimoog, which was based on Bob Moog's original analog circuits along with digital control, such as MIDI capability and user-memory locations. Now best known for its synthe-

model is based on the D and E revisions. Studio Electronics decided to make an "1176-type" compressor based on these same revisions, but with some interesting modifications.

On the outside, the C2s has the same input, output, attack, release and ratio controls as the 1176, making it instantly familiar in terms of use. The attack range is less

transformer. The Sowter transformer is part of the vintage replacement series and was designed to work with the Neve 1272. There are substantial differences in the power supply design, as well.

Instead of using VU meters like the original 1176, the C2s uses LED meters with PPM ballistics. Each channel has output and gain-reduction meters that operate simulta-



sizer products, Studio Electronics manufactures three completely discrete analog synthesizers: the SE1X, the ATCX and the polyphonic Omega Series synths. If you have ever heard a record with a smooth, single-voice synth sound (affectionately called a "worm") or an incredibly fat synth bass sound, then chances are you have heard some of these instruments.

A STRONG LINEAGE

Studio Electronics bases its products on analog circuit designs that are both popular and proven by years of use. In 2002, the company released the C2s Dual Compressor, its first release in a series of high-quality, analog-based recording products that include mic preamps and will later include equalizers.

The C2s is based on the UREI 1176's design. Fans of the 1176 know that its design evolved from the Universal Audio 175 and 176 vacuum tube limiters designed by audio innovator and inventor Bill Putnam. In 1967, Putnam eliminated the tubes and began using Field Effect Transistors (FETs) as a voltage-controlled variable resistor to accomplish gain reduction. There were at least nine revisions (A through H) before the unit went out of production. Improvements included lower noise, circuit board revisions, and amplifier and transformer replacements. In 1999, UREI started manufacturing again and its current "re-issue" 1176LN

than 20 microseconds to 800 microseconds, and the release range is 50 milliseconds to 1.1 seconds. It has the same ratio selections as the 1176, but instead of push-buttons, the C2s uses a six-position selector with Off, 4:1, 8:1, 12:1, 20:1 and Squash. The Off position allows you to run a signal through the C2s to add gain or a stage of analog "warming" by going through the transformers and amplifiers. The Squash position exactly duplicates the highly secretive practice of depressing all four of the 1176's ratio buttons at the same time. This is one of those engineering secrets that engineers and producers yearn to learn and Studio Electronics unabashedly gives it to us on Squash—an appropriate name in our current audio environment of "compress the snot out of everything."

CH-CH-CH-CHANGES

On the inside, SE has made some changes. The original 1176 used a UTC input transformer and a custom-designed output transformer; the C2s uses a Jensen transformer on the input. In addition, Studio Electronics puts the input attenuator on the secondary, rather than the primary, of the input transformer. The company claims that moving the attenuator reduces distortion and noise. Another change is the use of a Neve 1272-type Class-A output stage followed by a Sowter (made in England)

neously. On the back, there are switches for input grounding and output termination. There is also a true relay bypass that allows signal to pass even if the unit is off. Finally, the C2s is a dual-mono compressor and there is a switch on the front to link the two channels.

TAKING THE C2S FOR A SPIN

Most of the alterations Studio Electronics made to the original 1176 design are more like substitutions than changes—analogue to using brown sugar instead of white sugar in a cookie recipe. Both recipes make good cookies, but they definitely taste different. I put the C2s through its paces and found that I liked it on almost everything except when I tried to use it as stereo mastering compressor. While the C2s is a "linked dual-mono compressor," it does not seem to be designed for subtle input and output adjustments. Both the input and output adjustments are quite sensitive, and I found it difficult to set up in stereo, especially when trying to align inputs and outputs to tenths of a dB. This was not a problem when I used it on stereo sources and stuck my head between the speakers to adjust the stereo balance.

I found the meters on the C2s to be both useful and annoying. I loved having both output and gain reduction displayed simultaneously. However, the PPM ballistics are so sensitive that I often thought I was work-

ing the unit too hard, not because of the sound but because the meters were so accurately tracking the signal. If you are an engineer who needs to know just how much gain reduction is going on, then you won't like the fact that there is no value shown for each LED. (SE says output and gain reduction values have been added to the front panel in new production models.) The gain reduction meters use an exponential scale and go from 0 to 40 dB of reduction. The LEDs show 0, -2, -4, -6, -8, -12, -16, -20, -26 and -40. In what I would consider "normal" compression settings, the gain reduction was difficult to hear, which is normally a good thing! So after awhile, I didn't pay much attention to the meters. When I made the C2s pump and bark, the meters really went nuts, but then again, who pays attention to the meters when you crank it? And speaking of crankin' it, I think it is fair to say that the C2s really shines in this area. When it is working hard, this compressor sounds great. It gives you the compression you need with some attitude, and yet it still sounds clean.

One interesting feature of the C2s is mentioned in its very minimal manual. Because the C2s uses a Neve 1272 output amplifier, the manual states: "The C2s' output stage 'symmetry' pot can be adjusted to deliberately clip asymmetrically—a well-known 1272 trick, adding additional second harmonic distortion, which some users find quite pleasing." This is a very cool feature, but in reality, how many people will go to the trouble to pull the unit out of its rack, remove the top and dive in with a screwdriver? Too bad they didn't implement this adjustment with a "color" or "asymmetry" knob on the front of the unit.

REPRODUCTION DONE WELL

The C2s is the sum of proven parts that, when combined, provides something old and new. Because UREI already made a very good reproduction of the original 1176, Studio Electronics wanted to do something different that sounds as good, or better than, the original. I think they have. The C2s, which retails for \$2,495, would be a welcome addition to any family of out-board toys.

Studio Electronics, 310/640-3546, www.studioelectronics.com.



Erik Zabler grew up in New York, partied in Boulder, Colo., demonstrated in San Francisco and eventually migrated to Los Angeles. You can meditate with him ezabler@social.rr.com.

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The Millennia TD-1 combines an instrument/amplifier/DI input with mic and line recording paths and preamp outputs. The sturdy, handcrafted, 15-pound tabletop unit incorporates many critically acclaimed design elements from other Millennia products, including alternate FET and tube circuit paths (the latter for instrument or speaker/amp input only), two bands of NSEQ-2 equalization and the HV-3 solid-state mic preamp.

LET'S BE DIRECT

An unbalanced phone jack on the TD-1's front panel can accept input from an instrument or a direct feed from a guitar/bass/key-board amp. This DI input signal goes directly to an unbalanced (phone jack) rear panel direct output, which you can choose to be either buffered (by a monolithic solid-state amplifier) or unbuffered.

A front panel switch also variously routes the DI input signal through Millennia's Twin Topology circuitry, which provides alternate paths through a Sovtec 12AT7 triode tube or an all-discrete FET amplifier. (My review unit was fitted with an optional Mullard CV-4024 NOS tube, which is available for an additional \$30.) Three alternate impedance settings—470k ohm, 2 megaohm and 10 megaohm—change the load on a DI'd instrument to produce a variety of timbres.

A front panel XLR accommodates line-level input. The TD-1 also ships with a rear panel XLR mic input (HV-3) that is served by defeatable +48-volt phantom power. All inputs (including DI) can access additional gain. The user has access to 9 to 65 dB of gain in roughly 5dB increments.

All inputs can also access a 20dB pad, defeatable polarity-reverse function and NSEQ-2-type dual-band equalization. Unlike Millennia's Twin Topology NSEQ-2 unit, the TD-1's EQ is solid-state-only. Taken together, the TD-1's two widely overlapping EQ bands span a range from 20 Hz to 25 kHz. Each band provides up to 15 dB of boost/cut and continuously variable Q settings from 0.4 to 4.0. There are separate bypass buttons for each band, as well as for the entire EQ section.

Rear panel outputs include both balanced and unbalanced XLR and TRS (line-level on

four connectors), a transformer-coupled XLR mic-level output (with a stated 3Hz to 300kHz frequency response), the aforementioned direct out and a mono headphone output (with level trim). I found that the TD-1's line-level outputs provided plenty of gain to record directly to a DAW. Alternatively, for added coloration, you can patch the transformer-coupled mic-level output (which uses the REAMP custom Millennia DIT-01 transformer) to an external preamp.

The TD-1 also offers two REAMP outputs on its rear panel. According to Millennia, the two REAMP outputs (used under license) are driven from "specially wound shielded magnetics" that emulate the level and impedance characteristics of Stratocaster- and Les Paul-style pickups, respectively. By feeding a previously recorded track to the TD-1's line input and patching one or both of the preamp outputs to a guitar amp(s), you provide the amp(s) with a signal(s) that is preconditioned to make the track sound like it's a live instrument.

The TD-1 also provides separate and variously colored signal present, overload and power LEDs; five different schemes for lifting or isolating the unit's ground; a removable leather carrying handle; four gargantuan rubber feet; and a detachable AC cord. Two TD-1s can also be rackmounted together. The unit's front panel cosmetics are stunning, and all knob settings are clearly discernible from a reasonable distance. A custom Corduna gig bag is an available option.

PUT TO THE TEST

Succinctly put, the TD-1's DI input, when used on electric guitar, exhibited a smoother spectral balance and far greater realism, warmth, body and depth than that of any specialized DI box I've used. Comparing



DI'd electric bass tracks recorded first via the TD-1 and then using my Aguilar DB-900 tube DI box, the TD-1 lent a slightly bigger bottom and greater presence, clarity and depth.

The TD-1's two preamp outputs sounded quite different from one another and worked great. Routed to my Line 6 Pod Pro, they easily allowed me to turn crystalline DI'd Strat tracks into overdriven monsters during mixdown.

The TD-1's EQ is simply the best I've heard. It sounds incredibly warm, full-bodied and silky. I've never heard a mic pre-amp that sounds more pristine and revealing than the HV-3. (I love this preamp so much, I have 10 channels of HV-3 in my studio.) As a self-contained front-end device, the only thing that the TD-1 lacks is a compressor.

THE OBVIOUS CONCLUSION

The TD-1 sounds truly superb, is highly versatile, looks gorgeous and has gobs of headroom. Moderately priced at \$1,495 list, this box sets a new standard for recording channels and gets my very highest recommendation.

Millennia, 530/647-0750, www.mil-media.com.

Mix contributing editor Michael Cooper is the owner of Michael Cooper Recording, located in beautiful Sisters, Ore. Cooper's studio offers recording, mixing and mastering services.

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- Audible Logic Objects allow you to create custom audible objects with the Logic Editor and Mixer.
- Audible Logic Objects allow you to create custom audible objects with the Logic Editor and Mixer.

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Logic 6 can support and output DTS X and D. In addition, QuickTime audio streams can be imported and exported using the Logic 6 Mixer.

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Logic 6 can output 16-bit PCM 16-bit (Native) Output. In addition, QuickTime audio streams can be imported and exported using the Logic 6 Mixer.

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Logic 6 can output 24-bit PCM 24-bit (Native) Output. In addition, QuickTime audio streams can be imported and exported using the Logic 6 Mixer.

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Logic 6 can output 32-bit PCM 32-bit (Native) Output. In addition, QuickTime audio streams can be imported and exported using the Logic 6 Mixer.

EMAGIC

LOGIC 6 SERIES continued

COMPUTER AUDIO

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- The Logic 6 Series includes a variety of effects plug-ins, including reverb, delay, and distortion.
- The Logic 6 Series includes a variety of effects plug-ins, including reverb, delay, and distortion.

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- The Logic 6 Series includes a variety of virtual instruments, including pianos, guitars, and drums.

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- The Logic 6 Series includes a variety of integrated synthesizers, including FM and analog synthesizers.
- The Logic 6 Series includes a variety of integrated synthesizers, including FM and analog synthesizers.

I (Might) Wanna Hold Your Hand

A Techie-Turned-Investor's Opinion on Upgrading Your Gear

Since moving to the Twin Cities, most of my business relationships have begun via e-mail. And, because it's sometimes hard to judge whether the "Johns" want real service or are attempting to engage in some fantasy-based role-playing, the interaction has the feeling of an online porn message board. Once successfully past the courting/screening phase, however, relationships are generally long-term.

Until writing this article, I never thought that the courting/screening phase would be such a challenge, especially with those curious souls who won't (or can't) compose a decent e-mail, leaving me to figure out their *all caps/no punctuation/complete stream-of-consciousness* messages. Did these people ever go to high school or are they just so "excited" about the release of audio information that they can't write and think at the same time?

THE WRITE STUFF

I welcome (and congratulate!) those correspondents who ask the "right" questions; you'll find the answers below. On my good days, my proactive response to the "wrong" questions is to write an article or update my Website. On "crustaceous" days, some people find out just how sensitive my trigger can be! Somewhere in between Captain Nice and Captain Nasty, I become the nearly apologetic Great Inquisitor, grilling the techno-curious so that they better understand their goals. I often ask for CDs of their best work or a sample of whatever the problem might be, and only go for the jugular after discovering an ulterior motive.

IS IT WORTHWHILE TO UPGRADE?

Way back in October 2000, capacitor and op amp upgrades were featured in "Tech's Files," a topic that generated numerous inquiries. The question is not whether an upgrade is possible—anything can be done for a price—but what other impediments to sonic bliss are taken into consideration. You wanna make the investment worthwhile, right? What good are faster op amps and low-leakage caps if the pots are scratchy and the switches are intermittent? I'd fix those items first, or bail.

Exact replacement parts for a recording console that is 10 to 20 years out of production are not likely to be readily available. In this case, older is better, because newer products use application-specific pots in terms of bushing, shaft and knob dimensions. The better "generic" pots are easily \$5 to \$10 a pop. Their shafts will be round and not keyed, longer than required and not compatible with the old knobs. Upgrading 24 channels of mic preamp hardware could cost \$600 in parts—a deal if D.I.Y.—but add the labor and you might as well have bought new preamps.

Some of the replacement pots for a Sony MCI 600 Series console, for example, would be customized parts that

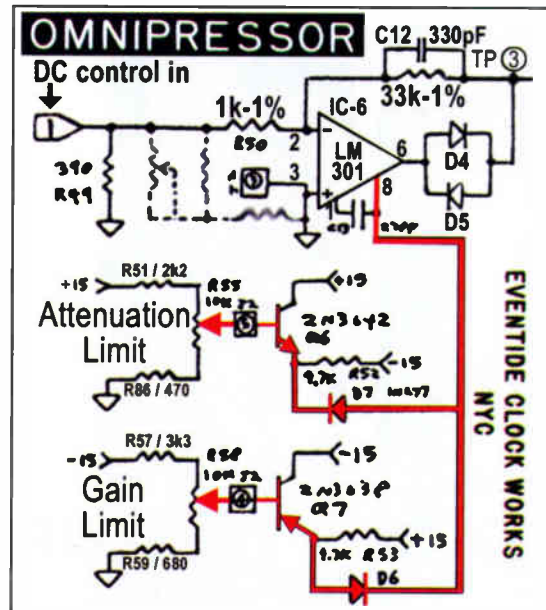


Figure 1: excerpt from Eventide Omnipressor schematic detailing use of LM301 op amp as a comparator. The LM301 was typically used for audio (AC) signal applications in the early '70s.

typically cost \$25 to \$50 each and require a 25-piece minimum from a pot manufacturer. I do not believe those parts are available from Sony, but www.blevinsaudioexchange.com is worth a look-see.

OP AMP OFF-RAMP

Because of the Internet, awareness of op amp options has never been higher. Every geek has a preference: Some may arrive at their choice by extensive research, others may be content just finding a better part. I don't really want to compete or pass judgment on what other people are doing, yet many people put me in that position. If you're looking for a turnkey upgrade, www.audioupgrades.com has a list of popular recorders, consoles and signal processors—including prices. I can't speak for the company's work, but you gotta admire the site for its detail; it's definitely a great reference source.

Of course, there are improvements for the oldest op amps, such as the 709, 741, 4136 and 301, but not every op amp can be easily upgraded. Here's one very obtuse example: An Eventide Omnipressor uses an LM301 single-channel op amp in the DC sidechain as a comparator via pin 8. The circuit in question, detailed in Fig. 1, allows users to limit the maximum gain and attenuation. Figure 2 shows the *standard* single op amp pin-out (I/O on pins 2, 3 and 6, power on 4 and 7) plus the LM301's pin 8 idiosyncrasy.

Also note the 1k-ohm input and 33k-ohm feedback resistors; comparators typically have lots of gain. Two identical re-

—CONTINUED ON PAGE 129

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STEVE EARLE
ROCK/COUNTRY REBEL
MAINTAINS STUDIO LIVE FEEL

By Gaby Alter

Steve Earle is not a man to lay idle. Since a stint in drug rehab pulled him out of a personal and career slump in the mid-'90s, the 48-year-old rock/country songwriter has been producing new work at a pace that would leave many younger artists in the dust. In the past eight years, he has put out eight albums, including last year's politically charged *Jerusalem* and a concert double-CD to accompany a documentary on Earle titled *Just an American Boy*.

The drug habit is about all that's rehabilitated about Earle. You get a picture of this on *Just an American Boy*, where, between songs, he talks on topics ranging from the death penalty to his hitchhiking days to the war in Iraq. He speaks with urgency and anger about the injustices he sees in the world around him and uses enough humor to keep his talks from becoming sanctimonious.

His message's urgency, in fact, sped up the recording and release of his last studio album, *Jerusalem*. Originally, Earle had hoped to take a break from his steady one-a-year output after finishing the 2000 *Transcendental Blues*. On top of that, he and co-producer/engineer Ray Kennedy (who together are known

as the Twangtrust) had just moved their studio from their old building on Nashville's Music Row and hadn't yet finished setting things up in the new location just outside of town.

"And then September 11th happened, and I started writing these songs," Earle says. "Releasing it in a timely fashion started becoming important to me. In other words, the material seemed perishable. So we just bumped up the timeline to my next record." He and Kennedy got the new studio ready in time—but only just. "The wiring got finished at 4 o'clock in the morning the day before we started recording," Kennedy reports.

Jerusalem's songs did indeed strike while the iron was very hot, addressing the state of the union a year after the terrorist attacks with Earle's characteristic bluntness. "Amerika v. 6.0 (The Best We Can Do)" was a snarling critique of political apathy, the health-care system and the growing divide between the rich and poor ("We can just build a great wall around the country club to keep the riff-raff out until the slump is through"). "Ashes to Ashes" put current events in a kind of Biblical perspective, warning in a prophetic tone of the impermanence of even the mightiest civilizations ("Every tower ever built tumbles...and every idol ever raised falls"). The track that stirred serious controversy, however, was "John Walker Blues." Written from the point of view of the young-American-turned-Taliban-soldier John Walker Lindh, the song was not an unsympathetic portrait of an alienated youth "raised on MTV" who turned to Islam for an-

—CONTINUED ON PAGE 117



RUFUS WAINWRIGHT

STUDIO HOPPING RESULTS IN TWO NEW ALBUMS

By David John Farinella

After what he terms a few “harrowing” experiences with record producers, singer/songwriter Rufus Wainwright has finally found an aural ally in Marius deVries. “Marius has been a complete dream,” Wainwright says. “I like him a lot because he’s a nice person and he’s very British in his



sensibilities in the studio and extremely efficient and diplomatic.” Each of those qualities became paramount as Wainwright and deVries worked through what would become two releases: the acclaimed current offering, *Want One*; and *Want Two*, which will be released this spring. *Want One* is an extremely clever and complex production, with huge variations in arrangements and

instrumentation from track to track, as Wainwright ladles out heaping helpings of insight and autobiography.

Wainwright enjoys his time in the studio. “I’m perhaps more comfortable and confident in the studio than I am in real life a lot of the time,” he says with a laugh. “I grew up in and around the studio [he’s the son of

—CONTINUED ON PAGE 119

LIVING COLOUR

GROUNDBREAKING
ALT-METAL BAND RETURNS

By Chris J. Walker

Much like a popular couple breaking up, the extremely dynamic alternative metal band, Living Colour, which officially disbanded in 1995, was constantly queried about reuniting. Anywhere former bandmembers went while pursuing individual ventures, fans, music-biz types and fellow musicians asked the eternal question: “When is Living Colour getting back together?” Even Mick Jagger—who featured them as an opening act on mid-’80s Stones tours, produced their demo and coordinated a subsequent record deal—told drummer Will Calhoun, “They needed to regroup.” Overwhelmingly, the band’s past achievements—garnering a multi-Platinum CD, two Grammys and two MTV Video Music Awards while maintaining an intensely loyal, global fan base—overshadowed their subsequent endeavors.



Living Colour against an urban sky. The band is (L to R): Doug Wimbish, Will Calhoun, Vernon Reid and Corey Glover.

Still, from the perspective of the bandmembers—guitarist Vernon Reid, vocalist Corey Glover, bassist Doug Wimbish and Calhoun—there were lingering issues con-

cerning their general frustration with the music industry and the dissolution of unity within the group. Was there a real desire to

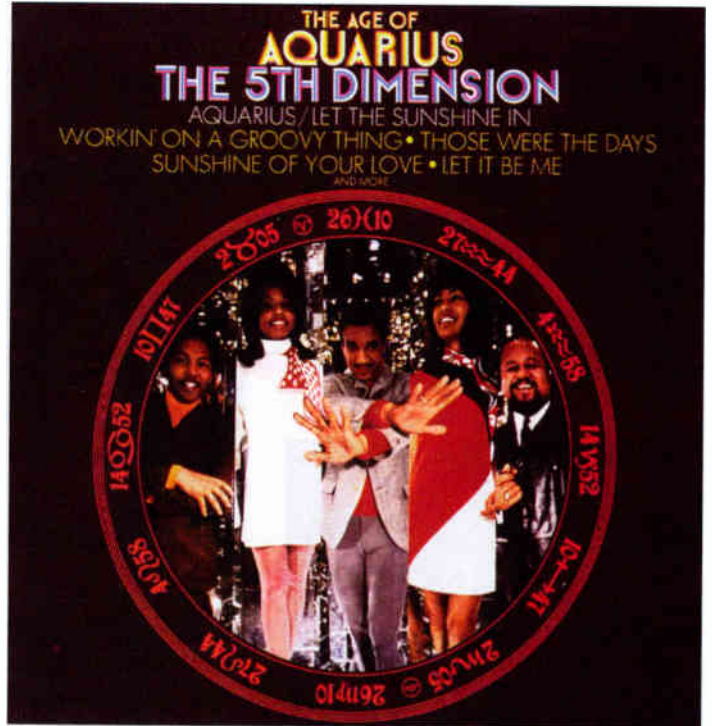
—CONTINUED ON PAGE 120

THE 5TH DIMENSION S AQUARIUS/LET THE SUNSHINE IN

By Dan Daley

It seems axiomatic that the further back in time we reach, the more the actual making of records becomes almost anticlimactic to what transpired outside of the recording studio's confines. When 4- and 8-track recordings were the norm, what we regard as the "mix" was actually an ongoing process, a series of artistic and practical decisions forced by a limited number of tracks into becoming part of the actual creation of a track, not its technical coda. All of the above are amply illustrated by the 1969 double-Grammy-winning (including Record of the Year) "Aquarius/Let the Sunshine In," the 5th Dimension's smash hit that ended up being the best-selling single of that year.

For starters, the record was made up of two distinct songs from the smash musical *Hair*, what essentially was the lyric overture to the hit Broadway show "The Age of Aquarius" and the show's final production number, "Let the Sunshine In." But that pairing took place after an unlikely se-

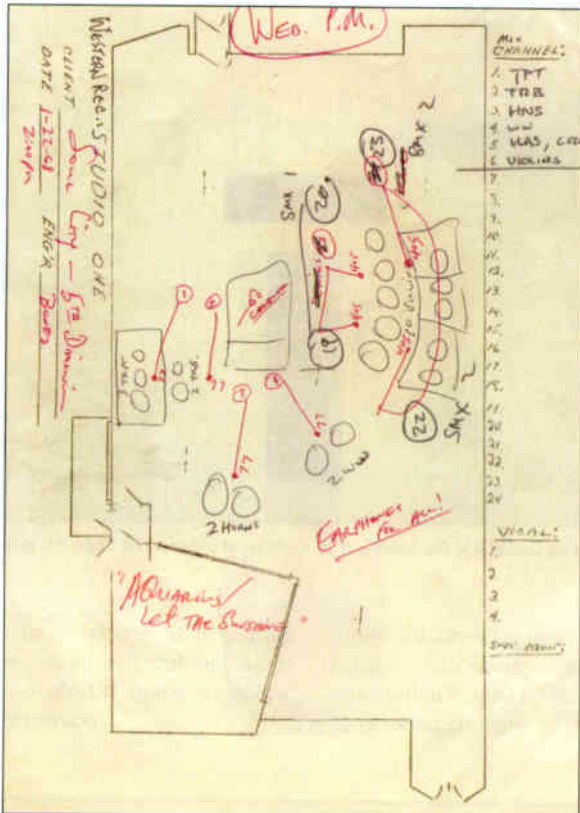


ries of events that placed record producer Bones Howe in a front-row-center seat at *Hair* in New York one autumn evening in 1968. Howe, who recently had shifted from engineering for Lou Adler and others to producing hits for artists including The Association ("Windy," "Never My Love") and The Turtles ("It Ain't Me, Babe"), had been contacted by entertainer-turned-entrepreneur Johnny Rivers to produce the 5th Dimension's *Magic Garden* album, which was filled with tunes by the burgeoning songwriter Jimmy Webb, whose "Up, Up and Away (In My Beautiful Balloon)" gave the Los Angeles-based pop/soul group its breakthrough hit in 1967.

Riding the group's initial success, they were doing a gig at Manhattan's Americana Hotel in 1968 when one of the members, singer Billy Davis Jr. (who would go on to duet hits with another Dimension alumnus, Marilyn McCoo), lost his wallet in a cab. A good Samaritan returned it and Davis invited him and his wife to the show. Coincidentally, the Samaritan turned out to be a co-producer of *Hair*, and he, in turn, invited the 5th Dimension to see it. When the group heard the stirring opening number—which, like all of the songs in the show, were composed by Raelo and Ragni—they immediately decided to record it.

"I was fine with that," says Howe, "but to me, there was only half a record there. In fact, in my notes I still have a piece of paper that says 'Aquarius' with an arrow running from that to a question mark. I went to see the show myself and I heard the last number, 'Flesh Failures,' which has this refrain: 'Let the sunshine in, let the sunshine in,' etc. It was a real downer of a song, actually, but those last three bars were like a great gospel song. I thought if we could cut that together, we could make a medley of it. So I called the publisher of the show and asked if it would be okay and they were fine with that. The group took a little convincing, though."

Studio setup at United & Western



Shortly after that, Howe went into Studio 3 at Wally Heider Recording in Los Angeles, his favorite studio, which was similar in design to the one he had used at United & Western, where he had worked on productions with The Mamas & The Papas and The Association. He called in vocal arranger Bob Alcivar to match keys on the two songs and write charts for the Wrecking Crew, the session group headed by drummer Hal Blaine, who would cut the tracks. "The two songs were a fifth apart, and Bob said that was too big a jump, so he moved the whole thing down a fourth," Howe recalls. "But the plan was to record the two pieces separately, then jam them together like a train."

The session players huddled in the small tracking room, playing from the charts while the 5th Dimension was in Las Vegas opening a long engagement at Caesars Palace with Frank Sinatra. Howe listened through the API console as the tracks went down to the 3M 8-track machine. The basics were cut as part of the album sessions, which ran from September 4 through December 10, 1968. Blaine's drums—with Shure 546 microphones on snare, kick and hi-hat, and Sony C64s as overheads—were recorded mono to track 5; the bass, recorded through an amp also using a 546, was on track 7; guitars were on track 1; and piano on track 3. Tracks 3 and 4 were left open for vocals, and tracks 6 and 8 for strings, percussion and other overdubs. When "Aquarius" was finished tracking, Howe asked Blaine to do two bars of eighth notes to set up the rhythm for "Let the Sunshine In," which was recorded to another reel of tape.

Howe then took the tapes to United Recording of Nevada, which Bill Putnam, who owned United & Western in L.A., had built. The 5th Dimension came in before the show one day to do the vocals. Howe arranged them in the studio as they performed onstage—in a semicircle—around two RCA DX-77 microphones, putting the female vocals on track 3 and the male voices on track 4. The DX-77s were set to the V-1 position. "The 77s have three cardioid settings," Howe explains. "V-1 and V-2 were different low-end cutoffs, and 'M' was for music recording. The V-2 had a high cutoff, which made it good for radio announcing; the V-2 position left a lot more low end in there and made it a great vocal microphone." The signal ran through an 1176 compressor/limiter set with what Howe swears are the best parameter settings that can be configured on it for vocals: threshold/attack, 6; release, 7; and a 12:1 compression ratio.

The song's vocals were recorded the

next day. "I just let them sing all day," Howe remembers. "It was a long track with the same parts running over and over again. I didn't know how long the record was ultimately going to run. Then, at one point, Billy started scat singing on it and I told him to hold it, let me put him out there on a separate track so I could bring it in once I knew when we could use it." The entire multitrack recording was transferred to a second 3M deck as the group's vocals were doubled.

Then came what was always a touchy part in the age of analog tape: a multitrack edit. Howe, who says he learned editing when the common methodology was to use four fingers and a pair of scissors, laid the end of the first song and the beats counting out the second across a block and cut like a surgeon. "People tell me I was a good engineer," he says. "I don't know. But I can tell you I was very good at editing. I used to practice making quarter-inch cuts on jazz solos." The edit, even listening to it today, is seamless and is helped by the reverberated overlap of vocal from the first song leading into the next, as well as the string and horn overdubs.

The tapes were taken back to Heider's for sweetening. Bill Holman's string and brass arrangements were recorded using the RCA DX-77 for the horns and AKG 405s for the strings. One interesting element was the swirling string part that opens the track. "I wanted something over the drums that starts the song off," says Howe. "I had some vague idea in my head that it needed *something*, but I wasn't sure what; something shimmering. Then, just before we left Vegas, I was riding in an elevator at Caesars and they were playing Sinatra everywhere—in the lounges, the hallways, the elevators—and I heard this sound; it was just what I was looking for. I kept listening and then realized that it was 'Lost in the Stars,' the Sinatra tune, with arrangements that Don Costa had done. I played it for Bill [Holman] and told him I wanted something like that. Then I would fade the rhythm section in under it to start the song."

The mix, such as it was, was done on the fly, as Howe combined three tapes: the 8-track with the tracks and vocals, a 2-track with the newly recorded swirl intro part and a new 8-track to which they would all be transferred. Howe ran the swirl tape, finding the point to start the main 8-track and fade it up into the pre-mix. "It was like editing a movie, with fades in the beginning," he says. That was then mixed to 2-track for the final mix.

Howe now had an opus coming in at 4:49—a *lifetime* in the era of AM pop radio

singles. But input would come from a serendipitous source: Wally Heider's studio on Cahuenga was across the street from Martoni's restaurant, the counterpart L.A. hang-out. Stopping in there for a bite, Howe bumped into Bill Drake, the programming director for the Drake-Chennault radio chain, which included tastemaker stations KHJ and KFRC, and who was the archetype for the modern radio playlist arbiter. Drake had heard the "white label" of the record—the prereleased version sent by the label to stir interest at radio—and liked it. But, as he pointed out to Howe, it was a DJ's nightmare. "He said if I did a shorter version, it would be a bigger hit, since DJs could fit it in, and that ending would be great to take them into the end of an hour," Howe recalls. "I was gonna eat, but instead I turned right around and went back to the studio and made some cuts. I cut a half verse out and one of the choruses. I got it down to 2:59. Perfect."

"Aquarius" was released on March 8, 1969, and spent six weeks at Number One and remained in the Top 40 for 16 weeks, selling more than 2 million copies in less than a month before topping out at triple Platinum. "That record had a complicated history," says Howe. "It was two songs jammed into one and then they were cut in half to make it work for radio, and it was recorded in different sessions and different cities before that became too common. And it was worth it because it really defined the era, and you don't get to do that too often."

MIX
ONLINE
EXTRAS

STEVE EARLE

FROM PAGE 114

swers that a materialist culture wasn't providing. The song did not exonerate Lindh so much as it gave his choices a context, thereby humanizing his dilemma.

Musically, *Jerusalem* rocks and rolls as much as it rocks the boat. There's very little pretense about Earle personally, politically or musically, and the album's 11 tracks tend toward basic rockers with a country edge, with a few ballads thrown in to leaven the mix. It's a straightforward approach that's matched by the one he and Kennedy take in the studio.

"We go for the live performance," Kennedy says. "Why go in with the attitude of, 'This is just a scratch guitar track,' or 'This is just a scratch vocal?' I don't believe in that. I believe in, 'Let's just really go for it!' When people are encouraged to do that, they end

up performing better than they think they can." Kennedy cites Lucinda Williams' *Car Wheels on a Gravel Road*, which the Twangtrust helped produce, as a case in point. "*Car Wheels* is pretty much all live vocals. On her previous records, I don't think she ever did live vocals, but she went from 40,000 units to over a million."

As you might expect from their "old-fashioned" style of recording, Earle and Kennedy are both die-hard analog lovers. The Twangtrust's studio is filled with vintage microphones, preamps, compressors and consoles. "Some of the things that are really cool about the pop records I love have to do with the so-called shortcomings of the analog recording process that sort of become musical," Earle says. He cites The Beatles, the Rolling Stones and The Faces as bands whose recordings he's often tried to re-create sonically and make his own.

Before he began working with Kennedy in the mid-'90s, Earle was frustrated with the ability of digital media to accomplish this task. For instance, he admired the "overdriven, distorted" acoustic guitar sounds he found on The Beatles' *Rubber Soul*. "[I was] just trying to figure out how they did that, and why can't I make this expensive digital piece of s—t sound like that. I have nothing against digital," he hastily adds. "There are people that are better at it than I am."



Everything on the tape is a big, bold stroke. If it's not, it shouldn't be there. There's nothing subtle about Steve Earle records. —Ray Kennedy

For Earle's acoustic guitar sound, Kennedy used nickel-capsule Neumann KM56 microphones from the late '50s and early '60s. "The way acoustic guitars are recorded [in other studios], they're mostly clean," Kennedy says. "We push them a little harder. I'll slam tape pretty hard and try to get the guitar to really respond so that you cannot just hear it, but *feel* it." Kennedy and Earle also favored a Beatles-esque technique on some of their drum tracks, using Universal Audio 1176 compressors to emulate the sound the '60s group achieved with Fairchild limiters. It involved, according to Kennedy, "taking a lot of components of the mix and chaining them off to a pair of 1176s or an 1178, and then bringing that up into the mix so that the drums have this kind of continuous roar about them."

To get Earle's vocal sound, Kennedy used a Fred Camron custom-modified Neumann U67 microphone, a Telefunken V-76 M Series preamp and an 1176. "I'm using it to pull the sound out of his throat, his chest," Kennedy says of the compressor. "It makes the microphone more sensitive, and makes it really dig in and reach out for the character of the vocal." Because the 1176 pulls in enough room sound and ambience, Kennedy didn't add reverb. "There isn't any reverb used on any of Steve's records, at least since I've been involved with him. It's all natural acoustics."

With all of the components of the mix, Kennedy compressed things a lot so that they stand out: "Everything on the tape is a big, bold stroke. If it's not, it shouldn't be there. There's nothing subtle about Steve Earle records."

Much thought went into Earle's instrument selection, as well. He and Kennedy together own a collection of more than 300 guitars, which are actually hanging on pegs on the walls of the studio itself. "We haven't done it," Earle says, "but if you soloed the

room mics, then you'd hear all these guitars jangling around in the background." Earle used a variety of electric guitars on *Jerusalem*, but stuck almost exclusively to a Dana Bourgeois acoustic guitar, because "it's almost the best new guitar I've ever bought."

Their studio also has a large collection of snare drums. "We don't do one drum sound and stick with it," Earle says. "We set up two drum kits at least. We've got a really old signal-tension kit and then the more modern great-sounding Gretsch kit, and then there's a rack right next to the drum kits that has, like, 15 snare drums, which we use every single one of. It's all about the song, the key it's in, the overall tonality of instruments around the drum."

With *Just an American Boy*, the album released to accompany Amos Poe's documen-



PHOTO: GLEN ROSE

tary of the same name about Earle on tour, the goal was also capturing a live performance, this time outside of the studio. Poe had used low-quality mics during the shooting of the film, so the album was essentially a re-capturing of the songs in later concerts. As with *Jerusalem*, Earle made the decision to do the album quickly, so there was little preparation time before the band went on the road, nor was there the budget for a sound truck. So the Twangtrust resorted to digital technology. The band went out with a laptop, a copy of Digital Performer and some FireWire drives to capture the shows. The signal came directly out of the mixing console onto eight tracks in Performer.

Once back in the studio, Kennedy—in a rare move—took the tracks into Pro Tools and crossfaded songs to follow the film's sequence of songs. "It was the best way to mix songs from different shows," he explains. "My biggest job on that record was to make it not sound like Pro Tools." To achieve this, Kennedy broke out of each individual channel in Pro Tools to an analog console while mixing. "I use higher-quality D-to-A converters than Pro Tools has," he explains. "And there's a lot of analog looping in between. Instead of using digital plug-ins, I'm using real 1176s and real APIs and Fairchild. I'm using my normal mix gear, it's just that the source sound is being generated by Pro Tools."

In the end, it came back to the thing that Kennedy and Earle both prize: the sound of a real, live band. "If you have great guitar sounds, great drum sounds, great vocal sounds, everything sounds really great, and you get the performance on top of that, then

you've got a great-sounding record," Kennedy says. "You have a record that's gonna have appeal, because it's gonna have an emotional quality to it because of the performance basis. It's not thought-out, it's not programmed, it's not intellectualized; it's just people playing together."



RUFUS WAINWRIGHT

FROM PAGE 115

another talented singer/songwriter, Loudon Wainwright III). I definitely associate it with the womb. I've always loved the studio and I'm very old-school about it. I know absolutely nothing about the technology of it whatsoever, but I love people running around doing things." Absolutely nothing? "I literally am allergic to knobs," he says with a laugh. "I break out in a sweat and become dyslexic. I still say, 'Could you fast-wind that, please?' So, no, I'm not technical at all."

So it was fortunate that he and deVries crossed paths. Their initial recording dates took place at Looking Glass Studios in New York City during a long weekend in October 2002. "This went very well," deVries recalls. "We ended up with three songs in good shape." The chemistry between producer and artist was obvious, deVries says, and production kicked off in January 2003.

Wainwright explains that he would come in with a song and the two would put down a click track with scratch vocals and either a guitar or a piano. "Then we would hang out together and play keyboards and figure out what kind of bass line we wanted or what kind of horn line or find some weird synth sounds," he says. "We'd get an idea of what kind of direction it was going in and then usually we'd hire a great guitar player to give it a real feel. Often times, we'd program drums ourselves, just for the idea, and we'd go back later [and cut drums]. So we'd sketch out a lot of what you hear beforehand, but then once the musicians came in, it was just a sketch for them to follow."

"Rufus writes very thoroughly, more so than anyone I've worked with before," deVries reports. "He brings his songs in very conceptualized in terms of harmony, melody, counter melody, even orchestration. Groove-wise and feel-wise, there was more room for me to help guide the songs, especially in the more uptempo numbers. But I was always concerned to work within the spirit of the original gestures embedded in the songwriting."

Wainwright and deVries worked in seven studios: Looking Glass, The Maid's Room, Loho and Bearsville in New York, The Strongroom and Angel in London, and the Record Plant in Los Angeles. "This is my multicentric, multicoastal album," Wainwright says with a laugh. "It seems like this happens on every record of mine except for the first one, which was all in L.A. I get bored easy, I guess."

According to deVries, each studio was selected for a specific reason. Looking Glass was used for the vibe and The Maid's Room for its "utterly noncorporate and homey feel," deVries says. "We were there for the main New York City sessions, which were mainly Rufus and myself building up the tracks in Logic with a few instrumental overdubs." During The Maid's Room dates, the crew moved over to Loho to record drum tracks.



I was always concerned to work within the spirit of the original gestures embedded in the songwriting. —Marius deVries

The main band sessions were recorded at Bearsville. "We'd both always wanted to work there and it turned out to be a smart move," deVries says. "The live area sounded fantastic, and with the very wintry conditions, it snowed us in for days at a time; in the rural environment, it made us really focused. As it happened, we were sadly the last session ever in Studio A."

The Strongroom in London, where deVries has his own studio, was called on for its SSL console and mixing flexibility. Angel was used for the orchestral and choral recording dates. The Record Plant got tapped for the albums' final touches and for its Los Angeles location, where both Lenny Waronker and Robbie Robertson could listen to the tracks—"Their astute ears and wisdom were invaluable," notes deVries.

John Holbrook, who engineered the Bearsville sessions, set up the dates with maximum possibilities in mind. "We needed to be able to go quickly from tracking a full rhythm section to overdubs or to Rufus doing solo piano and vocals," he says. "We worked through a lot of music in a fairly short time." Studio A's big room enabled them to have the drummer, bassist (the bass amp went in a box of baffles), keyboard player (set up with gobos) and guitar players (amps were set up in the iso booth near

the control room) in the same room. "We also sometimes used Bearsville's movable gazebo vocal booth—which sits out in the room—for acoustic guitar and vocals or upright bass," Holbrook adds. The control room hosted a MIDI station with a Kurzweil keyboard and several modules that deVries brought, which were all tied into the Pro Tools and Logic setup.

Holbrook's mic philosophy while at Bearsville was fairly simple: "We had several drummers so the setup changed a little bit for each guy," he explains, "and we varied the amount of liveness by means of a beach umbrella and gobos around the kit. On some tunes, we tightened things up by lowering the umbrella and closing up the gobos. Either way, the ambient mics were printed on separate tracks for maximum flexibility."

As for bass, Holbrook used a MusicValve tube DI, which is made by Nat Priest in New York, and a Neumann FET 47 on the amp, which was an SVT bottom driven by a B15 head. On electric guitars, a combination of Royer R121s (close) and tube 67s were used. For the acoustic guitar, he called on a vintage Neumann tube pencil mic, and pianos were miked with AKG 414s.

Wainwright's vocals were recorded with a Neumann U67 through a Neve pre into a LA-2A followed by a Distressor—both set for moderate gain reduction. "Rufus' voice presents a particular challenge in this respect; it's very dynamic and varied tone-wise from song to song," deVries explains. "With him, you really want to capture the moment, the emotion and the performance."

For the music beds recorded at Bearsville, Holbrook relied on dbx 160X or 160s on bass and guitars, while the piano got a Neve stereo compressor. The acoustic guitars ran through a vintage UA 175 compressor. All were moderately compressed, except the drums. The whole kit went direct to tape except for the snare, which was put through a Pultec EQ to add some brightness. Bearsville's vintage Neve console made it possible to work without any outboard pre's.

The majority of the recording sessions were recorded to 2-inch tape and Logic Au-

dio Platinum driving Pro Tools|HD. As deVries explains, the key was to have the choice. "Some things worked much better in analog; some things didn't," he says. While working in Pro Tools, deVries turned to plug-in standards such as Audio Ease Altiverb, Amp Farm and Emagic's tape delay.

Once the recording was done, the tracks were handed over to mix engineer Andy Bradford. As Bradford explains, there were some soft synths running during the mix sessions. "Marius and I sometimes do this," he says. "So when it gets to the mix stage, some of it can be a work in progress, which gives us amazing flexibility of being able to change stuff on the fly. Some of the initial tracking was done on 2-inch for the sound of it, but for ease of editing and transportation, it all ended up in Logic. I mixed from Logic Audio Platinum running on an Apple dual 1GHz Macintosh G4 on Digidesign HD 3 hardware. We had 64 outputs feeding the desk."

Bradford used an SSL 4000 G+ console for the mixes while some submixes were done in Logic because of the number of tracks in a couple of the songs. One of the tunes, "I Don't Know What It Is," had 128 tracks in Logic and 64 tracks on direct TDM. "Those were running on the Mac itself but bused into the TDM mixer with ESB," he explains. The song was such a monster because it included a full band, four guitarists, a full orchestra, a programmed drum kit, a choir, five pianos and, oh yeah, Wainwright's vocals. "It was a very complex and intricate arrangement with an incredible dynamic," Bradford recalls. "It goes from whisper-quiet to full-on. We ended up tackling this one a couple of times before we wrestled it to the floor."

To be sure, *one* album of such enormity must have been a challenge. So how did producer deVries keep up the energy knowing that he and Wainwright were working on *two* albums? "Adrenaline and enthusiasm," he answers. "Working on a project as magical as this one was is rare, and the body responds. There wasn't a song that didn't demand maximum care and attention—plus, the support of a team of great people full of dedication and love for the endeavor." ■

LIVING COLOUR

FROM PAGE 115

be a full working band again? "It was kind of like, 'Well, is there anything there?'" Reid explains from his home studio on Staten Is-

land, N.Y. "There's a lot of affection for the people and history, obviously [being the first rock band of color to make an impact since the heralded days of Jimi Hendrix, Sly Stone and Santana]. But in my mind, you could always say, 'No, no, no and *bell* no!' Then, one day I just said yes."

Living Color first reunited in December 2000 at CBGB's in New York, the landmark venue where the quartet first crafted their



sound and was discovered. Calhoun and Wimbish were there doing a drum 'n' bass side project called Headfake, with Glover sporadically helping out. When Reid accepted their invitation to sit in, the show billed "Headfake and Surprise Musical Guest" turned into a full-on reunion jam. Riding the crest of ecstatic fan response, they continued playing sold-out club dates across the States and made festival appearances in Europe and South America. Talk of returning to the studio to record a new CD ensued, but the band couldn't seem to agree on direction, methodology and, foremost, a definitive reason to devote the time and effort. In the midst of their disparity, the 9/11 tragedy occurred.

"It's not our reason, either," declares Reid, who could previously see the World Trade Center towers clearly from his house. "But what it is, is that we were able to start thinking about each other in a different light and talk about issues in other ways. Also, it made us look at the music we did before differently. Ironically, 'A ? of When' was written before 9/11, even though it seems right on top of it." Consequently, Living Colour found that many of their recently penned songs had other meanings and a third of the songs on their reunion CD, *Collideoscope*, are related to the catastrophic event.

For the process of forging lyrics and sonic elements, the band initially headed to Long View Farms in North Brookfield, Mass., during the spring of 2002. They'd cut

the album *Pride* there, the CD prior to Living Colour's breaking up, and Reid describes its owner, Bonnie Milner, as a "wonderful ally to the band."

However, when the members were pursuing various solo ventures, Wimbish also formed an allegiance with engineer/drummer/drum programmer Chris Weinland, who owns and operates Tree House Studios in Storrs, Conn., midway between Boston and New York. This studio, which is located in a converted garage/barn adjacent to a state park, became central to the recording of Living Colour's latest throughout the fall of 2002 and into the spring of 2003. The isolated natural setting of Weinland's studio, where cell phones are out of range, provided the necessary solitude that the band needed to write and try out songs. Also, Reid could crank up his guitar and equipment to his heart's content without being concerned about any neighbors.

Reid, Wimbish, Glover and Calhoun worked together about 80 percent of the time at Tree House, penning lyrics and jamming. Added guitars and reworked drum parts were done individually, and often the whole band wouldn't make the trek. "There were torrential snow storms every Friday when they would come," the studio owner/engineer recalled. "And sometimes, it would take up to four hours to get here from New York. Normally, it takes a little over two hours and we got over 100 inches of snow last winter. I was laughing a couple of weeks ago with Doug about that and how they ended up getting so much stuff done here, 'cause what else are you going to do when there's three feet of snow out and it's below zero?" The group also did sessions at Wimbish's Novasound Studios in Connecticut, On-U-Sound Studios in London, Sound Studios in Los Angeles and The Cutting Room in New York.

Weinland comments about the band's creative process for *Collideoscope*: "They'd been apart for some time and they really needed to get their heads back in it. So there was a certain amount of just regrouping, and they would come up for four or five days at a time. A lot of stuff would get written, which we would edit. Then they would decide what they liked and we would re-track a lot of stuff later on. The arrangements, I guess, would be backward from what you would expect when you're writing an album. Things would be played, then arranged and then replayed. As late as March and April [2003], we were still doing vocal tracks. But it was really interesting to see how they worked and developed tunes. And, obviously, the musicianship was about

as good as you're ever going to see from a rock 'n' roll band."

All tracking for their reunion CD done at Tree House Studios was recorded on Pro Tools through such supporting gear as modules from an old Neve broadcast console (believed to be Sonic Youth's old board), API preamps, Apogee converters and various vintage mics—mostly Neumanns. Weiland stresses that he wanted to keep the signal path as clear as possible, and the combination of preamps and mics used for that application worked perfectly.

Just the same, Reid was very comfortable and stayed with Weiland's family for extended periods during the creation of *Collideoscope*. "[Weiland] was a big fan of the band, his wife is a graphic designer and their son is a great kid," he comments. "So it was a nice environment to be around while we were doing the live stuff. Also, we had a lot of help from different engineers working as a team, such as Michael Ryan, Dave Shuman and Fran Flannery, who did a lot of editing."

Musically, there was plenty of high-octane jamming at the sessions, with a noticeable strong dose of funk injected. Reid believes the current sound harkens back to the exploratory times at CBGBs and the Mudd Club. Reid and Wimbush used Reason software for composing and Calhoun programmed some beats. Loops and samples have always been an important ingredient in Living Colour's music. However, it has developed way beyond their initial forays.

"From the time we did *Vivid*, we've worked with samples and things like that," Reid states, "and now we're starting to integrate that more into what we are doing live. It's an interesting challenge, and now Doug and I both have laptops onstage. We play live, but we also incorporate all kinds of different elements and what-have-you. Of course, I also have a full Moogerfooger pedal line for whooping, blarings and things like that, along with virtual ones."

In contrast to the elongated periods of songwriting and tracking, mixing for *Collideoscope* went fairly quickly. "The mixing was done by our live engineer, Andy Stackpole," Reid says, "one of those rare people who has that other skill set." Stackpole, a 10-year veteran who's worked with Bad Brains, the Beastie Boys, Busta Rhymes and others, became Living Colour's front-of-house engineer two years ago. He actually didn't feel that the transition from front of house to being a studio mixer was that difficult, because "if you mess up, you can go back and do it again." However, he quickly found that the pressure to get things done made mixing far more intense.

After a week of overdubbing, editing and going through everything, he had 11 days to complete 15 tracks. "I really wish I'd had more time," Stackpole says from his home in Norwich, Conn. "It was mix, mix, mix. I didn't really have any time to get away and listen to it in my own environment." At Soundtracks in New York, the engineer, with Reid on hand and the bandmembers occasionally dropping by, mixed Living Colour's release on a vintage Neve board. And although it was his first time handling a major project, he had one big advantage: "I had started working with them as they were de-

veloping songs and playing them live to see what worked and what didn't."

Unequivocally, the band and Reid were happy with the engineer's efforts and are pleased with the album in general. The band feels the strongest it's been for a long time. "Now that we've done this," Reid states, "tomorrow is the question. In fact, Corey and I have already started talking about the next record and there's some very interesting aspects we're thinking about. In a way, the band does pick up where it left off. So it'll be interesting to see how it all evolves." ■

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L.A. GRAPEVINE

by Maureen Droney

In these troubled studio times, Sound City, in the Van Nuys area of the San Fernando Valley, remains one of the busiest studios in town. A rock 'n' roll haven that's changed little in décor since the '70s, it continues to attract those who like their comfort low



Master of Reality's Chris Goss in Sound City's Studio B

key, and who prefer vintage Neve 80 Series consoles combined with good-sounding live rooms. Studio manager Shivaun O'Brien confirmed that 2003 had been a banner year, and I dropped in for some hints about what keeps the clients coming. On the day I visited, Studio A was locked out with Tom Petty, producer George Drakoulis and engineer Jim Scott, so I couldn't get in for a look. But while wandering the halls, I found producer/artist/multi-instrumentalist Chris Goss waiting for his Studio B session to get rolling. Goss, known for his own band, the critically acclaimed Masters of Reality, as well as for his work with Stone Temple Pilots, Queens of the Stone Age and its influential predecessor Kyuss, is the kind of artistic producer who's always a bit ahead of the curve. His current project, *Eighties Matchbox B-Line Disaster* on Universal/Island Def Jam UK, is no exception. We adjourned to Sound City's newly spiffed-up TV lounge (okay, it's true, at Sound City, even a new couch is big news) so he could tell me about it.

Goss, who says he's in the process of simplifying his life, lives in the small town of Joshua Tree, out in the high desert beyond Palm Springs. When he's ensconced at Sound City, he bunkers at a hotel a few minutes away and narrows his world down to studio and sleep.

Because *Eighties Matchbox* is a five-piece from Brighton, England, I was curious as to how they'd hooked up. "About two

years ago, I got a demo of theirs," Goss explains. "Only, maybe, one out of 50 demos catches my ear. Most of them just seem to be mimicking what's going on in music at that particular moment. You know, when Creed and Nickelback are on the charts, all the demos sound like them. When Linkin Park and Korn are on the charts, all the demos sound like them. So when something comes along that doesn't sound like the top of the

charts, that's what I notice. I'm always looking for something to fill that missing slot, that thing in your head that when you're listening to KROQ, you know you're not hearing. These guys are like that."

Goss wanted to work with the band as soon as he first heard them, but nothing came of it at the time. But two years later, he says, "Because of the work I'd done with Queens of the Stone Age, the band and people at Universal Records sought me out. It's really the best way to hook up with a project—to be mutual fans. And we also got along very well."

Goss describes the band's music as having elements of everything from Captain Beefheart to Nirvana with "wonderful, unusual chord progressions and harmonies, and atonal hooks. It's really good," he emphasizes. "People light up when they hear it. And it's especially amazing because they're so young, yet so musically educated. Their average age is 21."

At Sound City, Goss usually works in

—CONTINUED ON PAGE 125

NASHVILLE SKYLINE

by Rick Clark

While many people are content to simply label Nashville a country music town, one thing I like about it is the depth of the artistic community and how the range of expression in the area is so rich. Country, Americana and roots music may be a given, but there is so much more.

Venus Hum, a synth-based trio comprising Tony Miracle (synths, guitars), Kip Kubin (synths) and vocalist Annette Streat, has done quite well for itself during the past few years. The band (www.venushum.com) released a major-label effort, *Big Beautiful Sky* (on Geffen in the U.S. and BMG/UK for the rest of the world), and have toured almost nonstop for the past year-and-a-half, playing numerous shows in England. The group has also opened for Blue Man Group's tour in the last six months, playing sold-out theaters, sheds and arenas in almost every state in the U.S.

"We call our music 'folktronica,' a word we stole from a Momus record of the same name," says Miracle. "The sound is very electronic, but the songs are pretty old-fashioned. It's a bit like Kraftwerk being fronted by Rosemary Clooney. Annette is a big fan of show-tune music and '80s post-punk; Kip loves Tomita and current producers like Timbaland and Missy Elliot; and I love the Beach Boys and Burt Bacharach, as well as Thomas Dolby and recent experimental electronica. If you mix it all up, you get a bit of what Venus Hum sounds like."

Their self-produced debut was cut and mixed at Chessington Synth Labs, a studio housed in Miracle's basement. "I picked the name because it sounded like one of those old studios where they'd make *Switched on Bach*-type records, and we have a fetish for old modular synths," remarks Miracle.

"We are pretty self-sufficient in that we write, produce, record and mix everything ourselves. The jobs bleed into each other so that sometimes it's hard to draw the line between sound design, mixing or the writing process. So instead of hiring a producer and a big studio, we took our recording budget

and bought a few pieces of equipment we needed for our studio—namely, a good vocal chain.”

Some of the key pieces utilized by Venus Hum are modular synthesizers: Roland System 100m, Doepfer A100 and ARP 2600 and two virtual Nord Modulares. “We’re big on old analog synths and have quite a collection,” says Kubin. “We use these to make sounds, of course, but we also like using them as processors. Many traditional and even acoustic sounds get filtered and modulated with these old synths and transformed into something otherworldly!”

“We do a lot of laptop-based work and are very excited about the new digital gear, like Native Instruments Reaktor, Ableton Live, and Cycling ’74 Pluggo and Max/MSP,” Kubin adds. “We do like to use the more experimental VST instruments alongside old analog gear and acoustic instruments.”

The band uses Pro Tools HD for recording. For their mic chain, they use a Blue Kiwi, SM58 or a C12 for vocals. The mic pre is an Amek 9098, which is usually run through a Tube-Tech compressor to a Mackie 32x8, used primarily for monitoring. They also use Emagic Logic for sequencing and sometimes audio.

—CONTINUED ON PAGE 125



Kip Kubin, of Venus Hum, caught in the midst of gear worship

NEW YORK METRO

by David Weiss

Is your current universe lacking zip? Could your energy level be boosted with safe transport to an alternate dimension—to the sound of an enveloping rock/electronica soundtrack? If the answer to these questions is yes, then it’s time to book a trip, not with NASA, but to New York City to experience SonicVision at the American Museum of Natural History (www.amnh.org).

An awe-inspiring new 38-minute digitally animated music show with a playlist picked by Moby, *SonicVision* is playing out for the foreseeable future in the museum’s Hayden Planetarium Space Theater. Aply described by the AMNH as one of the world’s largest and most powerful virtual reality simulators, the 6,550-square-foot dome is now the home of a mind-and-body experience that has definitely never been done before, bolstered by an ambitious surround mix featuring 23 channels of discrete sound and the music of artists ranging from Radiohead to U2, Coldplay, Queens of the Stone Age, Goldfrapp and many more.

Anthony Braun, executive producer, says, “For the visitor who’s experiencing it, this is a new kind of audio-visual experience, in which you’re truly immersed in the content.”

“I wanted to really elevate the music; that was my ambition for the show,” adds Chris Harvey, *SonicVision*’s creative director. “I didn’t want to talk to anybody about religion but give people a glorious, transcendental experience. It’s a new form of entertainment in that it’s not a high-impact edit, not a movie, not a narrative. Its power lies in how intimately connected it is to the music and how integrating the experience in the circular theater is.”



Sound and vision: SonicVision gives birth to a virtual world where animation and audio are fundamental elements.

Created in association with MTV2, *SonicVision* was the result of the dedicated work of a diverse team of sound mixers, animators, video jockeys (VJs), editors and media artists up against a short deadline—approximately six months—that would have been unthinkable only a year or two ago. But with a staff of museum artists who had the design of two previous planetarium shows under their belts, along with the huge gains in available computer firepower, Braun and Harvey’s group were able to hit the ground running in April of 2003.

“Up until then, the museum animators had only produced science shows, and, of course, there you’re held to scientific accuracy restrictions,” Harvey says. “But they’re all artists and had been playing with ideas that wouldn’t fit into a science show. Then, taking those ideas for possible scenes or moments, I designed a kind of flowchart for this show, an overall structure that I felt would be open and modular enough that I could plug a lot of things into it, but would give the show a beginning, middle and an end. To make this flowchart, I also used a very long list of songs they were already considering, some of which had been recommended by MTV, some of which the staff had chosen and some of which Moby had recommended.”

Harvey and Braun worked closely with

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SESSIONS & STUDIO NEWS

NORTHEAST

Rap artist Mobb Deep was in New York City at Battery Studios and Chung King Studios, working on his upcoming release (Jive Records) with artist/producer/Lil Jon, engineers Steve Sola and Mike Berman, and at the latter with producer The Alchemist, engineers Sola and Ari Raskin...Engineer Tony Visconti's latest sessions have taken place at Looking Glass Studios (NYC) producing the Manic Street Preachers' CD to be released via Sony UK...Angel Mountain (Bethlehem, PA) announced a wrap for production sessions on two of its 5.1 library's latest mixes, including Marvin Gaye's *Let's Get It On* and the Allman Brothers' *Live at the Fillmore East*...Woody Allen shot a scene for his yet-to-be-titled film at New York's Sound on Sound Studios in Studio A, which will feature an ensemble cast including Will Ferrell, Amanda Peet, Chloë Sevigny and Radha Mitchell. Meanwhile, in Studio D, rapper Method Man (Def Jam) tracked with producers Rockwilder and RZA, and engineers Jaime Gudewicz and Cortez Farris...Award-winning mixer Lawrence Manchester and producer David Sancious worked with the Darren Lyons Band at Woodstock Recording and Mixing (Woodstock, NY).

MIDWEST

Former Bad English singer John Waite was in at The Pop Machine (Indianapolis) writing and tracking his upcoming release with producer/brothers Marc and Eric Klee Johnson, Jeff Whorley and Joey Fingers. Also in recording with Marc Johnson and Joe Cheesman were The Fuglees, working through their new CD *Indiana*, and country band Chevy Downs, who were tracking and mixing their debut release with the Johnson brothers...CRC's (Chicago) mobile team (engineers Chris Shepard, Steve Weeder, Stuart Holverson and Ron Lowe) was at The Metro recording *The Rapture*, the Twilight Singers and The Ataris, while engineers John Jaszcz and Grant Greene tracked gospel artist New Direction; Jeral Gray and Percy Bady were on hand to produce.

SOUTHEAST

Sister Hazel has a live DVD in 5.1 and a CD of new material forthcoming, produced and engineered by Skid Mills at the newly opened 747 Recording (Memphis)...Omni Studios' (Nashville) engineer Chris Mara worked with Pennsylvania-based rock group Paper Street on their sophomore release.



French rock sensation Etienne Daho (middle) poses with engineer Tom Durack (left) and Nicholas Dembling. Durack mixed Daho's latest, the Gold-selling release *Reevolution*, in Studio 2 at Plus XXX in Paris.

SOUTHERN CALIFORNIA

The Record Plant (Hollywood) hosted a slew of projects, including dance/pop recording artist Anastacia, who was in recording her third album (Rick Wake and Glen Ballard producing, Tom Yezzi and Bill Malina engineering); hip hop diva Missy Elliott, working with longtime co-producer Timbaland and engineers Mike Butler and Mike Eleopulos; alt/rap artists Black Eyed Peas, tracking with producer Ron Fair and engineer Tal Herzberg; and the artist formerly known as J-Lo—Jennifer Lopez—came in to record with producer/engineer team Corey Rooney, Bruce Swedien and Peter Wade...Margarita Mix de Santa Monica (Santa Monica) just wrapped 5.1 DVD sound design and mixing duties for the Stone Temple Pilots' anthology entitled *Thank You*, which includes bootleg concert footage provided by fans...And at Future Disc (Hollywood), engineers Steve Hall and Mark Linett put the finishing touches on the surround and stereo mastering sessions for the *Brian Wilson: Live at the Roxy* DVD-A release (Rhino).

STUDIO NEWS

Paul Stubblebine Mastering & DVD (San Francisco) moved from its Hyde Street location to a new two-room, 5.1-capable facility on Mission Street...Livinghead Recording Studios (Phoenix) celebrated its 15th anniversary with the purchase and installation of a new Pro Tools HD2 system...After a long search for the perfect reference monitors, Ambient Digital (Houston) upgraded its mastering studio with Egglestonworks' Andra II. ■



Houston-based rockers Goddess tracked a three-song EP at SugarHill Recording Studios (Houston), an effort produced by Dan Workman and engineered by John Griffin. The bandmembers, from left to right, are Tushar Gupta, Sheryl Jones, Al Espinal, Avalon and Brad Kovnat.

Send your session news to blingle@primedia-business.com. High-resolution photos encouraged!

the larger Studio A, where the console is a custom Neve 8028 containing rare 1085 EQs. This time around, he used B (where he also recorded Queens of the Stone Age's *R*) with its 40-input 8078, Flying Fader-fitted desk for three trial tracks he'd recorded with the band. Goss understands the importance of the right sound for the right project; when he found that something clicked with the band in Studio B, that's where they returned to cut basics for the entire album. "Everybody's close together, sitting around in a circle," he says, "even while the drums are be-



Ric Wilson, owner of Digisonics, has a wide range of projects to his credit, from restored collections and soundtracks to Megadeth's recent DVD release.

ing tracked. It's a great room for getting that kind of camaraderie going. It's also got a nice, tight sound that works especially well for this particular project. Because of the unusual polytonal nature of the music, I need a lot of definition in the drums. I wanted a more close-up sound than I normally use.

"If people are hearing a G major to a C major chord with a 4/4 drumbeat, it's easy," he elaborates. "But if you're hearing a G major to a D flat major, you need to have the sound of one totally defined. We want to take this very original music and make it accessible. If it was recorded like a garage record, it would be an underground record that no one would hear. I think these guys deserve accolades for what they've developed; they deserve to be played on the radio. So, while the songs are very original, they're also palatable for radio and very commercial. Finding the complementary sonics helps to do that."

About Sound City, Goss says, "It's been a home to me for a few years now. A lot of it is the vibe. Too many studios look like Darth Vader's living room. You feel like if you spill something, a robot is going to come out and hit you. Here, I feel like I'm in my friend's basement game room. It's lived-in, and that's reflected in the music that's made here. People don't come here to make anal music.

Sound City is a rock studio."

In spite of a wide-ranging and prolific list of credits, Ric Wilson's Northridge-based Digisonics remains a well-kept secret. Since 1992, when Wilson founded the company, which specializes in digital restoration, editing and mastering, he's worked on nine Grammy-winning albums, restored collections for Jimi Hendrix, the Beach Boys, The Carpenters and Barbra Streisand, served as assistant music editor on such films as *The Client* and Michael Mann's *Heat*, mastered dozens of other film soundtracks, and has edited and mastered more than 80 children's book and tape products for Disney, Henson and Sony Wonder. In between all of this, he's also found time to consult for Microsoft, Digidesign and DreamWorks Interactive, and to use his skills as a forensic audio specialist for serious heavyweights: the FBI, CIA, FAA and LAPD.

Digisonics is all-digital, Sonic Solutions-based—and mobile. These days, it's also heavily involved in DVD production. One of those who recognized the potential of DVD early on, Wilson has worked closely with DTS on many prestigious projects, and has become expert in both DVD mastering and authoring, garnering, in 2003, a Surround Pro Award for his work on Queen's 5.1 release of *A Night at the Opera*.

As an expert with five years of authoring under his belt, Wilson is a proponent of the standard DVD format, arguing that its already accepted video format is less restrictive to create than current audio-only formats. "It's much more work to produce a DVD-A or SACD disc," he points out, "and there are a lot of programming features that the specs just don't allow. That's why we have to make hybrid discs: part DVD-V and part DVD-A. It really doesn't make sense when, as with DTS, we can do 96/24, full surround on a DVD-Video disc that supports moving images. The debate is that MLP [Meridian Lossless Packing], the required audio format for high density on a DVD, sounds better. But, in double-blind tests, I've found most people can't tell the difference."

Although Digisonics uses a Sonic Solutions workstation, Wilson easily transfers all formats, including Pro Tools session files, into it. "Sonic has been, since the beginning, the best-sounding system," he asserts. "In the last couple of years, the other systems have made huge leaps; Pro Tools, Nuendo and SADiE all sound good. But there's still something about the Sonic algorithms. They're just so good, very clean and warm-sounding. A lot of engineers notice the difference, and a lot of my clients come to me particularly for that quality."

A recent project Wilson is particularly proud of is Megadeth's DVD release, *Peace*

Sells, But Who's Buying? "[Producer] Jeff Levison had the great idea to take one of the songs, 'Devil's Island,' and have it mixed six different ways," he explains. "There's the original full mix; a drum 'n' bass mix; drums, bass and [guitarist] Dave Mustaine; drums, bass and [guitarist] Chris Poland; just rhythm guitar; and no drums. We call it 'musician's karaoke!' You can play along and do your own thing in full surround. It's just one example of the fun things you can do with this format."

Asked to describe his mastering philosophy, Wilson replies, "Whether I'm doing an album or a DVD, I believe it's important to remember that we're making a whole product and not just a collection of material. There's a feel to the whole thing. Some mastering people have a specific sound or they tell a client how it should sound. And some just work song-by-song, adding compression and EQ to each song individually. That's not what I do. I like to get a feel for how each song is going to work together in the sequence before we start putting anything on it. I don't rely on the compressor to level everything. I think in the end it makes the albums breathe more and ultimately sound better, and I guess my clients agree." ■

Send your L.A. stories to MsMDK@aol.com.

NASHVILLE SKYLINE FROM PAGE 123

The band did go outside of the basement studio for a couple of elements during the making of their album. "We cut strings with our good friend Shane Wilson engineering at Pentavorit Studios Nashville on one song," Kubin explains. "We also did a string session for three songs in London at The Dairy, working with engineer Fulton Dingley and string arrangers Sean O'Hagan and Marcus Holdaway of the High Llamas, Tony's favorite band.

"We had the luxury—or curse, depending on your view—of being on two major labels, so we spent some money on a real rock 'n' roll experience. We took five songs to London and mixed with Steve Fitzmaurice at Astoria, the studio owned by Dave Gilmour of Pink Floyd. The studio is in a renovated Victorian houseboat that used to be owned by Charlie Chaplin's manager, who used it as a party boat," Kubin continues. "The studio was amazing, and they had someone to cook meals for us! Steve Fitzmaurice did a great job mixing those songs and was a total thrill to work with, but we only ended up using two of his mixes. It's nothing against what he did, and we'd love to work with him again, but there was just something right about those cheap basement mixes."



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PHOTO: RICK CLARK

Tony Miracle injects Bacharach and Dolby into Venus Hum's "folktronic" sound.

what happened. We sampled some elements from the theme and wrote a brand-new song around it. They've decided to use it in the show, which is a total blast because it's such a great show and the working process was so low-key and fun. I'm glad it came out of that spirit instead of it being some marketing guy at the record company's idea."

Meanwhile, across town in Berry Hill, you wouldn't think that the music industry was in any kind of a slump, judging from new studios that are being built or opening in that neighborhood. One new facility is The Blue Room, which is owned by engineer/producer/nice guy Tom Fouce. The Blue Room was designed by Christopher Huston, built by Marco Lima and Mike LeBlanc of Tri Star Builders, and the wiring was done by Jason White of White Noise Technologies.

I drove over to The Blue Room and spent an early evening hanging out with Fouce, who moved to Nashville several years ago from his hometown, L.A. During his years working in L.A., he was a staff engineer at Kenny Rogers' highly regarded Lion's Share studios, where Fouce had the opportunity to work with Rogers, Richard Marx, Julio Iglesias, Christopher Cross and a host of other predominately mainstream pop artists.

Like many recording industry talents who have relocated from L.A. to Nashville, Fouce was attracted to the quality of life and pace that the Music City offered for him and his family. "We wanted a place that was a lit-

tle slower and a little more sane in terms of raising kids; Nashville is pretty family-friendly," says Fouce. "It's amazing what's going on in Nashville musically. Really just about anything is happening here, from the Nashville Symphony to rock and blues and hip hop and bluegrass and jazz and country to the Christian market."

Many of Fouce's old L.A. peers have also moved here, and now some of them have become his clients at The Blue Room. Among those are Bob Bullock, who also was a staff engineer at Lion's Share, producer Michael Omartian, Marx and engineer Eric Rudd.

Rudd recently has been in The Blue Room with producer Rick Chudacoff cutting sides on pop-country artist Halie Loren. "The drum sounds, as well as the Yamaha C-7 piano, sounded great, and all vocals and overdubs [which were recorded from the center of the main room] came out beautifully," admits Chudacoff, who also mixed the tracks there on the Trident console. "Honestly, it is one of the best-sounding control rooms in Nashville; very nonfatiguing. It is an extremely comfortable environment to work in."

Recently, Bullock has been in the studio engineering overdubs on country band the Great Divide with producer Chris Leuzinger working on the facility's Pro Tools system. Michael Hanson was the assistant engineer. The project, which was tracked at Sound-Stage's Frontstage on Pro Tools, was eventually mixed on Nuendo at Bullock's own studio, The Dining Room.

When I asked Fouce about why he relocated to Berry Hill, he says, "It seemed to have a kind of hip factor to it. I had had an office on Music Row for a long time, which is fine—I'm not anti-Music Row—but I didn't feel that if I were going to have a recording studio, it needed to be on the Row. I didn't think that was important, and apparently 30 or 40 people who are located in Berry Hill feel the same way [Laughs]. It is nice over here." ■

Send your Nashville news to MrBlurge@mac.com.

NEW YORK METRO FROM PAGE 123

re-recording mixer Peter Hylenski, sound designer Paul Soucek, audio editor Russell C. Baird Jr., director of engineering Benjamin Bernhardt and chief video engineer Jeff Galitzer to make sure that the audio and video components of the show would translate to the unique environment of the planetarium's dome. In a space outfitted with three Meyer CQ-1 zenith speakers, eight Meyer UPA-1P sky speakers, 12 more Meyer UPA-1P horizon speakers, Meyer PSW-2 subwoofers, and

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430 seat shakers and 79 floor shakers from Aura Bass Actuators, Hylenski, who already knew the dome intimately from mixing the planetarium show *Search for Life*, had the equivalent of 23 channels of surround, plus ample low-end reinforcement.

As he settled into the dome to mix with his two mobile Pro Tools Plus systems, LCS Matrix3 matrix mixer and TC Electronic System 6000 reverb—often at late hours to stay out of the way of the space shows playing to paying daytime museum audiences—Hylenski knew he would have one serious problem to deal with. “The biggest challenge was that the tracks that came from Moby were all stereo,” he points out. “So you’ve got a playlist of stereo tracks, and you realize you’ve got a 23-channel surround system and you have to make something out of it. Also, wherever you sit in the dome, you’re getting a different mix. It’s touch and go.

“What I was trying to do was take the stereo tracks and find different things that would be interesting if you move them into other areas. You can’t move elements of a stereo track, but things work really well if you can isolate and filter them. At the beginning of the show, when the dome first comes to life, a voice spins around the room. Those are all taken from a stereo track, filtered down and added back in again, so I was able to get motion. Usually, the stereo track will be the foundation, and I’ll bring the filtered sound just underneath it so it has the energy to pull your focus.”

Armed with the flexible routing and spatialization processing firepower of the LCS Matrix3, Hylenski was able to augment the visual atmospheres and often roller-coaster-like motion by locating music and sound effects anywhere he heard fit. “Every speaker in the system is discreetly addressable by the Matrix3,” he says. “We can send a piece of audio to one speaker group of, say, 12 speakers and spread it out. I can also move things through the dome by drawing paths through trajectories—it’s limitless what you can do. A lot of this carried over from *Search for Life*, as well, moving over matrix groups and apex versus horizon, coming up with different ways to use the dome so it doesn’t seem as static as a stereo field.”

Because it involved an extremely dense type of multichannel audio, mixing for the planetarium and its 69-foot-wide, 38-foot-high dome-shaped perforated aluminum screen gave the show’s creators a chance to create a sound field completely unique to the space. “I found that using the height of the dome works out,” Hylenski explains. “The depth of field isn’t stereo anymore, so you rotate and flip sound. Instead of doing left and right from the sides, left is the top of the dome and right is the rim. Or you do

pseudo-quad. Anyway, to take the space and create more space, you can’t say, ‘I’ll put one element on one side of the dome and put the other here.’ It’s got to be almost multisource for each person. There are a lot of speakers in there, so it’s a big comb filter as well, and you have to EQ a lot of it out. It’s a delicate balance.”

To add to the solid sense of synchronization between the music and the dazzling imagery, Harvey’s VJ friends, who often operate in the real-time performance realm, had some additional tricks up their sleeve when creating the animation for two specific scenes. “They use a lot of audio responsive software to drive the animation,” he says. “I know from experience one of the most expensive and labor-intensive things you can do is synchronize to audio, so I thought this would be a clever way to do it.

“One program we used is software called FilMBOX [by Kaydara], which had already been customized for their planetarium to work in real time through their seven [Barco 812] projectors for the White Zombie song, ‘Blood, Milk and Sky.’ On top of the dome there’s a huge, beautiful sun wheel of sparks, which was, in fact, driven by the audio—it’s subtle, but definitely connected. The other audio responsive tool is actually a plug-in for After Effects called Trapcode Soundkeys in the ‘Heroes’ scene. The birth of all these home movies is triggered by David Bowie’s voice.”

With the audio mix complete, the source material was transferred from Pro Tools to a Tascam MX-2424 hard disk recorder, where it plays out to the Matrix3 in AES/EBU digital format before hitting Apogee DA-16 converters and going straight to the speakers.

The resulting show is loud and extremely crisp without being anywhere near deafening. It’s all the better to appreciate the subtle acoustical placement and visual amazement that constantly takes place throughout *SonicVision*, which deserves recognition as an important advancement in the field of digital art.

“Early on, I said that I wanted to use science without mentioning science, evoke spirituality without mentioning religion, and give people a psychedelic experience without drugs,” Harvey concludes. “I feel very strongly that audiences are ready for a new kind of entertainment. The kind of short attention span that we’ve all been trained to expect has its place, but that’s not all there is, and I think that it’s in music that most people find an alternative. *SonicVision* appeals to that appetite: We give audiences all the shock that they want, but with a real respect for their ability to appreciate beauty.” ■

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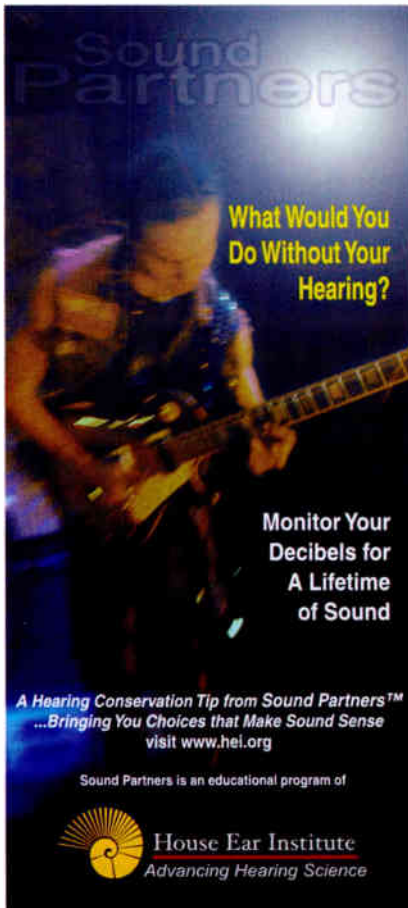
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—FROM PAGE 26, SO YA WANNA MAKE MUSIC

5. If I am wrong, in two years you won't even remember I said this.

**THE KING IS DEAD,
LONG LIVE THE KING**

So, if GarageBand spells the end of low-end, third-party Mac recording apps, Monster Killer 256-Track iNeverHaveToLeave-HomeAgain will kill every semipro and pro Mac DAW.

Dinosaurs died and made room for mammals to evolve and dominate. And though I am sad for the departed Lizard Kings, being a mammal myself, I'm happy that it went that way. And so Jobs may end this dark era of nonintegrated dinosaur DAWs (DAWnosaurus?) and other tools so that superior integrated systems might flourish.

This shake-up will be the first real step toward my studio dream: a laptop computer, a 3-D holographic interactive display interface, and a complete pro tracking, mixing, scoring and mastering facility operating entirely within the magic and as yet unexplored limbo world of virtual reality.

A STUDIO IN VIRTUALLY EVERY LAP

We know that almost all of today's interface

hardware will eventually disappear, and then it's a tiny jump to a true virtual tracking and mixing environment where you sit in your chair, reach into the air, move bars here and there—and build a song.

The thing is that I always expected some small, well-financed pro audio company (it could *happen!*) to get there when faced with a 20-foot-long, 256-track pro post console. I did *not* expect to quietly slip into the future as a personal computer operating system that integrates and incorporates all the needed components.

If in fact the iLife concept grows and spins a pro equivalent, the concept to change the way we record and mix will be upon us, and the speed and stability of the latest OS X will make it all viable. As the sensing of one's hand position in 3-D space already exists in several forms, all that is left is some form of 3-D holographic projection to complete the dream...and there are already three different approaches being commercially developed.

P.S.

Well, isn't this special, not only do I make a prediction—a rare event, indeed—but it seems I find myself forced to relay a per-

sistent rumor that is gaining momentum and credibility with alarming rapidity.

Just as I am about to send in this column, I get a call telling me that Apple is going to release a new monster pro app, a "Pro Tools killer," as it were, at NAMM in five days. It's only logical, and I don't mean Logic. I took the entire day to research this, and yes, there is a reasonable possibility that this rumor might be in some way true.

But as I deadline in half an hour, I cannot hang on long enough to report it. So, as you read this, I am already right or wrong. It happened, and it's a monster, and Apple's moves are suddenly not so confusing: I12t had a pro app ready when it dropped that suicidal little GarageBand on the world, and it doesn't really care if the devs leave because it now offers a full solution, or...

The rumor was false. But I stand by my prediction: There *will* be an audio monster from Apple within the year.

But, who the hell knows? The *Jobs* knows...I think. ■

SSC actually ordered GarageBand already. Those long coast-to-coast flights, the inflatable USB keyboard that he can plunk on with his good hand...

—FROM PAGE 112, "HOLD YOUR HAND"

sisters would result in unity (zero) gain. A careless attempt at a substitution/upgrade would make the Omnipressor nonfunctional. A lucky guess and a spare IC fixed that problem. An LM301 is more than adequate for the application.

POWER 2 THE PEOPLE

A customer with money to burn put a deposit on a balanced power transformer and *then* asked my opinion. After a little inquiry as to why they bought their BPT, it was determined

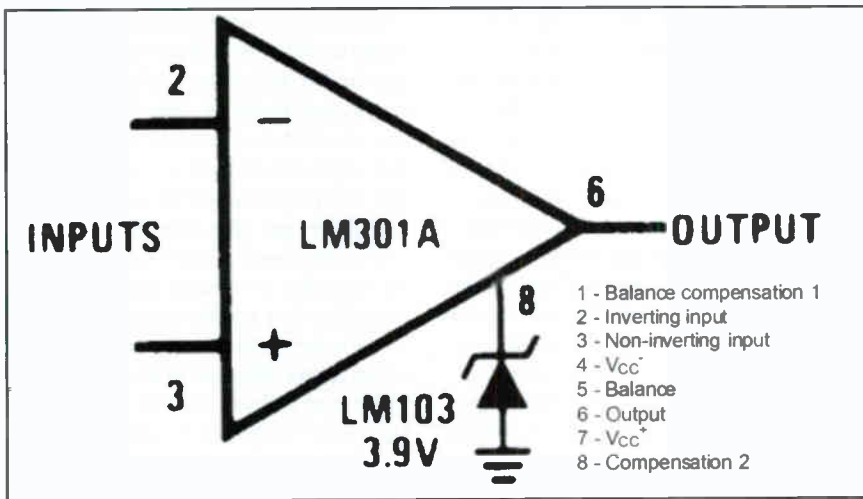


Figure 2: voltage comparator for driving RTL logic or high-current driver. The LM301 uses a standard pin-out for input (pin 2 and pin 3), output (pin 6) and power (pin 4 and pin 7). The other pins are inconsistently allocated in other op amps.

YOUR PIN CONNECTION

Eighties-era Panasonic and Otari semipro products featured XLR connectors but were unbalanced: One company chose pin 2 hot while the other chose pin 3 hot. Interfacing with standard XLR cables did not yield a signal. Combine external wiring, patchbay variations and a slightly unstable circuit design, and the unexpected will be the norm: mysterious crosstalk, oscillation or worse—smoked and fried tweeters. At the patchbay, for example, are the sleeve/shield connections independent or bused together? If the latter, are they tied to ground? I bus *and* ground patchbays, wired to multipin connectors and then hold up the garlic when a client wants to rewire a punch-block bay.

DAT ATTACK

Consider the DAT machine for sale on eBay for \$150. Some people are willing to take their chances rather than paying more for a rebuilt machine with a warranty. Worth at least \$450 with a 90-day warranty, the chances of finding a machine in good condition for \$150 are pretty slim. Reading an eBay seller's comments, you'd think that they were pitching a fine used car. I guess I'm just too honest. I recently sold some tape machines and accessories to a guy who spotted an ad on my Website; the stuff had been "up" for at least a year. I spent several days making sure that everything worked. Who wants the hassle of shipping stuff back and forth?

that they weren't concerned about noise issues but rather, in the summertime, the high level of power demand in their neighborhood dipped the juice to below acceptable levels. One solution is to contact the power utility company, get it to confirm the sag and retap the transformer to bring the voltage swing within an acceptable range. Another solution, an uninterruptible power supply, was posted by John Klett in the October 2003 edition of "Tech's Files." A UPS would regulate and clean the voltage, two things that a BPT cannot do.

ALL YOU NEED IS TRUST

The moral here is that the quality of service delivered is directly proportional to the amount of freedom, respect and trust given to the service provider. Trust in a relationship is an intangible, but nonetheless critical, component in love *and* business. Mortgage companies call it "good faith." When two parties enter into an agreement, understanding and trust can ensure mutual satisfaction and a long-lasting relationship.

READER INVITATION

Who do you trust and why? Nominate your favorite geek, mentor, lover or pet. ■

There are plenty of items to conquer in Eddie's pursuit of knowledge—antenna theory being of current interest. Twin City citizens should check www.tangible-technology.com for the frequency of his pirate radio station.

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—FROM PAGE 30, PRODUCER THAT'S ALL THUMBS song file. Song files are essentially MIDI files and can be downloaded to a computer, edited in a sequencer and loaded back into the MadPlayer. Samples and mic tracks can also be offloaded for editing as .WAV or .AIFF files, although some conversion has to be done in both directions. Everything is handled at full 44.1kHz, 16-bit bandwidth (although you have the option to save the songs as MP3s), so the results—except when you use the reverb, which is surprisingly crummy—can sound pretty darn good.

If you're with me this far, you'll see that the MadPlayer could potentially be a rather powerful MIDI peripheral. However, the sounds can't be edited, and because I couldn't get the feature to work (probably my fault), I don't know whether a sequencer would be able to retrieve patch names from the device. A list of the patches is available for download from the Website, www.madwaves.com. And did I mention there's a radio? Yes, a built-in FM tuner so you can check out what's hot on the airwaves and even sample it and incorporate the samples into your own songs.

There are a lot more features that I

haven't mentioned because either there isn't space or I haven't made my way through the rather squirrely user interface to confirm that they're really there. But you get the gist. The amount of technology under the hood of this little sucker is enough to replace an alarming percentage of the stuff in your studio—although it's hardly set up to do that—and it's a cool enough toy to distract you from getting any work done for weeks.

What does all of this cost? List price is \$299, but it's been available in various places on- and offline for less, sometimes a lot less. The company's VP of sales (who's in the U.S.) says that MadWaves is trying hard to get the gadgets into the hands of the "right" people so that word of mouth can get around. One way they've done this is to bring them to this year's "Project Bar-B-Q," the annual high-level gathering of interactive music developers in Austin, Texas, where they were reportedly the hit of the event.

The marketing slogan behind the MadPlayer is, "Create your own music!" and it sort of fulfills that promise, especially for people who have no musical training or chops. But there's another part of the company's strategy that it hopes will get very big:

content. Right now, you can exchange MIDI files and samples with other users on MadWaves' Website, but in the future, the company plans to have big-name artists' hits available in Mad format and sell them online. Remember when pundits used to talk about multitrack home audio as giving listeners the ability to remix the Rolling Stones? Well, that idea fizzled. But in the world of dance music, because everyone's remixing everybody else all of the time anyway, why not make that capability available to consumers? The kids can play producer at home, and even get up onstage, plug their little MadPlayers into overpowered sound systems and boogie all night. It's almost impossible to do something that sounds really bad, and no doubt some of them will come up with interesting stuff. They certainly couldn't do any worse than many of the folks who now get big money for doing the same thing.

"Empowerment" is a word that gets bandied about a lot when it comes to bringing complex technologies down to an affordable level, and that seems to be the point of the MadPlayer. Rather than simply sitting back and listening to music, users become more or less active participants in the

Grace Design proudly presents the m906 high fidelity 5.1 surround monitoring system—a powerful new tool designed to significantly improve the sonic performance and efficiency of any audio production environment, especially those centered around high-definition digital audio workstations.

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World Radio History

process by choosing parameters and mixing and matching parts and layers. But this is a far cry from actually "creating" music.

Although it has all of those "styles" available, there really is only one: dance music. Everything's in 4/4 in predefined blocks, tempo changes are subtle if there are any at all, key changes are an afterthought, and even chord changes are minimal and not user-controllable. Compare this with the wonderful old software Band-in-a-Box from PG Music, which works great for jazz, blues, rock, folk and Broadway-style music, as well as dance tracks, and lets you customize tracks to a tremendous degree, all the while making sure that what comes out will sound good. And Band-in-a-Box encourages and rewards musical literacy, whereas MadPlayer considers it irrelevant.

MadPlayer's palette of sounds is big, but you can't customize or do anything at all to them in real time as you can with even the simplest MIDI controller. There is no provision for real-time instrumental or expressive input at all, unless you use a separate MIDI sequencer and do a lot of file swapping. All of the physicality involved in making music is removed—even a pair of turntables and a mixer give more tactile response than a ring of thumb operated buttons—and the MadPlayer divorces the act of musical creation even further from the need for any physical effort, dexterity or even engagement. Don't like what you hear? Poof, it's gone and something else takes its place. It's sort of the musical equivalent of channel surfing a satellite dish with endless meaningless choices.

Worst of all, the MadPlayer promotes the idea that music making is not about learning how to "get what we like"—because it gives us so little say over what it is that we do get—but instead relies on us to be passive and "like what we get." I suppose it's a perfect metaphor for an age where no experience is unmediated and nothing is "real" unless it's on television. But if this is all kids think they need to have and do in order to call themselves musicians, then the next generation of pop music promises to be, if possible, even more insipid and soulless. Once the machine can do all of the work and the result is indistinguishable from what humans can do, why even bother to stick around?

No doubt about it, MadPlayer is a great toy, but I would say the only "creating" going on is the machine's. And that's not my idea of what music is about. ■

Paul D. Lehrman is still looking for that machine that will do half of his work for him so he can buy two of them.

—FROM PAGE 70, NICK LAUNAY

tened to all these rough mixes and thought, they were amazing. Some of it was out of tune, but it sounded great. It was just so vibey.

So I get back and we're all standing around in the control room at Sing Sing Studios [Victoria, Australia]. "What do you think?" Everybody gets quiet and Nick stretches his head. He said, "I quite like it. I quite like it. What do you think, Nick?" I said, "I think they all sound great. I can't see that we're going to get better takes of those songs because they were done with the attitude of being demos. But I recorded it the way I would record anything. I wasn't approaching the recording as demos, I was approaching it as the real thing." They were like, "Really?" They were worried about the spill of the vocal on the piano, but there was no spill. That was the biggest issue of all because some of the lyrics he wanted to review. In the end, he decided he was pretty happy with it all anyway, so that was basically the album. I think we redid three songs, overdubbed, went to London, overdubbed backing vocals and a couple of other things, and that's the album.

On your Website (www.launay.com), you describe some of your ideal recording situations and locations. You like a "bathroom with tiles that can be used to put the bass player in" and "a corner to put loud guitar amps." Do you like to record people in unusual places outside of the studio? Have you worked outside of conventional studios before?

I've done a bit of recording in houses and stuff like that. The large studios, especially in America, tend to have an old-fashioned setup where they have one big room with not a lot of small rooms. I don't know why, but English studios are designed more with a medium-size room that's live, where you tend to put your drums or whatever, and then they have smaller rooms that vary in acoustics. One might be really dead, one might be medium size with a wood floor and wood ceiling, so you get a bit more variety. I've found very often that I go to studios where you get this big room and there's not a lot you can do with it. It sounds fine, but you can't be that creative, so I'll end up going, "Can we use the bathroom?" You put things in there, or there will be a cupboard, or there will be a roof and, of course, you run into problems with the neighbors. But that's all fun. There's nothing like annoying neighbors. ■

Bryan Reesman is a freelance writer based in the New York metro area.

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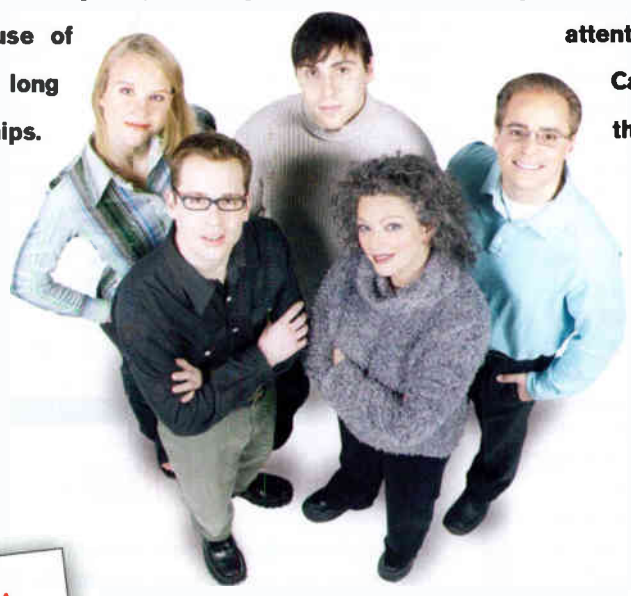
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Taking the G5 Live!

—FROM PAGE 44, TAKING THE G5 LIVE!

back the 20-plus prerecorded sequence tracks, all using virtual instrument plug-ins. Getting everything going at once proved to be the proverbial straw.

"The limit" manifested itself as a core system overload at the bridge of the song, which had a slew of VSL and Spectrasonics tracks working simultaneously. The DSP monitor never completely filled up but was spiking at about 80 percent when the over-



A drum kit triggered the sample library; to keep the drums from overpowering the mix and the performance, they were muted with SoundOff silencers.

load would occur. When the song ran without all of the live inputs, the system never flinched. The live variable was definitely the X factor.

The immediate solution was to use Logic's Freeze function to lower the processor's overhead. Freezing tracks prints a rendering of the audio generated by any virtual instrument and plug-in as a 32-bit audio file on the hard drive. Sonically, there is no change. Your hard drive has to work harder, but the computer's CPU doesn't have to compute the audio for that track. This means that you can't make any changes to the tracks unless you un-Freeze them. Fortunately, the Freeze happens prefader, so you can still make volume, panning and aux send changes to your track. Freezing a couple of the Spectrasonics tracks seemed to do the trick, and the computer was able to make it through the entire song.

However, once this hurdle was crossed, the session exhibited a more daunting problem. Even though there was plenty of room left on the DSP monitor, there were intermittent dropouts when playing some of the virtual instruments live. It seemed to happen more on some than others. This problem only showed itself after setting up the monitoring configuration. To relieve some of the strain on the system, all of the tracks were taken out of record-enable, except the ones that had the virtual instrument being played

live. Doing this sent the DSP meter down to almost nothing, but the problem was still there. Strangely, there were never dropouts with the live mics or guitars, so the malfunction wasn't caused by a limitation in processing power. Also, OS X's system monitor utility indicated that we weren't using more than a quarter of the 2 gigabytes of memory installed on the G5, so RAM wasn't the issue. Even an 11th-hour install of Apple's new OS 10.3.2 upgrade with "enhanced FireWire performance for audio interfaces" was tried. Unfortunately, this seemed to make matters worse, so we took a difficult path back to OS 10.3.1. Subtracting tracks from the session helped, as did using the Freeze function, but neither completely resolved the problem. The BFD-triggered drums still had occasional dropouts even during the final show.

Finding the dastardly dropouts remained elusive, but after all, the point of the whole project was to see how far we could go with the latest technology. Keep in mind that no one in the past would ever consider monitoring an entire band with this kind of complex routing and effects setup using only a computer's internal CPU as a DSP chip. The bottom line is, unless you're planning on tracking a multipiece band simultaneously with multiple headphone mixes, lots of plug-ins, virtual instruments and CPU-hogging reverbs, then you needn't worry about this problem.

The next day, we called an early rehearsal and ran the tune down a number of times. Once everything was set, Brock did a long demo of the plug-ins and set up for the crowd before the Black Hats hit the stage.

As a final compatibility test, the session and individual tracks were saved to the Maxtor FireWire drive for import into Pro Tools. Logic's Freeze function (much like bouncing to disk but at faster-than-real-time speed) saves the files in .AIFF format, making it easy to export and import across DAWs.

LATENCY

Setting up the I/O buffer is critical to any DAW's ability to provide delay-free audio back to the players. For our session, the buffer was set to 128, which topped out at about 10 to 11 milliseconds of delay. This seemed to provide the best performance-to-latency solution. With the in-ear monitors in place, my guitar's response was very tight. In this live setting, the latency was workable; the other players concurred.

CONCLUSIONS

As with any project involving a complex setup, there were questions answered and questions raised. We found the limits of the G5, but at the same time, software tweaks, especially Logic's Freeze function, allowed us to raise the DSP ceiling. Latency was not a problem, which is always a possibility in the native environment.

Is the G5 the end-all, be-all answer for audio production? It certainly looks strong out of the gate. And as more software and hardware is brought to market that can take advantage of the G5's 64-bit-wide data path and the FireWire 800 port, it will certainly make it a worthy investment. For that matter, even older software would be given new legs on this platform. For our test, the G5/Logic combination worked incredibly well, handling almost everything we threw at it.

KUDOS

I'd like to thank all of the manufacturers involved in supplying the hardware and software. Big props go to Brock for developing the concept and making it all come off in grand style. Conservatory instructors and guitar and drum talents Frasier and Nunes put in some long hours and were invaluable in making it all happen. Thanks to Conservatory live sound instructor Morris for tuning the system, helping with lighting and making us "live." Finally, I'd like to thank Kirt Hamm of the Conservatory for giving us such a great venue in which to make it all happen.

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Kevin Becka is Mix's technical editor.

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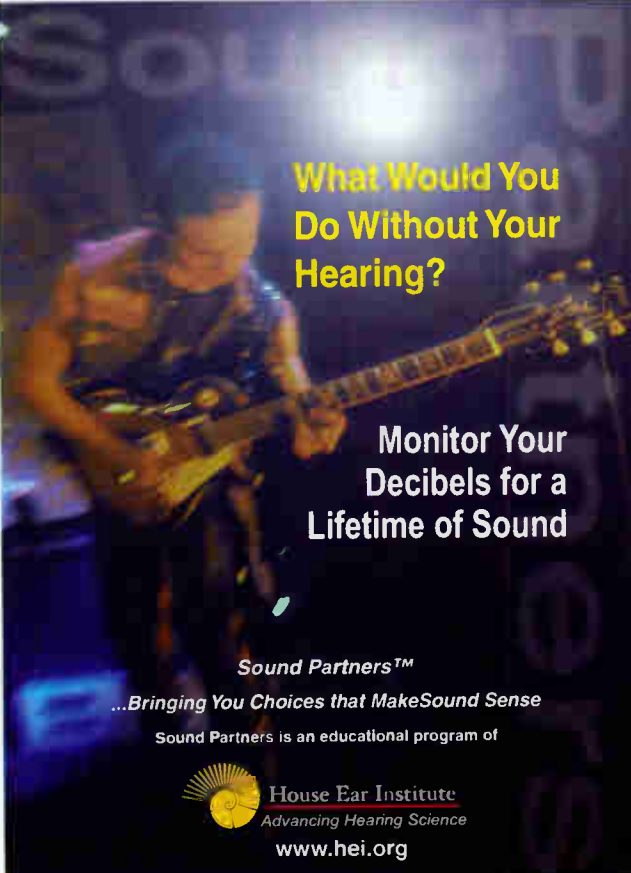
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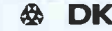
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Novation Remote 25 2-octave (25-key) MIDI controller with knobs, faders & LCD display

The Remote 25 MIDI controller gives you two full octaves of superb action semi-weight 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. Remote 25 connects directly to the computer via USB and gets power via the USB bus batteries, so if you've got a PowerBook, you can play anywhere. Use programmable pitch bend / control wheel and 'touchpad' for total control and wild performance effects. Use 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 color-coded iDent 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 your DP4 studio.

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MOTU AUDIO SYSTEM

Native Instruments Pro-53™ The second coming of a virtual synth legend

The PRO-53 carries on the tradition of the legendary days of vintage cult synthesizers. Fashioned after the unique original Prophet Five, the PRO-53 casts in software those qualities which have been a major influence on popular music in the past twenty years: brilliance, power, warmth and beauty. Through Native Instruments' creative development philosophy, these timeless aesthetics have now reached the next step in their evolution. The result is the manifest re-definition of an original that was regarded as unrivalled until now. Call Sweetwater and add Pro-53 to your DP4 studio today.



AU

AUDIO UNITS

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 Pheonix, recipients of over 30 international awards.



AU

AUDIO UNITS

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.



AU

AUDIO UNITS

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,



Pultec EQP-1A, and the Fairchild 670. Give your Mac a break, improve your workflow, and save a bundle with the UAD-1 Studio Pak.



KORG Legacy Collection™

Virtual instruments and effects plug-ins with MS-20 Controller

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 iMS-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.



Metric Halo ChannelStrip™ X

Console-style, integrated EQ and dynamics processing for DP4

Metric Halo's ChannelStrip is the recognized leader in console-style channel strip audio processing for Digital Performer. As the first plug-in to offer the combination of exceptional audio quality, incredible DSP efficiency and a comprehensive user interface, ChannelStrip lets DP4 users work as efficiently and interactively as they would with a dedicated, world-class mixing console. ChannelStrip comes with more than 100 presets included to help you get your mix started. Use the presets to compress your drums, EQ your vocals, get your sessions ready for mastering and much more. With ChannelStrip for DP4, you get an unparalleled EQ, Gate, and Compressor, all in one easy to use interface. ChannelStrip is the critical mixing tool for thousands of top engineers and producers world-wide.



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The World's first fully variable control microphone

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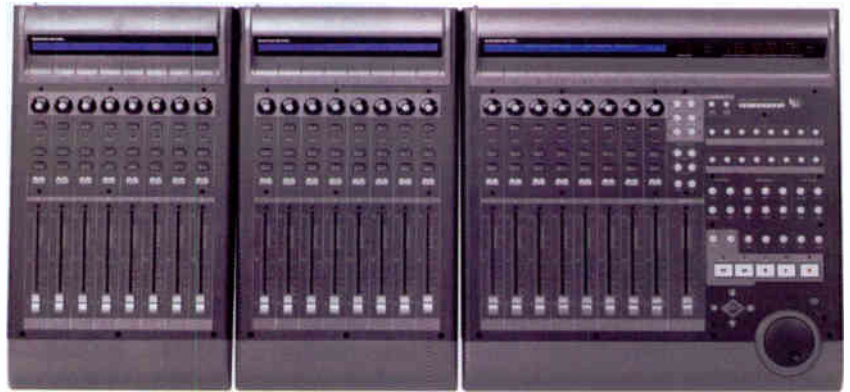
clearly and minimize ear fatigue. In addition, the Central Station features a complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied 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.



Mackie Control Universal™

Automated hands-on control for the DP4 studio

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Mackie HR-series Active Studio Monitors

Nearfield monitors for your MOTU studio

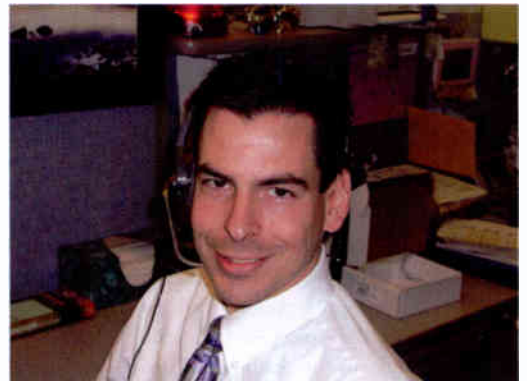
Mackie's HR-Series Active Studio Monitors are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's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



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Steinberg Nuendo 2

Pick Up Your Editing Pace

Nuendo 2 has one of the fastest editing interfaces around, but you can get even more satisfaction for your “need for speed” if you learn a few handy shortcuts.

SAVE A COPY

Hard drive space is relatively cheap compared to losing a session, so save a copy early and often. Incremental saves allow you to go back to a previous point in the session's creation, so you can recover your ideas if you change your mind later. Nuendo's Save As New Version shortcut increments the project file by one and saves a copy. If your original project was “poodle.npr,” it will now be “poodle-01.npr.” Use CTRL-ALT-S on a PC and CMD-OPT-S on a Mac.

QUICK ZOOM

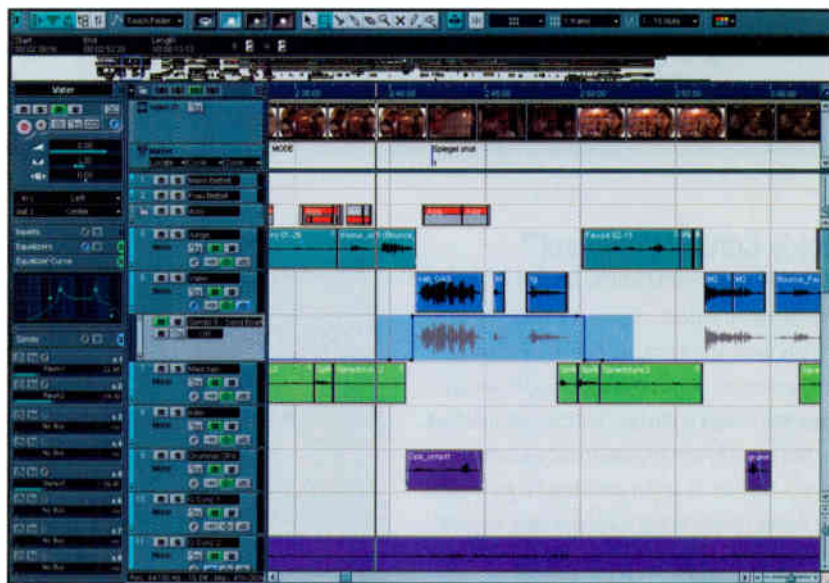
Put the cursor in the timeline and just drag up or down for instant gratification: horizontal zoom without struggling to land the cursor on that little zoom triangle. If you've used the Zoom tool to go to micro-infinity land, you can get back to your original view by hitting CTRL (PC) or CMD (Mac) and clicking with the Zoom tool in a blank area of the project.

WHERE DID THE SAMPLE RATE GO?

In the original Nuendo, you could see the sample rate in the Project window, but in Nuendo 2, it's been moved to Project Setup under the Project menu. Project Setup also contains the project's start and length, frame rate, display format (timecode, samples, bars+beats, etc.), display offset (down to the subframe for timecode), bar offset, bit depth for record format, record file format and stereo pan law. Always check the project setup when you make a new project—it may save you lots of time later.

QUICK AND DIRTY RHYTHM TRACKS

Keep your favorite loops in folders labeled with bpm and tweak them for zero crossings so that you won't have clicks when you slam them together. Open up a project, turn the Snap icon on and then select Events mode in the pop-up next to the Snap icon. This makes the start and end positions of events



Nuendo 2 has a re-engineered mixer and a new look.

and parts “magnetic,” so that if you pull the start of one loop close to the end of another, the two will “snap” together. Because this includes marker events on the marker track, you can also snap events to marker positions, or markers to events.

RECORDING WITH EFFECTS

With Nuendo 2, you can set up separate input tracks and assign effects so that the recorded tracks will each have an effect. Leave one track without effects in case you want to add effects later. This is a great technique for creating ultrachunky and superfat guitar tracks. You can turn off the effects to save CPU power after recording the tracks and manage them as a group with folder tracks.

FOLDER TRACKS

Folder tracks are created just like other tracks. They're under the Project menu's Add Track selection. You can pull any kind of track into a folder track, including another folder track. You can hide folders, solo them and mute them. Folders provide a quick and easy way to manage tracks on a big project, and nested folders are an excellent way to group alternate vocal comps for quick auditioning against instrumental tracks.

WATCH THOSE BUFFERS!

If you're hearing distortion and Nuendo seems to be reacting badly when you add a

certain effect, then you may need to increase your buffer size to give the CPU a break. While lowering the buffer size will give you lower latency, during the mix phase, when you need plug-ins, the increased latency trade-off may be worth it.

ESCAPING THE 44.1 KHZ LIMITATION

I love to edit audio on my G4 Powerbook, but because Nuendo uses the built-in audio controller, I'm limited to 44.1 kHz. Most of my work is done at 48 kHz these days because I work with video and DVD formats for distribution. If you plan to use the Dolby Digital encoder plug to encode tracks for Dolby Digital (AC3) streams that may be used for DVD, then you'll need to run a 48kHz session. Often, I just need to work with stereo tracks, so I bought an Echo Indigo PC card that has a driver for 48 kHz and 96 kHz, as well as a headphone output. I can edit away while curled up on the couch at home, oblivious to the racket that is swirling around me. One word of warning: Always remember to shut down the card using the pop-up in the Menu bar before you pull it out.



K.K. Proffitt is the co-owner of JamSync, a multichannel surround mixing, mastering, DVD authoring and encoding facility located on Nashville's Music Row.

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• Plug-in convenience

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

• Multitimbral operation

One instance of MachFive gives you 16 separate parts, each with assignable MIDI channel (for instant stacks) and separate audio output (if your host software supports this feature).

• Intelligent file management

Concentrate on the music, not file handling chores.

• Advanced real time waveform editing

Draw cross-lade loops while the sample plays in the context of your music. Apply destructive edits. Normalize, fade, reverse and process.

• Built-in effects processing

Dozens of effects are included. Save up to four effects with each preset as part of the preset. Work with a staggering 85 discrete effects paths and 136 effect slots.

• Subtractive synthesis engine

Work with six filter algorithms and three separate envelopes. Automate cutoff frequency, resonance and drive. Powered by the award-winning UVI engine.

• Support for surround and 192kHz audio

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