

MIX

PROFESSIONAL AUDIO AND MUSIC

LIVE SOUND SPECIAL

- New Line Arrays
- All Access: Green Day
- Satriani Tours with Digi Venue
- Cake on the Club Circuit
- DSP Speaker Controllers

Recording The Band

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DRUM SOUND

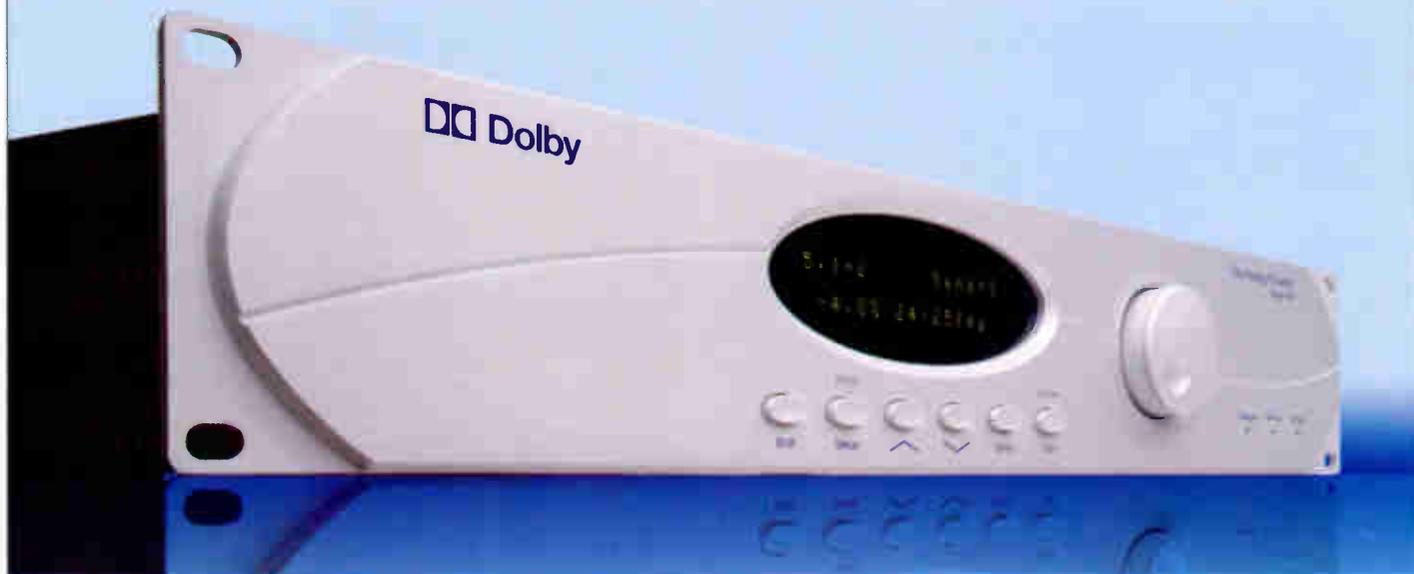
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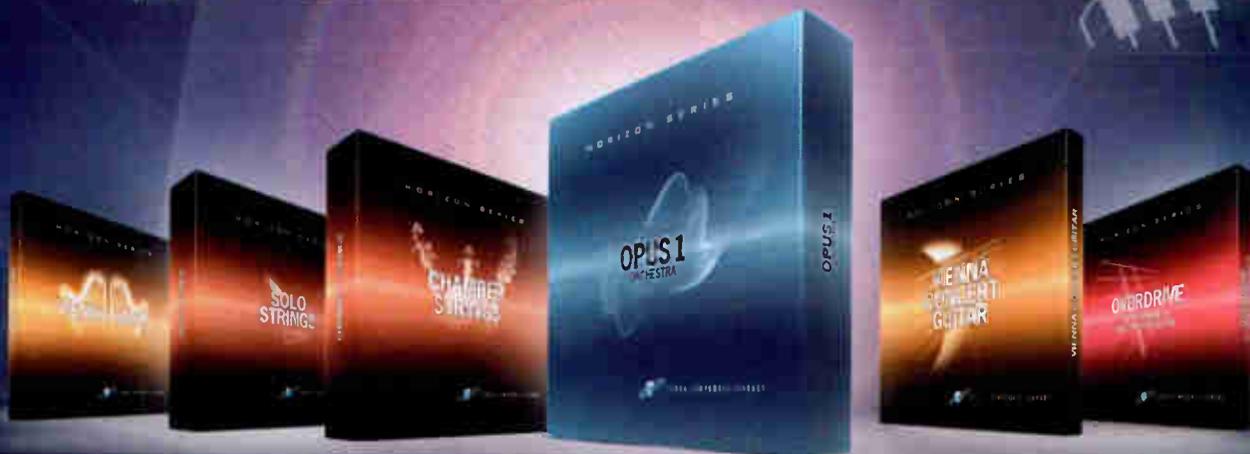
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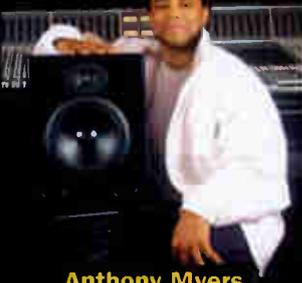
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Orchestral Scoring Recordist
Music Scoring Mixer



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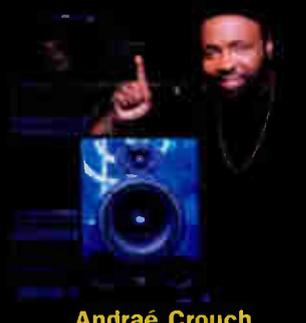
Anthony Myers

Engineer / Producer
Sound Designer



Gerhard Joost

Multi-Platinum Engineer
Mixer / Producer



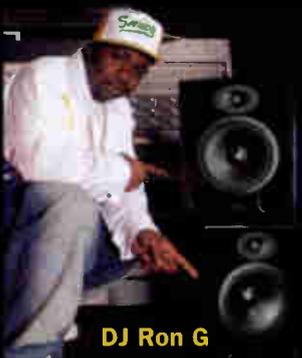
Andrae Crouch

Multiple Grammy-Winning
Gospel Singer / Producer / Pastor



Lionel Jarvis

Multi-Platinum Musician
Musical Director



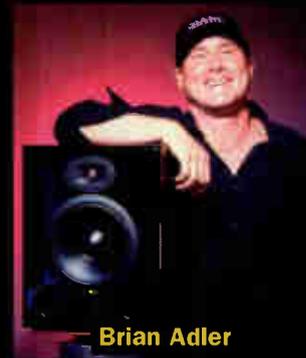
DJ Ron G

Remixer / DJ



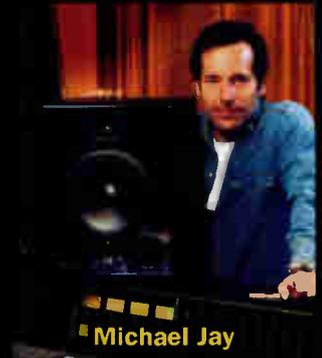
Steve Pageot

Grammy-Winning Producer
Musician / Composer / Engineer



Brian Adler

Composer / Producer
Recording Artist



Michael Jay

Emmy-Winning Composer / Engineer
Editor / Studio Consultant

Studio Precision™ Bi-amplified Direct Field Monitor

Features: 5.0 Ease of Use: 5.0

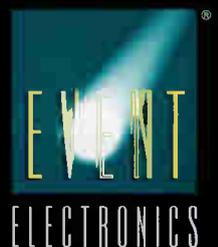
Audio Quality: 5.0 Value: 5.0

Cons: None

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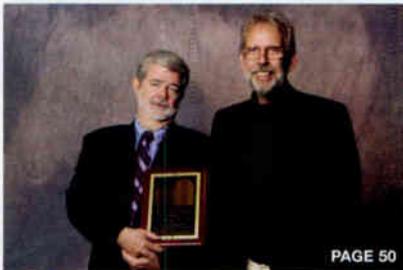
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PROFESSIONAL AUDIO AND MUSIC PRODUCTION

January 2005, VOLUME 29, NUMBER 1



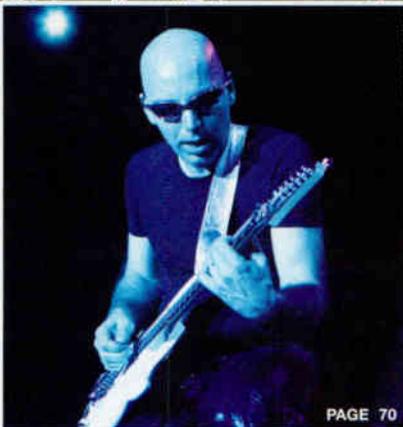
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On the Cover: Just before picking up six Grammy nominations, Green Day played to a packed house in its San Francisco Bay Area home, with support from Clair Bros. Photo: Steve Jennings.



features

26 Recording Drums



Mix is proud to introduce a new yearlong series on recording the band by technical editor Kevin Becka. In our first installment, Becka explores tried-and-true, as well as innovative, ways to get a great drum sound from what is essentially a group of instruments. From tuning to miking and tracking to mixing, capturing great kit sound may not be as elusive as you think.

50 TEC Awards Photo Wrap-Up

Peruse this year's photo spread of the highlights from the Mix Foundation's 20th Annual Technical Excellence & Creativity Awards, benefiting hearing health and awareness.

LIVE SOUND SPECIAL!

34 Reflections on the Summer Touring Season

Escalating ticket prices? The artist lineup wasn't attractive? A malaise in the economy? For many sound companies, this past summer marked one of the worst touring seasons. *Mix* finds out what went wrong and what worked.

40 New Line Arrays Hit the Market

Not just for stadium tours anymore, line arrays are currently being spec'd in theaters, sheds, houses of worship, corporate events and small venues. And with this continuing trend of compact installs, many line array manufacturers are "downsizing" their product line, offering modules to comprise your average hang.

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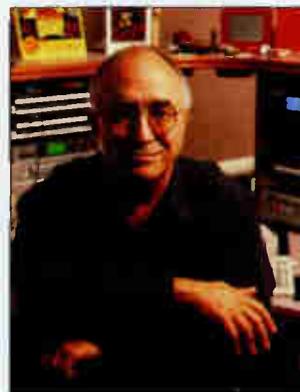
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Visit www.mixonline.com for bonus materials and audio clips for "Recording Drums," Clapton's Crossroads Festival and much more.

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High Resolutions...

Happy New Year! After weeks of nonstop partying and egg nog, the holiday season comes to a close with New Year's Eve, a night of deliberate excess. So now it's 2005: Wake up around noon, pour your morning-after remedy of choice—Bloody Mary/herbal tea/Budweiser/Pepto-Bismol/etc.—pull out those new calendars and sit down to make a few changes for the coming year.

Most people refer to these as "resolutions"—typically, goals such as quitting smoking or dropping a few pounds. However, as these are the same plans you've made in years past, they're definitely low-resolution resolutions. What the world (at least the audio industry) needs now are "high resolutions." Something less than earth-shattering, perhaps, but some small deeds that could actually make the (audio) world a better place. Because we're all gear junkies at heart, and with the NAMM show coming up in a few weeks, here are a few high resolutions for the manufacturing community...

Fix your Website! You probably don't think it needs fixing, but it does. If the words "skip intro" appear on your opening page, you've got a problem. People visit your site looking for information, not entertainment. No one—I repeat no one—wants to watch that whirling logo and spacey music intro of yours. Worst of all, your search engine ranking is based partly on the text on your front page, and if the only words are "skip intro," there isn't much for Google, Yahoo, et al, to work with. While you're at it, test your site with several browsers to make sure your customers can actually view it.

Give us support! Phone support is hard to access (busy signals) for users, so pump up your Web support. Offer more FAQs, troubleshooting tips, downloadable manuals and quick-start charts. And provide documentation for discontinued products: You made that stuff, so give your supporters some support.

Copy protection is a necessary evil. A friend of mine had to buy a USB hub just to run all of his dongles on his laptop! Concepts such as the iLok aren't necessarily perfect, but are a step in the right direction. Maybe 2005 will be the year when some smart minds in this biz come up with a solution we can all live with. *Pleeeeeease?*

Every manufacturer is in a hurry to get product out, but can you actually test stuff before you ship it? If it's software/peripherals, check it on Intel and AMD hardware (with Win 2000, NT and XP Pro/Home); on the Mac side, try OS X (Panther, too) as well as OS 9 and G5/G4/G3/legacy machines. If some platform isn't supported, let users know *before* they buy/upgrade, and don't simply promise a future new driver or fix. Even good ol' audio hardware (from mics to modeling synths) needs a good dose of beta testing before foisting it on the public.

Finally, look at your products from a long-term user's viewpoint. A box with a soldered-in battery for RAM backup just screams the phrase "planned obsolescence." And in one of the few industries where users actually value vintage gear, a few extra coins for a battery socket (or better-quality pots, switches and connectors) can be equated with satisfied users and repeat customers down the line.

We all thank you.

George Petersen
Editorial Director

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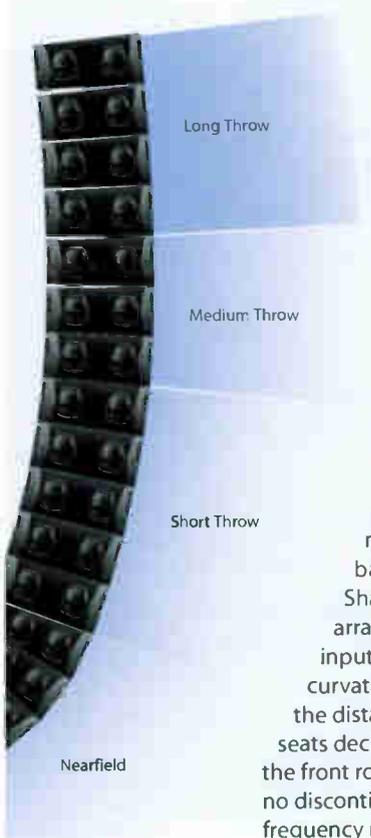
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Our challenge

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There are no seats that are too close to a Divergence Shaded array, or too far away. The array's curvature varies while input remains constant. Pressure magnitude changes gradually, so everyone hears the same SPL and frequency response. That's well worth the time, ingenuity and effort we put into the development of KF Series line array loudspeakers.



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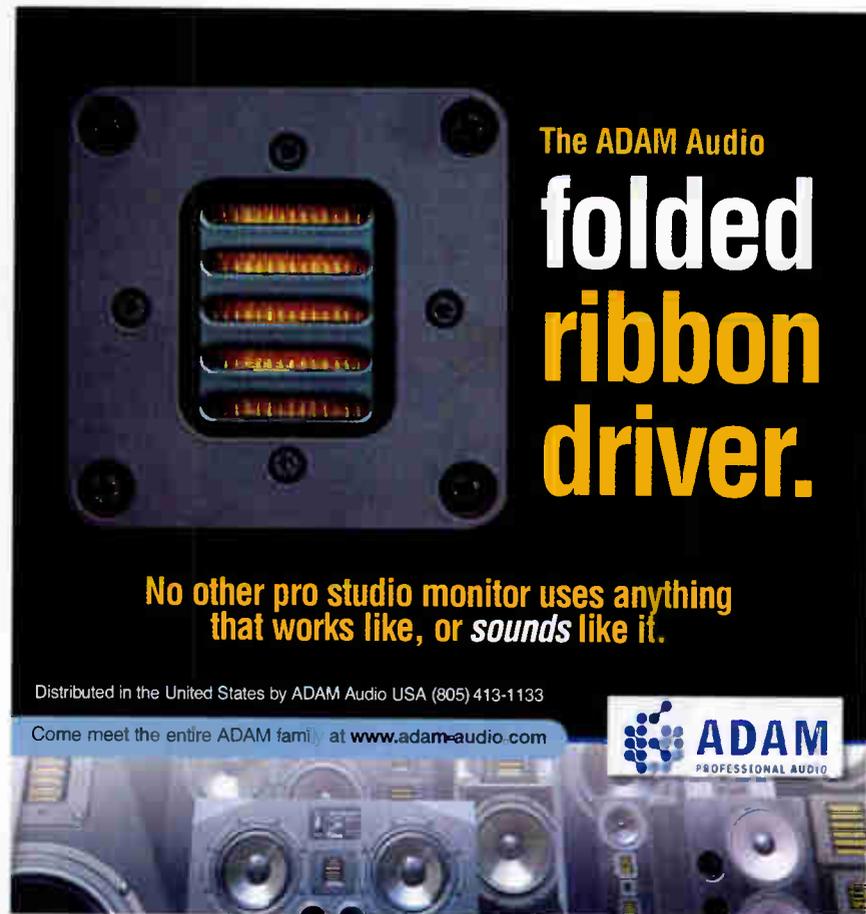
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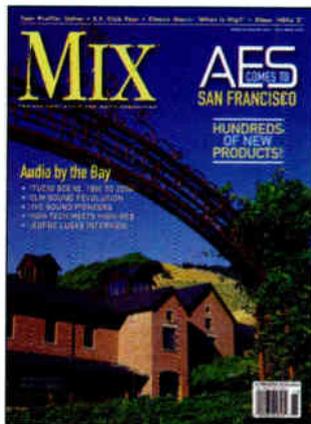
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Letters to Mix



HISTORY LESSONS

I would like to correct some misinformation in your article about Bay Area recording in the 1970s [November 2004], mostly pertaining to the CBS/Automatt facility. I worked there as an engineer from August 1971 to March 1979.

Coast and Columbia coexisted from the beginning to 1976, when Coast consolidated at 1340 Mission [St.]. It had a full studio, C, a voice-over room and a combination edit/maintenance room, along with offices.

It wasn't union rules that killed Columbia. When Clive Davis was fired, the handwriting was on the wall. We never let rules—union or CBS—get in the way of a session. Roy Segal and Roy Halee knew that you couldn't run the place like New York. The only thing we did was switch second engineer/tape ops at shift change if the session was running late. And we didn't do that if the producer wanted to keep him. Plenty of drugs got used there, as well. It wasn't any different than any other studio in town that way. Halee and Segal just preferred that you not smoke in the control room while they were in there.

When Coast left, Rubinson moved into Coast's Studio C as the Automatt. He had by then taken over the second floor—827 and the former American Zoetrope—but he never had a studio up there. The lease situation was always a problem. CBS leased the place from United—Bill Putman—at what we engineers surmised was a very high rate; later, it was a real problem for Rubinson. Putnam drove a hard bargain. It was my impression that it was hard to make money because the lease was so expensive.

Finally, how could you omit "Count" Leo De Gar Kulka's name from the piece? Leo was around for most of it and you didn't mention him at all, and Golden State just in passing. The

first real rock album out of the city, *The Sons*, was recorded there.

*Phil Brown
San Rafael, Calif.*

GOLDEN TIMES, GOLDEN EARS

Thank you for a wonderful glimpse back into San Francisco [recording history]! Thank you, too, for giving Pat Gleeson (1970s) his due. Some may not know or may have forgotten that Pat, in addition to several brilliant electronic albums, was responsible for most of the soundtrack to Coppola's *Apocalypse Now*. Pat was a major talent during those years.

The article was simply super, and for an old guy like me, those memories are golden!

*Bob Kellogg
Yakaya Recording
Green Valley, Ariz.*

THE NAME GAME

Having been involved in the Bay Area music scene since about 1962, I've just read your articles on the '60s and '70s with interest and fond memories. I would like to point out a small error that will be important only to a very few people: The man who started Pacific High Recording and was on hand daily was *Peter Weston*. Peter hired me in the spring of '69 and I worked with him until the studio closed in '72. I was later able to hire him to help me install the studio in Berkeley.

During the brief years at PHR, we saw a lot of fine artists come through: the Dead, Quicksilver, the Airplane, Starship, Van Morrison, Judy Collins, Commander Cody, The Charlatans, Sons, It's a Beautiful Day, Norman Greenbaum, Lee Michaels—you get the idea. I had the pleasure to learn from and second engineer for Dan Healy on Quicksilver Records until I got the gig. We also did live radio broadcasts on Sunday afternoons on KSAN with Big Daddy Tom Donahue announcing and an audience of around 200. As you can guess, the stories go on and on. Peter Weston was an important man in my life and career. I just thought it would be nice to get his name right.

Bob Shumaker

LEHRMAN GETS SIMPLE

Oh, I get it: Lehrman is cleverly telling us that all that is good and true in America will die an ugly death if George W. Bush is re-elected ["Insider Audio," November 2004]. Gee, how original and how simple. Everything bad that happens is W's fault. I suppose it is a lot simpler to blame one guy for everything, though, isn't it? It's simpler than accepting that the Dixie Chicks' sales may have

slumped because they lost touch with their fans. It's simpler than taking the time to analyze the pile of lies in Michael Moore's "documentary." It's easier than believing that Springsteen, for all of his talent, is not a qualified political analyst, but just another musician with a point of view. Oh, and all radio sucks because of George, not because consumers haven't protested loudly with their pocketbooks. Maybe Lehrman should change the title of his column from "Insider Audio" to "Inside a Simple Mind."

Unless *Mix* is shifting its focus from professional audio to politics, I suggest Lehrman stick to topics that he genuinely understands, like electronics, and stay away from any more lame attempts at political satire.

*Robert Sterling
Franklin, Tenn.*

DISCLIVE, ALIVE AND GROWING

There is an article in the new [December issue of] *Mix* that quotes someone as saying "Disclive has been sold to an unnamed company and no longer exists." I believe that this [was said] in reference to The Pixies, [but] indeed, quite the contrary is true.

Disclive is still in existence, under the helm of Immediatek, and has resumed recording The Pixies on their fall tour. We started recording their shows and delivering limited-edition discs as of November 10th, and will continue through the last note played at the Hammerstein on December 18th (or rather, the wee morning hours of Dec. 19th). The Pixies are no longer uploading shows to MusicToday as the Disclive product is available.

[Disclive has] also entered into an exclusive alliance agreement with Moving Records. The combined force of their engineering capability, plus our automation and proof-of-concept in the market, will allow us to extend our reach substantially. And, their culture blends quite well into our "artist-friendly" environment. In fact, some of the MR crew is part of the Disclive crew recording The Pixies. We are currently recording 10 dates in the UK with The Levelers, signifying our official European launch.

For an update on our more recent [news, including the] launch of our European entity, please go to www.disclive.com or www.discliveeurope.com.

*Zach Bair
CEO, Immediatek Inc.*

Send Feedback to *Mix*
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World Radio History

8000 Series



8030A's shown in optional silver finish

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INNOVATORS INDUCTED INTO TECnology HALL OF FAME

About a year ago—as part of expanding the 20-year-old TEC Awards—the Mix Foundation for Excellence in Audio created the TECnology Hall of Fame to honor lasting technological contributions to professional audio. A committee of 60 industry leaders, educators and historians volunteered to select the first inductees: 25 innovations representing a 125-year legacy of pro audio, with the only restriction being that products must be at least 10 years old to qualify. The finalists ranged from Thomas Edison's 1877 cylinder phonograph, Lee de Forest's 1906 triode vacuum tube, Vitaphone film sound and the 1928 Nyquist Theorem to the first tape recorder (AEG's 1935 Magnetophon), Altec's Voice of the Theatre speakers, the EMT 140 (first artificial reverb) and the N.E.D. Synclavier and Alesis ADAT.

In a private ceremony held during AES, inventor/engineer George Massenburg and *Mix* editor George Petersen presented inductees with Hall of Fame Awards. On hand to accept awards were representatives for Alan Blumlein, Neumann, AKG, Teletronix, Shure, TEAC/Tascam, Lexicon, JBL, Solid State Logic, Meyer, Digidesign and Mackie.

"We were pleased by the industry's support of the TECnology Hall of Fame," says Mix Foundation president Hillel Resner, "and look forward to continuing this tradition in 2005 and beyond." For an in-depth look at the TECnology Hall of Fame, visit www.mixonline.com/TEC20.

In other TEC news, the nominating panel is now accepting product nominations for the 21st Annual TEC Awards. Visit www.mixfoundation.org for more information.



Flanked by George Massenburg (left) and George Petersen (right), Ray Dolby accepts his award for the A301 noise-reduction unit.

PHOTO: KAREN DJINN

SMART AV OPENS UP TO MANUFACTURERS

Announced at AES 2004, Klotz Digital is now integrating Smart AV's production consoles with its VADIS (Variable Audio Distribution Interface System) audio/media platform, offering users the option to tie Smart AV consoles into any new or existing VADIS system. Klotz Digital Australia developed a TCP/IP-based interface that establishes an open-connection protocol between different manufacturers' hardware.

The VADIS platform acts as an engine for Smart AV's control surfaces, bringing large audio matrix and multiple audio format capabilities to Smart AV products. Multiple control locations can share sources, wide-area logic control, signal routing, splitting and more. In addition, VADIS also permits flexible system designs with remote input and output capabilities that can be connected via fiber.

In other news, Smart AV and SADiE are now sharing protocols to begin the integration of Smart AV's Smart Console and the new-generation SADiE Series 5 digital audio engines, including the new PCM-H64.

VAGABOND SETTLES IN CHICAGO

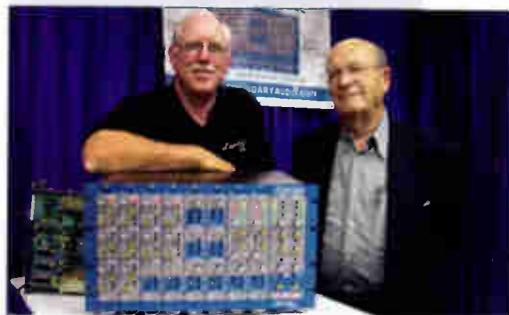


Co-owners engineer/sound designer Drew Weir and producer Riso Sanders have expanded their commercial sound design and audio post facility, Vagabond Audio, with a new 2,000-square-foot production studio, with acoustic enhancements provided by John Storky of Walters-Storky Design Group.

Drew Weir (left) and Riso Sanders

The facility relies on Digidesign Pro Tools|HD2 Accel, which allows Weir to interface with Avid workstations and other offline environments. Mixing is via ProControl with audio playback on Dynaudio AIR 6 speakers. "The sound of the studio was the critical issue for us," Weir said. "We worked closely with John and his WSDG team to keep the studio as 'transparent' as possible so that clients hear the mix, not the room. We're particularly happy with our 10x12-foot live room, which is ideal for voice-over, Foley and ADR work."

AES: A LEGEND IS BORN



Veteran mastering engineer Billy Stull (left) and audio legend Rupert Neve celebrated the recent AES debut of Legendary Audio (www.legendaryaudio.com) and its first product, the Masterpiece. Conceived by Stull, with all circuitry designed by Neve, the Masterpiece is a modular analog mastering system housed in a 6U frame.

JAZZ VENUE HAS ITS DEBUTANTE BALL

PHOTO: PATRICK MCMULLAN



The Marsalis family performing in the Frederick P. Rose Hall

New York City's Jazz At Lincoln Center (www.jalc.org) held a grand opening for its new home, Frederick P. Rose Hall, on October 18, 2004. The 100,000-square-foot facility houses multiple spaces for performance, education and broadcasting, including extensive recording facilities. The 1,200-seat Rose Theater hosted a vibrant concert by the Lincoln Center Jazz Orchestra, led by JALC artistic director Wynton Marsalis, who was joined by Tony Bennett, Roy Haynes, Abbey Lincoln and many more. The true jewel of the facility, however, was the 500-capacity Allen Room, in which the Afro-Latin Jazz Orchestra played. With excellent acoustics and the stunning backdrop of a 50x90-foot floor-to-ceiling glass wall looking out on Central Park, this venue is nothing short of an instant classic.

—David Weiss

2004 PULITZER PRIZE WINNER RELIES ON SIBELIUS



Composer Paul Moravec (who has written more than 80 published orchestra, chamber, lyric and choral compositions) was awarded the 2004 Pulitzer Prize in Music for "Tempest Fantasy," a composition for clarinet, violin, cello and piano. Moravec used Sibelius as his notation software to write this musical meditation on his favorite Shakespearean play. The composer commented, "Sibelius enhances my musical creativity on

every level, and I value the comprehensive power, range and versatility of its myriad options, especially the ease of notation input and the MIDI playback features."

IN THE NAME OF DEVELOPMENT

Front row, L-R: Westlake Audio VP Steve Burdick, ASCAP's Wade Metzler and producer Andrew Murdoch. Back row, L-R: bandmembers Jenk, Henno, RD and Ess-Man



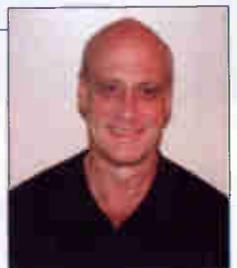
ASCAP and Westlake Audio (L.A.) are working together to bring indie bands into the Hollywood recording studios as part of the studio's Artist Development program. Australian rockers "in the name of" booked time to work on three tracks for their upcoming debut album. The tracks were recorded, mixed and produced by Andrew "Mudrock" Murdoch.

MCP BRINGS IN NEW MANAGER



With studio management positions at Edison Recording Studio, Mayfair, Counterpoint Studios and most recently at Clinton Recording (all in New York City), Obie O'Brien is Manhattan Center Productions' (New York City, www.mcp-studios.com) new studio manager, where she will be responsible for day-to-day operations. One of her immediate goals is attracting recording engineers, film composers and location scouts to the studio, focusing on recording, video production, video post and DVD authoring.

ON THE MOVE



Who: Michael Descoteau, Masque Sound director of broadcast services

Main Responsibilities: bringing our resources to the broadcast marketplace for awards shows, reality TV, sports and special event productions

Previous Lives:

- 2003-2004, NMT's Venue Services Group director of sales
- 2001-2003, Dale Pro Audio director of broadcast sales
- 1998-2001, SSL director of East Coast broadcast sales
- 1990-1998, Dale Pro Audio sales director

The most interesting install consultation I worked on was...a series of Fox Sports Major League Baseball, NHL hockey and NFL football audio packages introducing Sennheiser UHF wireless technology to sports TV.
If I could have chosen any other profession, it would be...a chef of fine Italian cuisine.

Currently in my CD changer: Marc Anthony's *Vuelve Conmigo* and everything else produced for the man by Ralph Mercado.

When I'm not at work, you'll find me...with my nose stuck in a book and a medley of the *World Champion Boston Red Sox's Greatest Hits* slamming in the background.

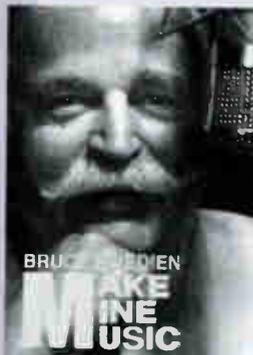
MIAMI HEATS UP WITH GENELEC

Grammy Award-winning engineer/producer Gustavo Celis (Best Salsa Album for Roberto Blades' *Encore* and Best Traditional Tropical Latin Album for Gloria Estefan's *Alma Caribeña*) has upgraded his newly opened Supersonic Studios' (Miami, www.supersonicstudios.com) surround monitoring system with Genelec's 8000 MDE™ Series, 8050A active monitors and 7070A LSE™ Series active sub. The facility was designed by Pilchner Schoustal and is one of Miami's first dedicated surround mixing studios.

Supersonic offers a large assortment of vintage gear (Chandler compressor, Neve pre's, Lexicon 960L) with newer items such as Digidesign's Pro Tools|HD and ICON console.



BOOKSHELF



BRUCE SWEDIEN:

Make Mine Music

Years in the making and now finally available in the U.S., *Make Mine Music* is written by the multi-Platinum, Grammy Award-winning, Hall of Fame engineer/producer who has worked with the likes of Quincy Jones, Duke Ellington, Count Basie, Stan Kenton, George Benson, Barbra Streisand, Missing Persons, David Hasselhoff, Jennifer Lopez and on Michael Jackson's blockbusters *Off*

the Wall, *Thriller*, *Bad* and *Dangerous*—among so many more. Swedien's folksy style makes for an entertaining read as he swings between reminiscences of his life and most memorable sessions and short essays on recording/mixing techniques and his favorite mics. As a bonus, the last chapter features Swedien interviewing two of his idols: Bob Moog and Roger Linn. Overall, it's engrossing and fun, and provides a fascinating look into one of the industry's true legends. MIA Press (dist. by Hal Leonard Books, www.musicdispatch.com), \$29.95.

D.I.Y. SPEAKERS:

Speaker Building 201: With 11 Completely Designed Speaker Systems Including a 5.1 Home Theater System

Written by Ray Alden (a math teacher at a New York City high school), this book offers both novices and intermediate builders the tools to design and build speakers. The book features a variety of speaker projects, many of which were tested by loudspeaker expert Joseph D'Appolito. Published by Amateur Audio Inc., \$34.95. www.audioXpress.com.



CORRECTION

The photo for November's "On the Move" with Ron Fair was incorrect. Pictured is the real Ron Fair.



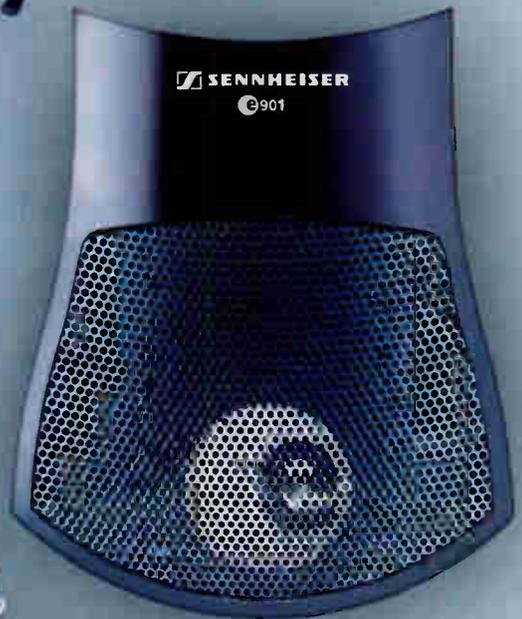
INDUSTRY NEWS

L.A. Studios' **Margarita Mix Hollywood** (L.A.) tapped **Geoff Nathanson** as its general manager, marketing and strategy...**Reggie Mebane** is Nashville-based **Gibson Guitar's** new COO, while **Arnold Kezsbom** and **Rocco Melchione** join the company as president of the newly formed Gibson Baldwin Music Education division and president of the Baldwin Piano division, respectively...Musician/composer **Karl Berger** is the new chairman of the music department at the **University of Massachusetts** (Dartmouth, MA)...**Opus 1 Music Library** (Studio City, CA) named **Mitch Rabin** as its VP/sales and marketing...At AES, **L-Acoustics** (Oxnard, CA) announced that **Paul Freudenberg** was promoted to VP of sales and marketing, **Diane Monet** is now VP of finance and administration and **Bernie Broderick's** new title is head of technical support...**Universal Audio** (Santa Cruz, CA) promoted **Sophia Wardlaw** to sales manager...**PCM Marketing** (Walnut Creek, CA) hired **Frank Gutwein** as an additional sales rep to its firm and promoted **Joe Di Falco** to operations manager...**Joel Peresman** joins **Clear Channel Entertainment-NY Music** division (NYC) in the newly created position of COO...**JBL** (Northridge, CA) reinforced its sales team with **Perry Celia**, director of sales for the Eastern region. In other sales news, **Astatic** (Mentor, OH) named **Leslie Kirkeide** as sales rep for its commercial and install products in Northern Illinois and Wisconsin.



Perry Celia

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World Radio History

The Mystery of Aging

And How to Keep Young Forever

Let's face it. Very few people are holding their breath in anticipation of the rumored new X-9000 synth, compressor, power amp or—anything, for that matter. Those days of dreamy excitement are pretty much over.

Fifteen years ago, our industry, along with the entire consumer electronics industry, was in the final stage of the Dark Clown Age. We all waited with excited (or frustrated) anticipation for the next model of whatever toy we already had. We hoped that it would address problems we were having and dared to hope that it would bring new features that would allow us to do things that were difficult or impossible with ours. We understood the marketing concept of planned obsolescence, but generally believed that the limitations we tolerated in our current models were a function of the state of available technology. Buy the product, buy the dream. Several times, in fact.

We relied on the satisfying rationale that we *had* to get the new one because the old one was superseded, outdated, obsolete—as if the arrival of the next better model actually went back and nullified the validity of the one we had. Let me demonstrate.

You have the Furbisher 70 processor. It does some cool stuff, some stupid stuff you will never use and some stuff you use almost every day. It's not perfect, but you know how to get around most of its problems.

Then the Furbisher 90 comes out, and it's 10 dB quieter. You hear one, and when you go back to your place, you realize that your ancient, mummified 70 is noisy as hell. Probably too noisy to use on your next project. There you go.

Although nobody ever actually admits it, there is an irrational secret half-belief that when the new one comes out, the old one somehow gets noisier. Perhaps some secret signal is transmitted to all the old ones.

Don't think this actually happens? I have been in studios when the engineer brings out the house effects box and comments, as we fight its noise, "Sorry, this thing has gotten a lot noisier in the last few months." On three of these occasions, I happened to have the gear to test the TDR, and they *always* met original specs. Not a single unit had degraded noise performance. So what really happened was that with new ever-improving references, expectations shift and your older device undergoes a certain subjective lamification. Lamification: the act of becoming mo' lame.

OVER, UNDER, SIDEWAYS, DOWN

Let's slip over to a side note about performance being downgraded under cover of night. I use an ancient, Sony SAT-60 direct TiVo, modified for two 150-gig drives. It used to be perfect. Never made any mistakes. But as new

models come out, the performance of my unit is *actually degenerating markedly*. This is not an illusion—it now ignores entire season passes, constantly tells me that it does not have complete listings, takes 30 seconds to do something it used to do in five and often tells me that a show does not exist even if I am watching it.

How? Why? Well, in this case, they really *are* sending secret signals in the dead of night. Every few months, core code updates are sent to all units. Now, they make some effort to write specific code for each model and

We understood the marketing
concept of planned obsolescence...
buy the product, buy the dream.
Several times, in fact.

brand of recorder so they will all benefit from the global update properly. But as mine is old, very little effort is made to assure that these updates can be applied to my unit safely, and each update breaks or slows down another function.

So we have finally reached the point in *The Art of Obsolescence* where the manufacturer *can* literally reduce performance of the box you have when their new one comes out. Disturbing.

In light of this, I recommend that as my new columns come out, you go back and re-read the old ones to see if they have gotten worse.

But I digress. First time for everything...

WHERE IS CHODE, AND WHO ARE THE DARK CLOWNS?

The market used to be primarily driven by manufacturers *guessing* what we might want or need. Sure, the more astute companies made efforts to get field data to drive their development, but it was very difficult to get a true understanding of how a new device would actually be used.

And then there was a technological breakthrough that changed all the rules, except none of the rules changed—and we the Clowns kept buying. Devices became digital. Yes, yes, ancient history. But this marked another turning point, a very important one that the manufacturers chose to make a very impotent one.

As audio processors evolved and the first digital box stood up and walked on eight bits, the entire premise

—CONTINUED ON PAGE 136

Splash



Any mic pre and compressor in history

Introducing The Liquid Channel. The most revolutionary channel strip in existence, fusing totally unique analogue design with cutting-edge digital processing.

Infinitely expandable and remote controllable.

winner


MIA
Music Awards

2004

SPECIAL INNOVATION

"I wanted to hate it. I can't...
This thing is amazing."

Tape Op Forum

"I can see it becoming as much a
standard studio tool as a Lexicon reverb
or an Eventide multi-effects processor."

Sound On Sound review July 2004

"This baby lets me test 40 mic-
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It's a dream come true!"

Mark "Spike" Stent


Focusrite®



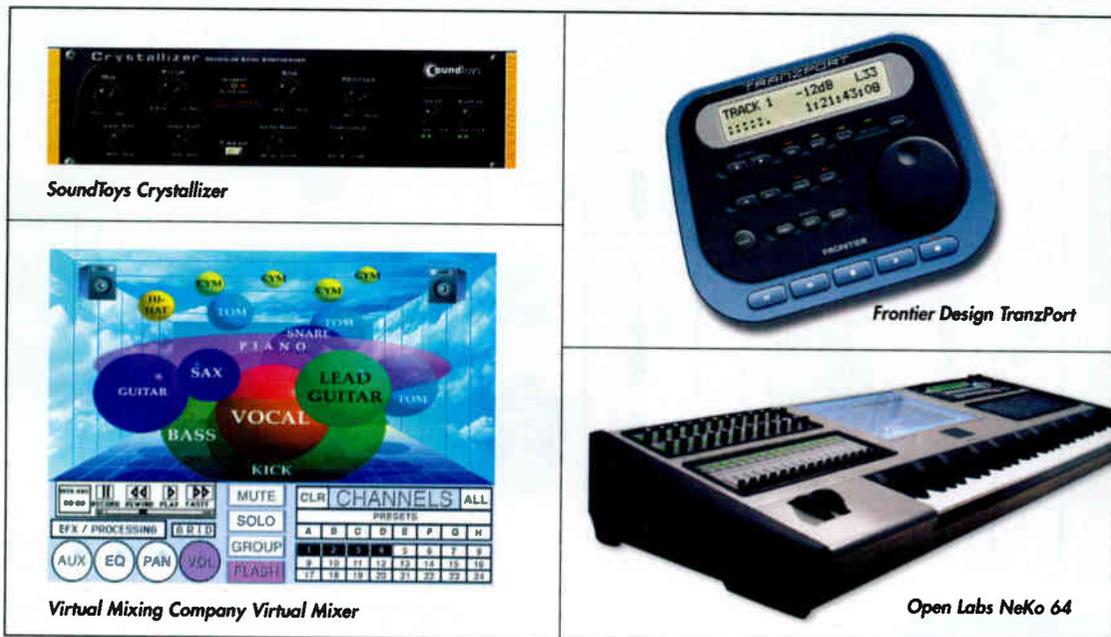
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Just Around the Corner

My AES Highlights—And There Were Plenty



SoundToys Crystallizer

Frontier Design TranzPort

Virtual Mixing Company Virtual Mixer

Open Labs NeKo 64

I don't know who and what I have to kiss to convince the powers-that-be at the Audio Engineering Society to hold its biennial West Coast convention in San Francisco all the time. Since they moved the New York show to the Javits Center, which is about as far away as you can be from anywhere in Manhattan you'd ever want to be without getting wet, the San Francisco location has become the only place where the AES meets that is actually fun. Hotels, restaurants, transportation, places to buy clean socks—everything is right at hand and you don't feel as if you're trapped in some kind of high-tech space capsule from which the only escape is by taxi. The weather during this fall's show was particularly delightful and many attendees—even those who don't smoke—took advantage of the beautiful, recently enlarged Yerba Buena Gardens right above the Moscone Center to get away from the show's din and stale air for a while.

Even the talks and sessions, which tend to be incredibly dull, were somehow more lively this year: The "Afternoon With Bob Moog" was delightful, the "Pioneers of Electronic Music" session, although a much longer walk from the Moscone Center than any of the literature would have you believe, was jam-packed and fascinating, and the Heyser lecture by Walter Murch, in which he showed us a sound film made in 1894, was a jaw-dropper.

There were only two things not to like about this year's AES. One was that there were simply too many events for one person to get to—but, of course, that's almost always the case. The other was that Digidesign decided to hold its own little show, "Digiworld," for itself and its development partners at company headquarters in Daly City. It's not very

far, and Digidesign provided shiny buses for everyone. But somehow it felt unfair, and I don't think it's something that Ampex, MCI or even Harman, all of whom have at one time had the same kind of 600-pound gorilla presence on the AES show floor, would have ever considered. I couldn't make the journey because of time restrictions, so not only did I miss the product demos, but I also missed interacting with the many people I know at the company whom I like checking in with every year.

But enough complaints. It was a great weekend. The Red Sox had just pulled off a miracle, the Patriots were still undefeated and we didn't yet know how powerfully the politics of fear and loathing were about to express themselves. I got a lot of backslaps on the show floor for my blatantly partisan pre-election "Insider" column and only a couple of vicious hate e-mails. And I had the most fun, as I usually do, avoiding the big-name press conferences and hunting down the innovative and clever little things (the majority of which cost little money) that most reporters pass over. So that's what I'm going to tell you about.

For example, the Virtual Mixing Company has been a mainstay at AES shows for about 15 years, but the company rarely gets much ink. You've seen these guys—they have a tiny booth with a video display that shows the various elements in a mix as floating multicolored spheres, which change size and fly around as you play with the faders, pans and effects. It's called, not surprisingly, the Virtual Mixer, and I've always found it an interesting concept, but it's had a hard time catching on, largely because implementing it in hardware has been tricky—every mixing platform would

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need to be approached differently. Well, this year, the company showed a Pro Tools plug-in, and all of a sudden, it makes perfect sense: It can be hardware-independent because there is no hardware. The plug-in is \$400 and a touch-screen display that interfaces seamlessly with Pro Tools' mixer is another \$500. But even more interesting, the company was talking about adding 3-D glasses and virtual reality head trackers. It is also considering integrating it with other workstation platforms, but for now, if the company can get enough Pro Tools users interested, it may finally find its market.

Another cool workstation controller was at Frontier Design Group's booth. This company is best known for low-cost format converters and PCI audio cards, as well as helping Tascam design its FW-1884 DAW control surface. Frontier's TranzPort is a 1-pound, 6x7-inch wireless box with about two dozen buttons, a two-line LCD screen, a plug for a foot switch and a big wheel. "When you're sitting at the drums and ready to do a take, the last thing you want to have to do is get up and go over to your computer and put it in Record," said one of the demonstrators. "So now you can do it with this." It uses 2.4GHz radio signals for communication, not infrared light (and not Bluetooth, either), which means it can go through walls, and claims a typical range of better than 30 feet. Data flows in both ways, so the unit will display things like timecode numbers and track names. Support for Pro Tools, Logic, Cubase, Digital Performer and Sonar is already onboard, with other applications coming soon (Reason and Live were mentioned) and there's some customize-ability built in. The receiver unit, which is smaller than a business card, hooks up to the computer via USB. TranzPort uses four AA batteries, and its makers boast that it's so energy-conservative, it doesn't need a power switch, although there is an automatic power-down sequence. The company hopes to ship it by the end of January at a price of around \$200.

A different kind of workstation interface was on display at the Open Labs booth. With soft synths and samplers taking the place of hardware in so many studios and even live applications, it was only a matter of time before someone built a powerful soft synth engine into something that looks more like a musical instrument than a computer. Harkening back to the days of the original Fairlight and such dinosaurs of the pre-MIDI era as the Con Brio and the McLeyvier, this Austin, Texas, company's NeKo 64 sticks into a single 98-pound box a PC with five PCI slots; a touchscreen; a QWERTY keyboard;

—CONTINUED ON PAGE 152

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Percussive Perfection

By Kevin Becka

Getting a Great Drum Kit Sound

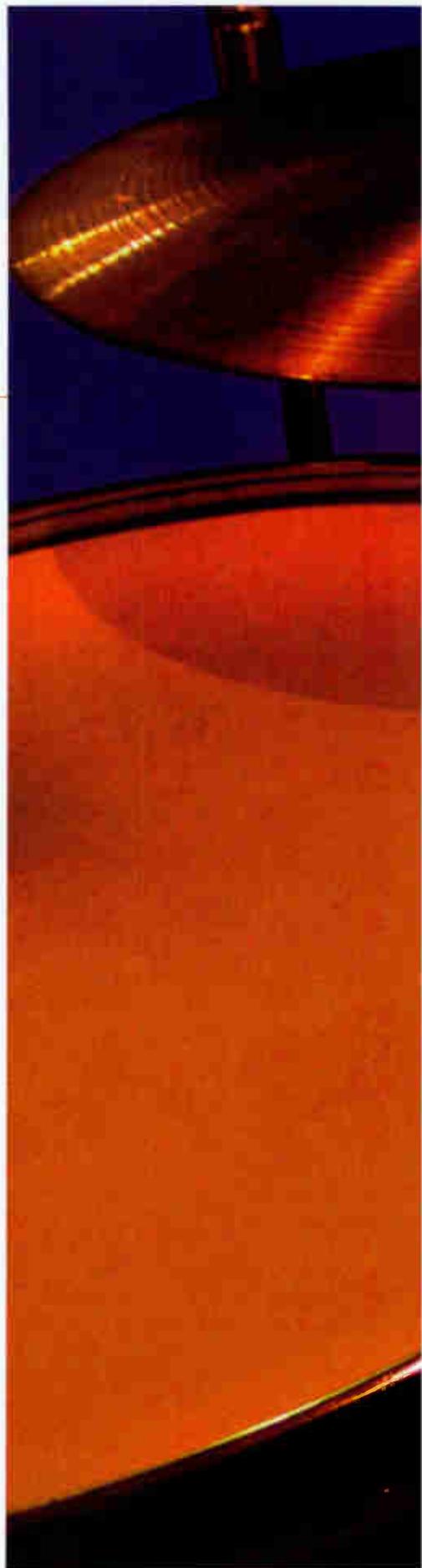
This feature marks the first installment of *Mix's* six-part "Recording the Band" Series by technical editor Kevin Becka. In these bi-monthly articles, Becka explores recording the band in-depth—from piano to guitars, from tracking to effects—with innovative new tips and advice from the pros on making the most of your recordings. This month, in "Percussive Perfection," Becka shares insights on all of the steps for capturing a great kit sound—from instrument prep to the final mix.

Recording drums is arguably one of the most daunting tasks an engineer encounters in the studio. This is because you're not just recording one instrument, but a group of percussive instruments played as a unit. It's not only important that each member of the drum "family" speaks well on its own, but that the kit is played and sounds good as a whole, not just as individuals. The whole approach begins with the drums and the room, and is dramatically affected by each variable along the way, from the player to mic choices, signal chain, recording medium and mixing approach. Any weak link in this chain will alter your outcome, so it's important to choose your moves wisely to get an ideal drum sound.

IT'S ALL ABOUT THE INSTRUMENT

Pro studio drummers will bring a wide variety of drums to a session, even changing kits or parts of a kit from song to song. As a rule, drums that are deeper than they are wide at the rim will have more ring to them, whereas "fat" drums, equal or closer in width/depth ratio, will have more tone and a shorter decay. For example, Led Zeppelin's John Bonham used a 14x26-inch kick drum to get his signature huge sound.

Outside of high-end sessions, drums are often given the short end of tuning and preparation. Not only are there issues with tuning individual drums, top and bottom, and tuning the kit as a cohesive whole, but there are countless other clicks, pops and squeaks that can turn a kit into an







industrial-sounding nightmare. The time spent getting the kit to sound right before the session will pay off in a great-sounding foundation track. Be sure to read the drum tuning tutorial on page 30.

YOUR SPACE EQUALS YOUR SOUND

An ideal recording space is as important as preparing and tuning your kit. A room that is too dead is not necessarily a bad thing, nor is a small room. (See "Case Study" sidebar at right.) However, a room that is too live or boxy-sounding with nasty standing waves can play havoc with your recording. On the other hand, just because a room is well-designed doesn't mean that drums will sound good wherever you place them. Rooms have sweet spots for different instrument groups. There are no hard and fast rules, but building on the experiences of others can save you a lot of headaches, especially when time is tight and you don't have the budget for experimentation. Talking to someone who has recorded in the room can provide a lot of useful information.

MIKE IT UP

There are various drum miking techniques that engineers have successfully used during the years. For snare and toms, go-to mics—typically dynamics such as the Audio-Technica ATM25 or Sennheiser e504—placed just over the edge of the drum, two fingers off the rim and pointing to the center of the head usually works well. For kick, the combination of a mic inside and outside of the drum, capturing the attack and resonance of the respective beater and front heads then mixed to taste, has put the thump in many a hit record. (For a video demonstration of these techniques and more, visit our interactive Seminar on Demand: Drum Recording Techniques at www.mixonline.com.) It's the offbeat ideas, though, that provide food for thought when hunting for your next favorite sound.

The kick drum lends itself to various unique techniques and gear. For instance, Yamaha's new Subkick takes an old trick—using a speaker as a microphone—and gives it a new look. The Subkick is a 6.5-inch speaker mounted in a 10-inch drum shell. Because of the inefficiency of the speaker, it rolls off starting at 100 Hz. This technique works best when the Subkick is combined with another mic placed inside the drum to capture the attack of the beater. Producer Michael Wagener (see sidebar on page 31) uses a homemade version of this device, built with a 5-inch speaker mounted in an aluminum frame.

He uses the speaker on the outer head and places a Shure SM91 on the inside of the drum. To further dial in some thump, he phase-aligns the two mics using LittleLabs' IBP (In-Between Phase tool).

One of the more interesting (and dangerous) kick miking techniques involves very precise placement of a high-SPL mic (such as the DPA 4007) quite close to the inside head. To keep the drum from scooting closer to the mic as the kit is played, the mic should not be mounted on a traditional stand, but instead clamped to the hardware that supports the rack tom. Then, while the drummer is playing, let the head—just to the

left or right of the beater—touch the back of your pinky finger as a calibrator. (A pop filter will keep the wind from a drum diaphragm from overloading the mic capsule.) This placement offers a lot of 500Hz cut and an infrasonic harmonic down to about 20 Hz. A variety of tones can be had by mixing this mic with a traditionally placed AKG D112, Sennheiser 421 or beyerdynamic M88. Also, try reversing polarity between the two mics.

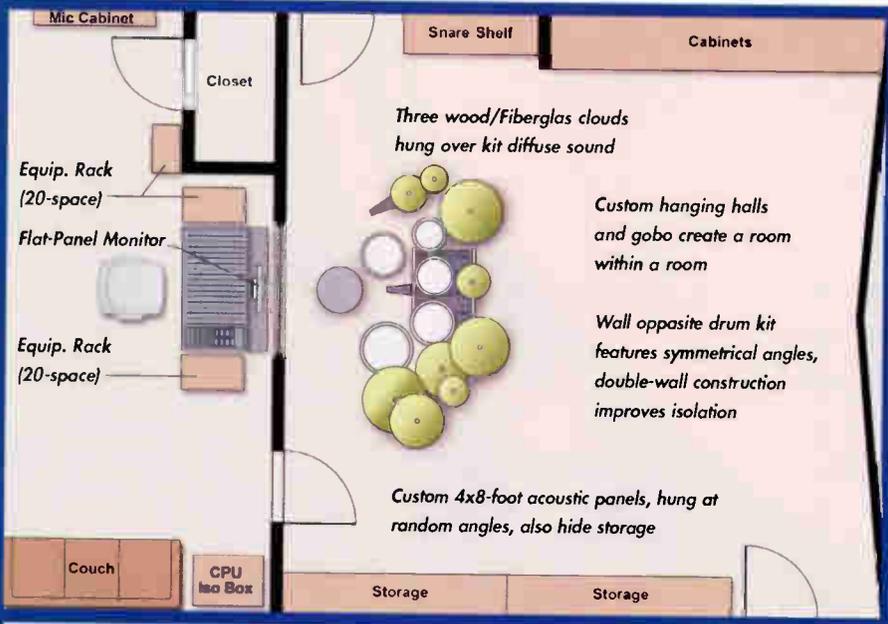
MINIMALIST METHODS

Two interesting and very simple techniques employ three microphones to

Case Study

TONY MORRA'S GREAT TRACKS FROM A SMALL ROOM

Nashville studio drummer Tony Morra (www.downtownbatterie.com) is a chameleon of sorts: Gigs on top pop, country and Christian albums with artists ranging from Jennifer Paige to Rachel Farris to Steve B, as well as his contributions to the Heavy Mental Discrete Drums library require him to deliver clean, tight drum tracks that are appropriate for any mix. In addition to playing in some of the top studios in Music City, Morra also has a list of e-clients who send him their tracks so he can lay down drums in his 20x22x8.5-foot home studio. Getting a big, clean sound out of this small space is the result of a combination of careful room design, kit choice and placement, and a finely honed recording technique that involves particular mic placement and signal chain choices.



To get the most from his modest space, Morra hired designer Dennis Kurtilla, who helped him with some simple and inexpensive ideas to convert his garage into an ideal drum tracking room, with variable acoustics to boot. After the room was done, Morra developed his recording techniques through experimentation, observation and brainstorming with Nashville engineer Steve Marcantonio. You can download a drum recording done at Morra's studio and learn about his complete mic setup and recording chain at www.mixonline.com.

—Kevin Becka

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record the entire kit. One technique uses a single Neumann U87 set to omni as an overhead, a D112 on the kick and a Shure SM56 on the snare. The sec-

ond minimalist setup is using three omnis in a down-firing Decca Tree directly over the kit, creating an equilateral triangle of three omni-pattern overhead mics with the kit in the center. This setup can be

useful to capture a drummer who is not only playing the full kit but an array of percussive toys across the stereo field.

Another simple technique that can be added to a traditional miking setup calls

Instrument Prep

TWEAKING AND TUNING THE KIT

Getting it right at the source is the first consideration when recording drums or any other instrument in the band. This should start with a general checkup of the hardware. Do any of the moving parts in the kick and hi-hat pedals have squeaks? WD-40 or Tri-Flow Teflon lubricant goes a long way in fixing this problem. Are there any buzzes or other noises that are undesirable? Track them down and fix them. Once you tighten up mechanical problems, you can concentrate on the heads and tuning.

New heads, like new guitar strings, will have more pronounced overtones, play better and stay in tune better. The first step in tuning a new head is to equally tighten all of the lugs on the top and bottom a bit further than you want them to be. Tighten the lugs in a star pattern across points, not like numbers on a clock. Once tightened, seat the head on the shell by pressing it down from the center of the head. Let the head settle a bit, tune them down a bit and up to where you want them to be.

When the head is close to the desired pitch, very lightly rest the meaty part of your thumb dead-center on the head with the same pressure you'd use when playing harmonics on a guitar or violin string. Tap a stick about an inch away from each tension rod. This technique allows you to better

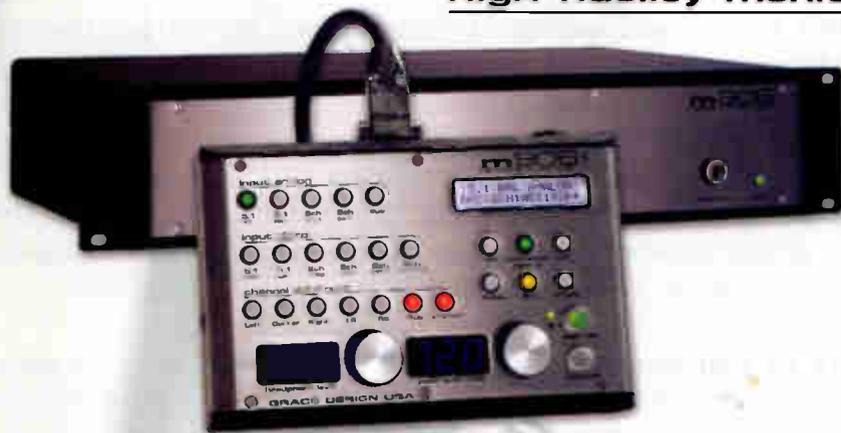
hear the pitch of the head near the tension rod so that each one can be matched to the other. In general, for tom tuning, you will have better results if the top and bottom heads are close to or perfectly in pitch with each other.

Once the heads are tuned, you can make small changes depending on the tone and effect that you want. For instance, if you want the pitch to travel down after the attack, detune the bottom head a bit; for a shorter decay, tune the bottom head higher than the top. This is a more desirable way to shorten decay than taping or using gels, which can affect the attack and tone. (A little goes a long way when pitching up a bottom head; a head that is too tight can result in a nasty buzz after the attack.) Snare heads can be further away in pitch. Tightening the bottom head will result in less-sympathetic snare chatter; the top head can then be tuned lower to taste. For a more "floppy" snare sound, the lugs nearest the snares on the bottom can be detuned.

For the kick, keep the batter head loose and get just enough tension on the front head to get some tone. A simple muting system is using a feather (not foam) pillow inside the drum. For a more open and boomy sound, *a la* John Bonham, omit the pillow and tune the resonant side and beater side to the same pitch.

—Kevin Becka

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for using two omnis placed strategically under the cymbals. This captures some of the tone that is lost when mics are placed just above the cymbals. Placement is basically between tom 1 and the hi-hat on the one side, and the matching spot on the other side of the kit between rack tom 2 and the floor tom. The kick drum develops nicely between the two mics, and a spot mic on the kick can bring it out even more.

The Story Behind The Sound

MICHAEL WAGENER, SKID ROW AND A REALLY BIG TRACKING ROOM

Producer Michael Wagener recorded Skid Row's self-titled debut album in 1988 at Royal Recorders in the resort town of Lake Geneva, Wis. Wagener was looking for a room with a big drum sound and was referred to the studio

by producer Roy Thomas Baker. The studio was housed in the Playboy resort on the lake, next door to a convention center. The convention center was large enough to hold 120 cars; in fact, the day before they started recording, there was a car auction held in the building. Most of the drum reverb heard on the record is from that room.

Wagener miked the drums using a Shure SM57 above and below the snare and Sennheiser 421s on the toms. The kick had a full front head without a hole, so Wagener used a Countryman lavalier omni mic put through the airhole and suspended—taped to a pencil for stability—inside the drum. Wagener generally uses as little EQ as possible, but in this case, he added a bit of 60 Hz to round out the bottom of the kick tone. AKG C-12s were used for overheads with an older-model Schoeps mic on the ride cymbal. The hi-hat was recorded using an AKG 451E. Ironically, the mic that added the most ambience to the drum tracks was a heavily compressed SM57 meant for talkback and brought back through the Listen Mic section of an SSL 4000 Series console.

Wagener used a combination of John Hardy M1 mic preamps and the SSL's preamps. The rest of the band was in the control room and had visual communication through a two-way video system.

—Kevin Becka

MULTICHANNEL TECHNIQUES

An interesting multichannel technique comes from engineer Gary Baldassari: In addition to miking drums in the traditional way, he places four DPA omni microphones in a Grado Vectored Array, which is an equidistant "box" of mics placed around the drummer with the mics either facing the drummer or away from the drummer, and either inches off the floor or high up in the room—determined by the room size, the style of music, the drummer and the kit. In addition to being an interesting surround technique that gives a very real picture of the drums in the room, the array will also

collapse to mono or stereo. I recently tried this using four DPA 4061 mini microphones placed in a 12-foot square around a drum kit about chest-high on the drummer. For control room playback, I used the quad bus of an SSL 4000G+ console and rear speakers on stands. The technique rendered a very accurate picture of the kit as you'd hear it if you were in the room.

I recently recorded with the new Holophone H2 Pro 7.1 surround microphone, which incorporates eight DPA 4060 omni capsules in an enclosure looking like a cross between a soccer ball and football. In addition to this mic's intended surround

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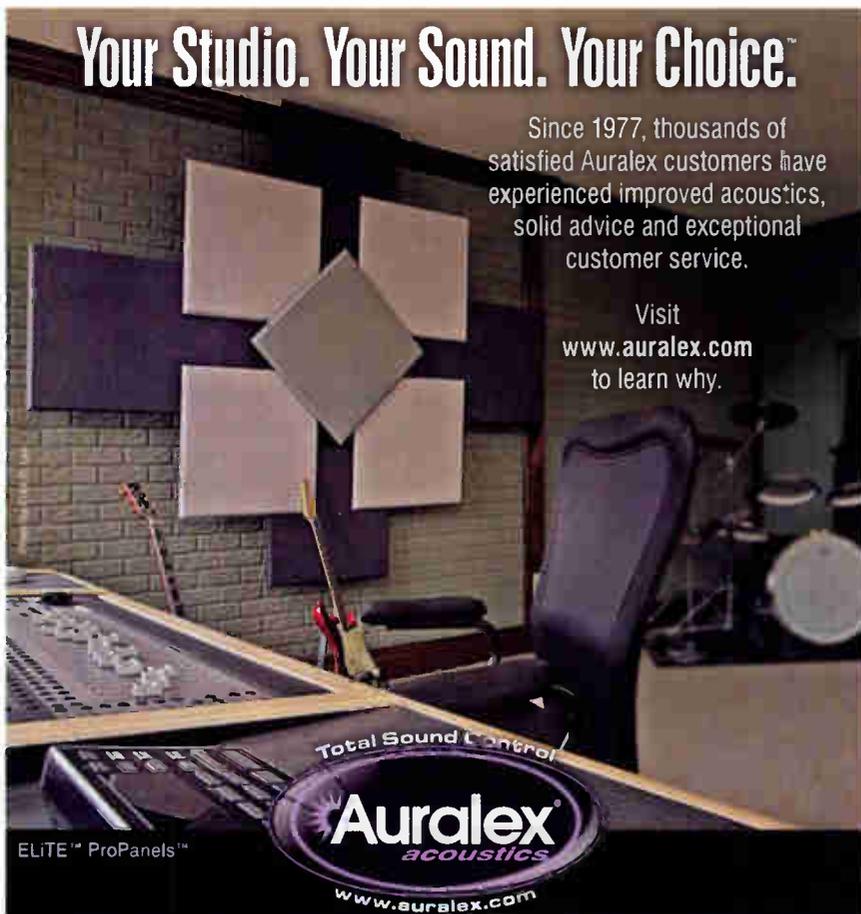
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use, I also mused that it might be interesting if used in a stereo application. I placed the front of the mic facing downward over the drums, much like an overhead (see image below), and took the five capsules—L, C, R, Ls and Rs—to tape. To make this work in stereo, I panned the L, C and R to left, center and right, respectively, and used the Ls and Rs as I would room mics. This worked very well and mixed beautifully with the rest of the kit, which was miked in the traditional way. You can hear the results of these two recordings by downloading the short audio clips from the "Online Extras" area at www.mixonline.com.

AFTER THE SESSION

What you do after the drummer leaves can be the icing on the cake—or a nail in the audio coffin. Techniques vary, but a lot of engineers stay away from adding



The new Holophone surround mic can be used in both stereo and surround applications.

EQ to a track if possible, trying to get it right when tracking. The EQ-related phase shift associated with "fixing it in the mix" can destroy any kind of natural vibe that you captured in the session. When EQ is a must, it is invariably a subjective decision depending on the kit's sound, musical style and other variables, so we won't go into that here. There are, however, some other tricks you can use to create the best possible sound in the final mix.

One technique to optimize drum tracks is making room in the mix by cleaning up

An advertisement for Hear Technologies' "hear back" Personal Monitor Mixer System. It features a black and white photograph of a man wearing headphones and holding a small, handheld mixer device. The text "hear back" is in a large, bold, sans-serif font, with "Personal Monitor Mixer System®" underneath it. Below that, "control YOUR MIX" is written in a stylized font. At the bottom, there is a purple banner with white text: "LIVE | STUDIO | HOUSES OF WORSHIP", "A high-power, low distortion professional monitor mixer system. Flexible. Expandable. Easy to use.", and "256.922.1200 www.HearTechnologies.com". The Hear Technologies logo, which includes a stylized face wearing headphones, is also present.



It's a speaker, it's a mic: the Yamaha Subkick

leakage on the kick and snare tracks. This method makes for less competition between the overheads and leakage in the kick and snare, which are usually ridden high in the mix. Expander/gates and DAW utility programs, such as Digidesign's Strip Silence, can be used effectively here. In addition to clearing valuable mix space, this process also cleans up a snare track before you send it to a reverb, making for a pristine ambient tail that will sit nicely in the mix.

Riding the toms in a mix can also make more room during the body of the track. Rather than leaving the tom tracks up during the entire track, a group of tom faders can be left down in the mix and then raised naturally only as they play. Bringing them up as a group keeps the stereo image more centered than it would be if you gated them or rode them as individuals. Once the toms "speak," you can bring them down again, making room for other tracks that are competing for the same space.

MAKING IT BIGGER

Using reverb to make drums sound larger than life is not a new concept, but it needn't only be on an individual basis. For instance, if a bigger room sound is needed, then sending the room mics to a reverb's ambient program and then mixing the 100-percent wet return back into the mix can significantly boost a kit's ambient signature. When seeking a more organic sound, natural room ambience can be accentuated by using compression. A single mic placed above and behind the drummer, focused down at the kit and then crushed with a compressor, can make for an interesting ambience track, even in a small- to medium-sized room. This can be added to the track as a static part of the mix or during certain sections as a scene change.

Even something as simple as panning

can focus a drum track or give the listener a different perspective on an instrument. Going old school and keeping the drums mono can make a lot of room for other instruments in a busy mix while keeping the pulse of the song centered and strong. Or, a completely unorthodox approach can sometimes work to give each player in the band his/her own space. For instance, on the Bad Plus' CD *Give*, recorded and mixed by Tchad Blake, the piano is panned left, the bass right and the drums in the center. This serves up the trio in a completely fresh way, letting the listener hear each instrument in its own space.

IN THE END

No matter if you use any of the techniques here or the basic methods outlined in our online Seminar on Demand, the bottom line is that tone is king: The drums have to sound good before the Record button is pushed. Picking the right drum sizes, fitting them with new heads and then tuning them using the techniques outlined here will go a long way in making the kit sound right.

Next, work with your recording space—place the kit in the room where others have had success or blaze your own trail based on your own experience. After that, it's a matter of finding the signal path, mics and miking techniques that convey what's going on in the room.

Lastly, dressing up your material by making room in the mix, adding EQ if necessary and shaping the sound with compressors and added ambience will put the expert finishing touch on your recording.



Kevin Becka would like to thank Gary Baldassari, Tony Morra, David Rideau and Michael Wagener for their help in researching this feature.

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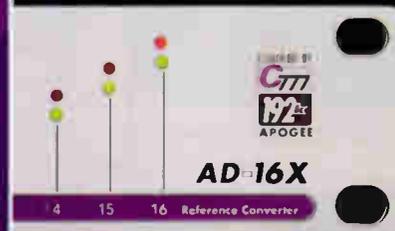


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Curing The Summertime Blues

BY BLAIR JACKSON

On Tour and Off, Strategies for Beating the SR Slump

File this one under, "It's always somethin', Jane." For once, the talk of the music industry isn't declining CD sales—it's declining concert ticket sales. After what many analysts believe was the worst summer for touring acts, promoters and venues in several years, there's been a lot of head-scratching, soul-searching and finger-pointing; in other words, it's business as usual in this notoriously fickle and unpredictable industry.

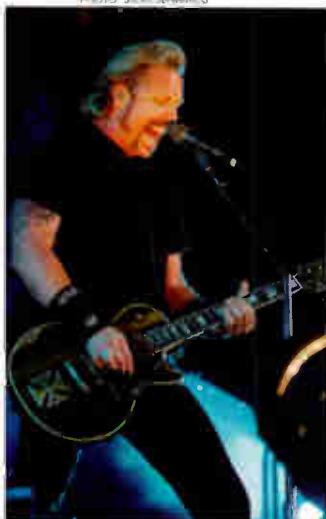
"It was a down year depending on who you talk to—as much as 25 percent off or more," says *Billboard's* senior touring writer Ray Waddell. "The reasons why are many, but it could be that this is the year ticket prices reached critical mass with consumers. When you combine that with the fact that so much of the touring is crammed between April and September and the same acts are going out year after year, that spells a downturn eventually."

"In general, we saw, nationally, a sharp drop-off in ticket sales in mid-April that seemed to affect just about every tour out there," adds Gary Bongiovanni, editor in chief of *Pollstar*, a leading tracker of the touring industry. "I don't think you can say it's just high ticket prices or tours that people didn't want to see. Ultimately, it's something in the American psyche that makes people want to hold onto their money a little tighter. There was no one defining moment—like a September 11th—that you can point to, but there are a couple of outside things that seemed to be causal factors. One is that last spring, gas prices spiked to record levels everywhere.

Also in mid-April, there was a huge jump in the number of soldiers killed in Iraq. Something intangible happens to people when they get to be insecure about their finances, their jobs, their futures and what's happening in the world. If you're going to pass on any expense, certainly a pair of \$80 concert tickets is easy to give up," he says, adding that this year's surging ticket prices didn't help. (According to *Pollstar*, ticket prices have nearly doubled since 1995.)

Waddell adds that the season did have its successes. "Madonna, Prince and Shania Twain all did good business," he says. "Country music in general did very well and one reason for that is [those tours were] priced better than the big rock shows. The ticket price for the biggest superstars in country music rarely tops \$50 compared to \$350 for Madonna. The Prince tour was very value-oriented. It was a 50-something-dollar ticket that included a CD, and it was advertised as a greatest-hits package and that worked."

Multiple bill tours were also successful. "Nickelback with Three Doors Down and Puddle of Mudd did really well," says Waddell. "Linkin Park and Projekt Revolution was big. Ozzfest continues to be strong. But [Vans] Warped [Tour] is probably the most value-oriented tour there is. You get something like 80 bands for 20 bucks; you can't beat it. A few of the festivals have become well-established by now, too, like Coachella and Bonnaroo."



Metallica's James Hetfield

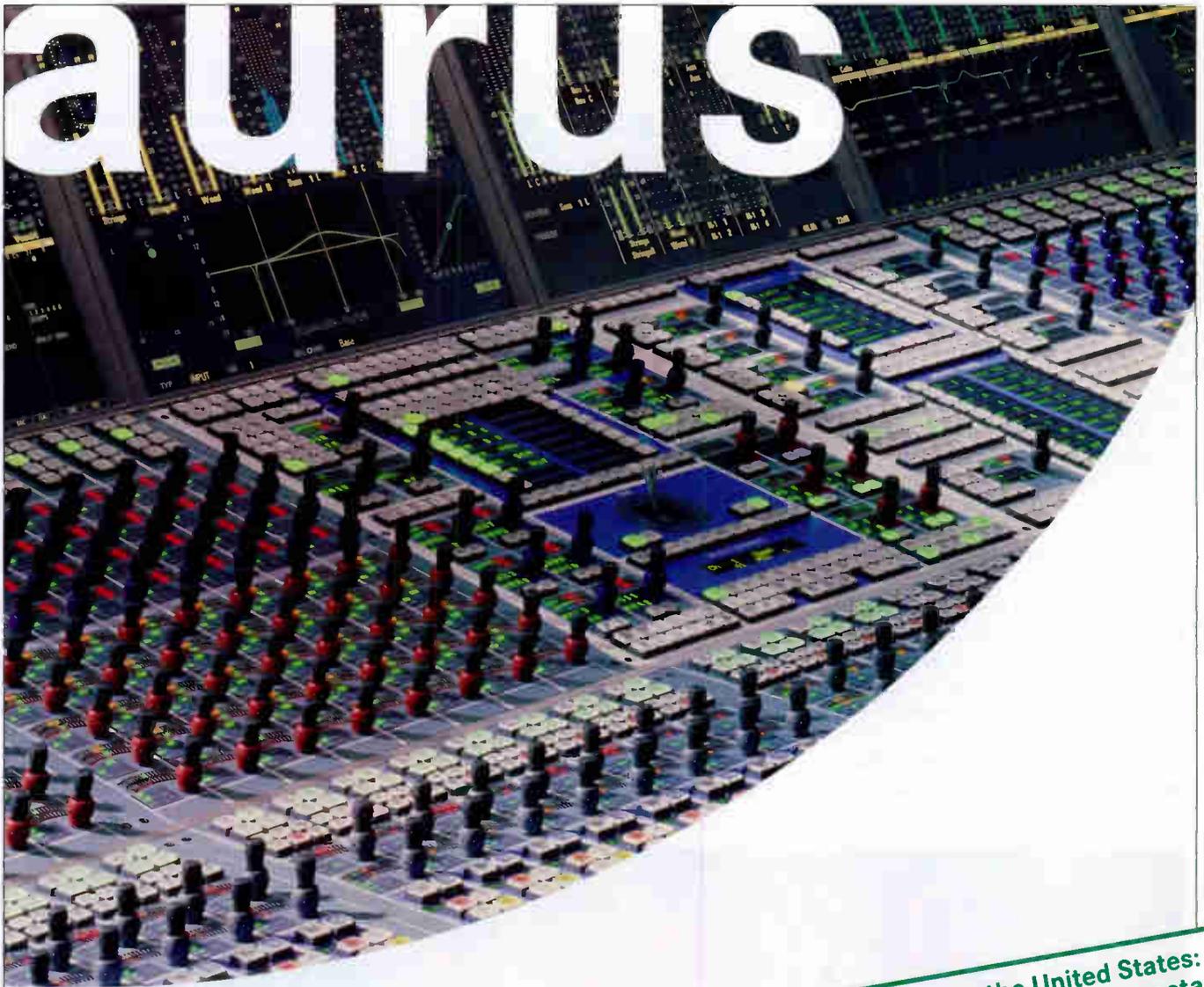


Shania Twain at the mic

PHOTO STEVE JENNINGS



Madonna re-invents herself yet again during the 2004 Re-Invention tour.



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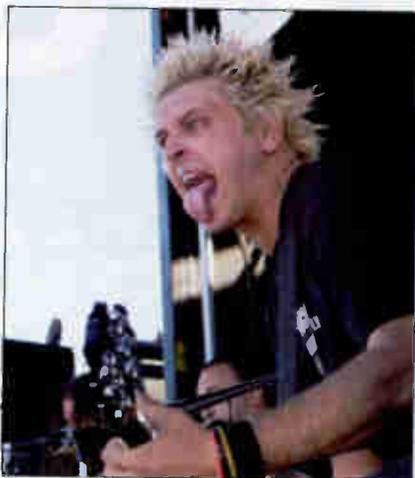
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The Curing Summertime Blues

TICKETING UPS AND DOWNS

For proof that the summer season was soft, one need look no further than the fact that Clear Channel, by far the nation's top concert promoter, chose to offer severely discounted tickets at many of the venues it controls and that other promoters followed suit. At Clear Channel's three Northern California sheds, for instance, there was a one-day sale on all lawn seating tickets for just \$20 and that added hundreds of thousands of dollars to the company coffers. There is an inherent risk in those sorts of price breaks, however.

"Part of the problem for the sheds," Bongiovanni says, "is that you've pushed these ticket prices up steadily, and along with it the lawn prices have gone up, and I don't know if the public is buying the proposition that you should have to spend \$40 or \$50 to sit in the back on a lawn, especially when you talk about an older crowd. So you get the two-for-one sales, \$20 tickets, all those kinds of things to sell more. The real problem with that, though, is that it trains your audience to not buy tickets in advance but wait for the deal that's coming later.



Less Than Jake at 2003's Vans Warped Tour

That's very dangerous." (Clear Channel declined to have a rep interviewed for this article.)

The most notable disaster of the summer was the cancellation of the Lollapalooza tour, which, Bongiovanni says, looked problematic from the start. "Basically, they had a great bill about 10 years too late," he says. "When

you're talking about a two-day show that's going to be an all-day experience, you're really relying on kids to fill the place and that tour was not aimed at kids. Your Morrissey and P.J. Harvey fans are older and would rather see those acts in a smaller venue. They don't want to spend all day outdoors anymore."

SR COMPANIES ROLL WITH THE PUNCHES

Of course, a cancellation of that magnitude—and the slump in general—don't just affect the bands, promoters and venues, but also the sound reinforcement companies that are taking those tours from city to city.

"We definitely had a bad string of luck this summer," says M.L. Procise, senior VP of sales with Showco/Clair, one of the largest touring sound companies in the world. "We had Lollapalooza, Britney Spears and Christina Aguilera, all of which cancelled, so we lost \$1 million of summer revenue in a one-month period. But we still managed to squeak out a decent year. But touring in general is in a bad state of affairs for many companies."

Why? "What has seemed to happen is that the largest promoter has reduced

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PHOTO: STRUBBER BULLINS

Kenny Chesney and country music tours found success, in part, due to lower ticket prices.

the touring season from May to September because their assets lie in the ownership of indoor/outdoor amphitheaters: the sheds. From what I understand, they are paying artists higher guarantees to lock up the available tours and thus command a higher ticket price. They're cannibalizing the available money of the average person to go see a concert by sticking too many artists in too small a touring season. But the touring season being so crowded is hurting some of the people in this business."

Procise, a 30-year veteran of Showco and one of the most respected voices in the industry, adds, "When you're a service company, you have to push the envelope during the summer months to get as high a utilization of your equipment as possible, because you've got to get through the winter months when there is a small amount of touring. Not only are we stretching our resources to the maximum, it's putting us in the position where it's hard to service all the clients in the summer at the level they should be serviced at. Everybody wants the best people and the best equipment, and that's harder to do when everyone is going out at the same time."

Showco/Clair is positioned better than many companies to deal with this issue. The company prides itself on its huge equipment inventory—many millions have been spent on keeping multiple Showco Prism and Clair 1-4 systems up-to-date and in top shape, and millions more have been invested in the latest digital and digitally controlled analog consoles—and gear is standardized. "Whether you're doing a club tour or a stadium tour, you're getting the same equipment the big

boys get," says Procise. "That's a huge plus for our client base."

Procise dismisses concerns by some industry observers that with its merger, Showco/Clair has become *too* big, that service will inevitably suffer and competition be crushed along the way. "Whether [regional sound companies] know it or not, we're giving them a lot of work they might not get ordinarily. I refer calls to local sound companies all the time. A lot of those people are my friends. We have not hurt the regional sound

companies in any way, shape or form; in fact, I think we've strengthened some of them."

Over at Rat Sound, which handles a broad range of big tours (R.E.M., Pearl Jam, Curiosa, Ben Harper, et al), small tours and one-offs, company founder Dave Rat notes, "Believe it or not, business has been great compared to last year. This year, we didn't really get going until June, which is the latest start we've ever had. But now this is the strongest tail end of the year we've ever had. And we're also looking at a good 2005 because some of

WHAT MICS AND INSTRUMENTS DREAM ABOUT



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our major, historically strongest clients are all either coming out with albums or scheduling tours through the end of this year and into next year."

Rat says that when the touring business looked like it was going to be slow in 2004, focus shifted toward regional and local shows. "It took us a little while to ramp up for that," he says. "The pressure there is more in the realm of personnel because we had to rely more on locally based people in addition to our own staff. The biggest challenge was keeping everyone together and getting enough manpower to get these shows out, because it's almost the same amount of work to get a local show out as a tour, and if you have four [one-offs] a week, it's a tremendous amount of work."

Rat Sound has a number of Rat Trap 5 and V-DOSC systems, but Rat notes, "Our attitude is, 'What do you want?' If we have it, cool; if we don't, we'll bring it in. I find that a lot of times, [bands/tours] are more concerned about the people than the system." As for trends in equipment requests, Rat notes digital consoles are gaining acceptance as designs evolve. "People want that computer control, but they don't want some laptop [system] because the software boot-up time is unacceptable. They want big buttons and fast, easy-to-use gear that isn't going to break. As the manufacturers get closer to that [in their digital console designs], they're becoming more accepted. They act less like a computer and more like an analog board or a piece of gear we can use."

DIVERSIFYING: GEAR AND GIGS

For Paul Owen's sound company, Thunder Audio, (Detroit) one way around the uncertainty of the touring business was to get into more corporate work. "The corporate world has changed," says Owen. "It used to be handled separately from the people who did the live rock 'n' roll touring. It used to be that the corporate side was where all the good money was made, too, because you could charge them corporate prices. They used to attack these [corporate] shows as if they were doing a permanent install, taking four or five days to put the thing in and a couple of days to take it out, and then the client would wonder why the billing was so high. But that's changing. There's more of the rock 'n' roll mentality now: Putting it in one day and taking it down that night and, of course, that's affected prices, as well. On the Metallica tour I'm on right now, we have 14 trucks and we load in at 9 a.m. with rigging and we're out in two hours at night.

"I think people are being a little more conscious about streamlining," Owen continues. "More conscious about the truck space and weight, efficiency with line array systems—all those kinds of things." When it's noted that 14 trucks doesn't exactly sound like streamlining, Owen says, "Yeah, that's true," with a laugh, "but only two trucks of that is audio. A lot of it is this really huge stage and the lights, but it's in the round so it is a large configuration of speakers." Owen notes that purchasing his own semis for equipment transportation has also been economical.

Another hedge against the slow touring year in America has been getting acts to play in Europe. Owen says, "With the exchange rate on the dollar, you'll find a lot of bands concentrating on Europe now because they can get much more bang for the buck. The economies are so strong over there and the bands are getting paid in Euros. If you go over there and do two or three months, it's cheap enough to bring American production over there. Whereas there used to be only certain shows for bands like Metallica and Marilyn Manson, now there are so many of them and the festival season is three or four months. At Rock in Rio in Lisbon this year, they pulled in \$70,000 a day for a whole week with different headlines each night."

At Dallas-based Crossroads Audio, company-wide diversification has helped business remain robust in the face of an uncertain economy. "We had one of our best years," says event services manager Mike Ponczek. "We do every kind of regional work you can imagine—touring and corporate work and special events of every size. We've latched onto some good clients in the past year such as the Sonic Drive-In food chain, who had LeAnn Rimes in the round, and Mary Kay cosmetics, who had a three-week convention in Dallas. We do dry rentals and, of course, other dates where we'll supply the system, or part of it, and engineers and do the sound. We also record for the local classical station, WRR, for its Christmas concerts."

Ponczek notes that for large concert productions, people expect a line array system or some large P.A. configuration. "We've chosen Meyer products as our benchmark: We have the M3D, M2D and the M1, which practically fit under your arms." For consoles, "Most people are still requesting Midas consoles, Yamaha 4000 and 3500s. The [Yamaha PM-5D] hasn't entered on any request of mine. However, in the touring world, the 5D would probably be the case." He has also used the Yamaha DME 2000 at some recent shows.



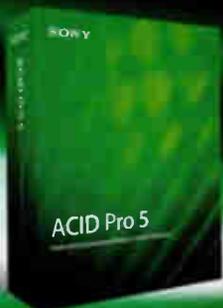
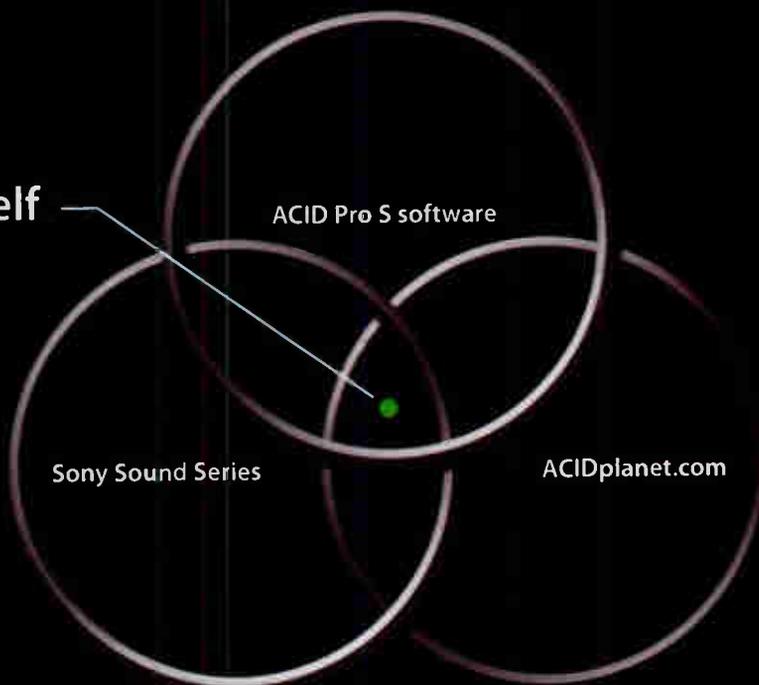
LeAnn Rimes during her 2003 tour

Robert Hawthorne, of Birmingham, Ala., Muse Productions, says, "I think the [touring sound] market has always been cyclical. But one thing that's changed over the years is that, 20 years ago, a company didn't just go out and buy a system—you built it up from the ground. You couldn't just walk in and plop down a chunk of change and buy a turnkey system. I see that happening more and more. Somebody will buy a big Meyer or V-DOSC rig. Those people will take a certain number of shows away, but one thing they can't buy is the experience. I've seen people who have bought P.A.s like that that have great shows and then have horrible ones because they didn't take care of the equipment and they don't have the people who can really manage it."

Asked if the increased competition in the SR business has led to downward pressure on prices, Hawthorne says, "Definitely, but that's a temptation you have to try to avoid. Our product is not just the equipment, it's the service, and a lot of our clients will pay us a premium for our services because they know they're not going to have any problems. I've played chasing the market up and down in the past and it never worked. So I've held firm [on our prices] and we probably lost a couple of dates that we could have had, but I've had some people come back and say, 'You know, you guys were a little more expensive, but we never had any problem with you before and we'll be back.' And by the end of the season, we were getting the work from them." ■

Blair Jackson is the senior editor at Mix.

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Line Arrays

BY ROGER MAYCOCK

In recent years, line array systems have garnered considerable attention as a means of addressing sound reinforcement requirements for medium- to large-size audiences. When properly designed and installed, line arrays do a good job of providing even and predictable sound coverage, making them a viable choice for performing theater, concerts, corporate events and shows. With the introduction of compact line arrays, these systems are also finding their way into smaller venues and houses of worship.

As line array systems are equally at home in professional touring and installed sound applications, several equipment manufacturers now offer modules (the individual enclosures that comprise an array) in multiple sizes. Between the size and the number of modules in any given array, considerable flexibility exists when planning your system.

Like everything else, line arrays have their pros and cons. A line array may not, for example, be the best choice in venues with low ceilings. And while a line array ground stack may competently address this environment, a more conventional delay speaker system could be a better choice. The audience, room dimensions, rigging requirements and staging/set considerations all play important roles in making this determination.

The paragraphs that follow should help you determine what's available. Nearly all manufacturers have detailed specs, application notes and/or white papers available on the Internet, so we've provided links to Websites for additional information.

Debuting at Summer NAMM last July, the AL10 is the larger of A-Line Acoustics' (www.a-lineacoustics.com) two line array models and features two 10-inch LF drivers coupled with a 1.4-inch HF driver providing 90° dispersion using the company's Line Source Replication technology for optimized projection and detail. The AL8 features two 8-inch LF drivers and employs the same HF driver (155° dispersion)

as the AL10. The enclosures are constructed from birch plywood. Both models incorporate the company's EZAL™ (Easy Alignment) system, which allows one or two people to position each enclosure from 0° to 19° while flying or stacked. The EZAL hardware comprises left- and right-side mounted brackets with a specially designed lever adjustment and four set pins for precise positioning. The frequency response for both enclosures is 75 to 18k Hz.

The SpekTrix Series from Adamson (www.adamsonproaudio.com) encompasses three models: the SpekTrix, SpekTrix Sub and the new SpekTrix Wave. Utilizing Adamson's AIR (Adamson Integrated Rigging) flying hardware, the SpekTrix Wave is a three-way design in a 15° trapezoidal enclosure. This module incorporates two Adamson 8.5-inch Kevlar neodymium drivers (one ND8-L mid-bass driver and one ND8-M midrange driver) and a 1-inch HF compression driver mounted on a patented Adamson wave-shaping sound chamber. The sound chamber has a defined coverage pattern of 15°x120° (VxH). The SpekTrix is similar in size, weight and components, but has a slightly narrower vertical dispersion pattern. The SpekTrix Sub is a compact, sub-bass loudspeaker with two AW18 Kevlar bass drivers mounted in a tuned, vented and fully braced cabinet. The Sub may be arrayed conventionally or for true cardioid performance. Adamson's Y-Axis line includes the Y10 sub-compact three-way module, the Y18 3-way module and the Y10 Sub, a flyable, front-loaded, dual 18-inch vented enclosure.

The LR14 from Alcons Audio (www.alconsaudio.com) is a passive two-way line array system incorporating dual 6.5-inch neodymium woofers and the company's RBN401 4-inch pro-ribbon driver on a 91-percent frontal radiation HempHorn™ waveguide that achieves 120° dispersion. Frequency response is stated as 70 to 20k Hz. The LR16 is an active compact line array with dual 8-inch woofers and the RBN601 6-inch pro-ribbon driver on a 92-per-

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cent frontal radiation HempHorn waveguide that achieves real 90° dispersion. The enclosure has a frequency response of 70 to 20k Hz with an extended bass response usable down to 51 Hz. The QR18 and QR36 are modular two-way column line-source loudspeakers that incorporate the RBN1801 18-inch pro-ribbon driver mounted on the company's 90° HempHorn. A QR line source system acts as cylindrical radiator, offering a 3dB SPL drop-off per doubling of distance in the near-field. When used in multiples, the QR system forms a continuous line source, extending the near-field of the system over longer distance and lower frequencies. The QR18 features three 6.5-inch neodymium LF drivers and one RBN1801. The QR36 provides six 6.5-inch neodymium LF drivers and two RBN1801 ribbon drivers.

Apogee Sound's (www.apogeessound.com) bi-amped, two-way ALA-3 is the most compact of the ALA line. Each module incorporates two 10-inch cone-type drivers for the LF, coupled

with dual 1-inch exit compression drivers for the HF. Frequency response is 65 to 17.5k Hz. Sharing the same compound trapezoid vented design but larger is the bi-amped, two-way ALA-5, which uses dual 15-inch cone-type drivers for the LF and two 1-inch exit compression drivers for the HF. Frequency response is 50 to 17.5k Hz. Designed for high SPL applications, Apogee's largest modules are the ALA-9. The tri-amped, three-way ALA-9 uses two 15-inch cone-type drivers for the LF, two 10-inch cone drivers for mids and three 2-inch exit compression drivers for the HF. The ALA-9's frequency response is 45 to 17.5k Hz. All three models are compatible with Apogee's DLC24 digital loudspeaker controller.

D.A.S. Audio's (www.dasaudio.com) Aero Series compact line array systems encompass five nonpowered models: the CA-28, CA-28B, CA-215, Aero-48 and the Aero-218Sub. There are also two powered models available: the CA-28A and the CA-215A. The CA-28 is a passive

two-way module designed for use with external amplification and the company's CT-28V2 analog processor or dsp-3vs digital controller. Two 8-inch cone transducers incorporating neodymium magnetic assemblies and 2.5-inch voice coils are used for mid-frequency reproduction. High-frequency reproduction is handled by the company's M-10N medium-format compression driver using a 3-inch titanium diaphragm, copper-clad aluminum EFW voice coil and a 1.5-inch exit throat coupled to D.A.S. Audio's SERPIS high-frequency plane wave generator. The trapezoidal enclosure has a horizontal dispersion of 120°. The C-28A's power amplifier is a hybrid Class-D+AB rated at 350-watt MF/100W HF. The CA-28B is a two-way active, mid-high enclosure while the CA-215 is an unpowered subwoofer. The CA-215A offers a powered option and incorporates a 1,000W Class-D amplifier. The Aero-48 is a three-way system and the Aero-218Sub is a bass-reflex subwoofer with dual 18-inch transducers, all designed for use with external amplification and the dsp-3vs digital controller.

The Q1 line array loudspeaker from d&b audiotechnik (www.dbaudio.com) is a passively crossed-over two-way system. Constant directivity is maintained using a large-frequency overlap through the crossover range. The recessed dipolar positioning of the two 10-inch low-frequency drivers mechanically time-aligns these with the 1.3-inch exit HF driver. The Q1 HF driver is fitted with a toroidal wave-shaping device, which has a 75°x15° (HxV) dispersion pattern; the resulting curved coherent wave front allows vertical arrays of multiple cabinets to be constructed. The Q7 loudspeaker uses the same 1.3-inch HF driver fitted to a rotatable 75°x40° (HxV) conventional constant-directivity horn allowing for it to be deployed as either flown or ground supported as single units, or as a near-field element within columns with Q1 cabinets. The Q10 is a 110°x40° passive two-way system housing two 10-inch LF drivers and a 1.3-inch HF compression driver with a rotatable constant-directivity horn. The Q-SUB cabinet completes the series, sharing the same width as the other loudspeakers. The Q-SUB is a bass-reflex design with an 18-inch long-excursion driver and can be used in Cardioid Subwoofer Arrays (CSA) when driven by d&b's D12 amplifier.

The KF760 Series from EAW (www.eaw.com) comprises the KF760 and KF761 three-way modules, and the BH760 sub-



EAW KF760

woofer. The KF760 uses two horn-loaded 12-inch woofers for the LF, two horn-loaded 10-inch cones for the mids and two 2-inch exit/3-inch voice coil horn-loaded compression drivers for the HF. The KF761 uses two 12-inch horn-loaded woofers for the LF, two 8-inch slot-loaded cone-type drivers for the mids and one 2-inch exit/3-inch voice coil horn-loaded compression

Sam Berkow on Line Arrays

Sam Berkow knows more than a little about sound. As a partner (with Steve Sockeye) in the New York City-based firm SIA Acoustics, he's consulted on the sonic performance of hundreds of studios and performance spaces. SIA also developed SIA Smaart, a standard acoustic measurement and sound system optimization software package used by audio pros worldwide.

Why use a line array rather than a conventional speaker enclosure?

Line arrays tend to work best in situations in which there is a long—rather than wide—throw or a challenging reverberant condition. The advantages of line arrays is that the directivity of the array comes from direct-radiating loudspeakers, so you eliminate the use of horns, which can have that nasal horn sound. Further, within limits, you can control the directivity via processing. The downside to line arrays can be when you need very wide coverage or a lot of control in the low frequencies where the waves get very long. In these cases, you typically require very long arrays and/or many clusters.

We like line array solutions because of the natural sound that can be achieved and for their dispersion characteristics, their controllability and the predictability of the array. For the touring industry, arrays are particularly useful because they're easy to rig. Small changes to the hanging configuration of the array can be made very easily. Obviously, in complex traditional arrays, the rigging is often more complicated and changes require much more time and effort. Lastly, we find that the tools available to predict the performance and physical characteristics of line arrays extremely useful in event/system planning.

What about using a ground-stacked line array as opposed to a more conventional delay speaker system in environments where there are low ceilings?

That can be a tough call. The problem with ground stacks is that all of your sound is at the front and with a low ceiling (12 to 14 feet), you can easily take people's heads off with the levels required to meet your throw. If you need consistent level over a long listening area in a low-ceiling environment, you might want to go with a distributed delay system. It all depends on the distribution of the audience and what the function of the sound system is.

One of the main reasons we like conventional delay speaker systems in rooms with low ceilings is for speech intelligibility. In these cases, we'll do more low-mid energy from the front and then just fill in with high-mid drivers that are distributed, either in the ceiling or from the side, using DSP to control delays and EQ. In general, I'm less inclined to look to line arrays as the solution in rooms under 12 feet with long-throw requirements. Another important consideration is that ground-stacking a line array often makes the rigging of specific/required angles much more difficult than in a flown situation.

What issues should one consider when choosing a line array system?

The first and most important consideration is the use of the system. Is it for speech, for music and for what type of music? How much low end do you need? How much power and how reverberant is the environment? A key goal with almost any sound system is to provide clarity by achieving a good direct-to-reverberant ratio. So when considering a loudspeaker system, the key questions become, "What is the horizontal and vertical dispersion you need?" Typically, line arrays range from about 70° to 120° wide (horizontal), with the vertical dispersion determined by the length of the array. Another question is, "How much power do they handle and how much directivity do you need at lower frequencies?" Examining the directivity at 125 Hz is very different than the directivity at 1 kHz, so this becomes a critical issue. This is a key difference in music and speech reproduction. Finally, line arrays are tools, and like any tools, they can be used well or poorly!

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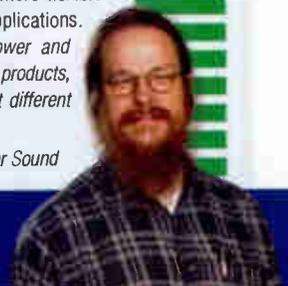
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Line Arrays



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driver for the HF. Frequency response for an individual enclosure (both KF760 and KF761) is 80 to 16k Hz. The BH760 subwoofer uses two 12-inch woofers in a bent-horn design. Baltic birch plywood construction is used in all three models. The smaller KF730 Series incorporates two modules: the bi-amped KF730 and the SB730 subwoofer. A single MF/HF horn fills the entire face of the KF730 to maintain horizontal pattern control throughout the MF/HF passband. This module uses two 7-inch horn-loaded cone drivers for the mids and two 1-inch exit-compression drivers for the HF. Two side-mounted 10-inch cone drivers handle the LF. The SB730 subwoofer employs dual 12-inch cone drivers in a vented cabinet design.

The Electro-Voice (www.electrovoice.com) X-Line comprises four application-specific enclosures: the Xvls and Xvlt primary enclosures, the Xfil for downfill coverage and the Xsub deep-bass system. The Xvls and Xvlt enclosures are similar, but have differing directional specifications—the Xvls covers 90°, and 120° for the Xvlt. Each enclosure is a three-way configuration comprising two 15-inch woofers in a vented box enclosure for the LF, two 8-inch neodymium drivers on a 90° horn for the mids and three 3-inch-diameter titanium-diaphragm compression drivers on a 90° horn for the HF. The Xfil complements the Xvls and Xvlt systems for near-field assignment with a wide 120°x40° vertical coverage angle. The Xsub is a high-output, dual 18-inch woofers, 1,200W subwoofer system. The Xlc full-bandwidth compact line array system employs a very efficient rigging system for the Xlc127+ main enclosure and the Xlc118 direct radiating subwoofer. The Xlc127+ is a three-way, tri-amped, axis-asymmetric design with a passive crossover for bi-amp operation. A single 12-inch transducer handles the LF and mid bass, while two 6.5-inch drivers in a vertical array handle the mid-frequency bandpass. There are twin compression drivers for the HF. The Xlc118 subwoofer employs a single 18-inch subwoofer.

JBL's (www.jblpro.com) VerTec Series encompasses six models: the VT4887, VT4888 and VT4889 three-way systems; and the VT4880, VT4881 and VT4882 subwoofers. The compact VT4887 houses two 8-inch woofers, four 4-inch midrange radiators and two high-frequency compression drivers. The midsize VT4888 houses two 12-inch woofers, four 5.5-inch midrange radiators and two high-frequency compression drivers. The large-format VT4889

houses two 15-inch woofers, four 8-inch midrange radiators and three high-frequency compression drivers. These three-way models utilize a wedge frustum, 5° side-angle design. The VT4880 full-sized subwoofer houses two 18-inch woofers, and the new midsized VT4882 subwoofer holds a pair of 15-inch woofers. Finally, the VT4881 compact subwoofer houses a long-extension 15-inch woofer. All systems feature JBL's Differential Drive® dual voice-coil transducers. Most VerTec models, built with JBL's PlyMax™ hybrid materials construction for high rigidity and lightweight, are pre-engineered to accept JBL's upcoming optional DrivePack™ self-powered technology. The VT4889 full-size world-class touring system features a cored-composite enclosure for a maximum power-to-weight ratio.

The T Line line array system from KS Audio (www.ksaudio.com) is a two-way design with dispersion per module of 90°x5° and a frequency response of 60 to 19k Hz; the addition of the company's T Sub subwoofer extends the frequency response to 35 Hz. Each module is loaded with two 12-inch transducers and a 2-inch compression driver. Both types of drivers use neodymium magnets to ensure light weight and low distortion. The T Line sub-bass enclosure uses eight 10-inch LF drivers. KS Audio recommends the use of one T Sub with each array of four T Line modules. The T Line is powered by the KS audio TA4U 4-channel amplifier (1,000W @ 4 ohms per channel). Two channels in bi-amp mode can power two T Line cabinets. Two TA4U amplifiers, therefore, can power an eight-box array. The entire T Line module, including the captive fly-ware, weighs 96 pounds.

Unveiled in October at AES, L-Acoustics' (www.l-acoustics-us.com) new KUDO is an active, three-way line array module containing two direct-radiating, bass reflex-loaded 12-inch LF transducers, four 5-inch midrange frequency transducers mounted in a V-shaped configuration, and two 1-inch exit compression drivers coupled to individual waveguides. Frequency response for this full-range system is 50 to 18k Hz, with less than ±3dB variation—with the usable bandwidth being 40 to 20k Hz (-10 dB). Two DOSC waveguides are incorporated into KUDO, enabling the company's Wavefront Sculpture Technology (WST) to be performed either vertically or horizontally. KUDO also provides adjustable polar patterns. When installed horizontally as a constant-curvature line-

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source array, 10° inter-enclosure angles are employed and the horizontal coverage is 10°xN. (N is the number of enclosures.) Vertical directivity can then be configured as 55° or 110° (symmetric), as well as 25°x55° or 55°x25° (asymmetric).

The Martin Audio (www.martin-audio.com) W8LM is a mini line array enclosure designed for a variety of small- and medium-scale applications. Employing the company's constant directivity horn design (also used in its W8L and W8LC line array systems), the W8LM is a three-way system with the company's Hybrid™ dual 8-inch driver/2-inch voice coil approach for the low and mid frequencies. One driver is a reflex-loaded direct radiator, while the other is a neodymium design that is front horn-loaded and rear reflex-loaded. The HF section uses two 1-inch exit compression drivers that are horn-loaded. The enclosure is a vertical trapezoid with a 3.75° wall angle made from multilaminated Birch ply construction. The W8LM's crossover points are defined at 300Hz passive and 2.2kHz active or passive. The company's W8L is a three-way system designed for large venue applications, while its W8LC is intended for medium-sized applications. Martin Audio's line array products also include the W8LS sub-bass system and the WLX subwoofer system.

The MLA3 is a low-profile, axially symmetrical, three-way line array module based on McCauley's (www.mccauley.com) MONARC line array technology. The MLA3 is designed to bridge the gap between the company's large-format MONARC MLA6 and the ultracompact M.LINE modules. The MONARC MLA3 mid-high section combines McCauley's Intercell Summation Aperture technology with two 8-inch HX32 cone drivers for the midrange and two 2-inch diaphragm drivers for the highs, all integrated into a single device. LF is managed by twin volumetrically loaded 12-inch transducers symmetrically arranged on either side of the Intercell Summation Aperture. The rigging system allows cells to be ground-stacked from the bumper for nonflown applications.

Encompassing the M1D, M1D-Sub, M2D, M2D-Sub, M3D, M3D-Sub and the MILO/MILO 120 systems, Meyer Sound's (www.meyersound.com) line array offerings are extensive. All M Series products are self-powered and feature the company's QuickFly® rigging hardware. Meyer's line array products ship "ready" for the company's real-time Windows-based RMS™ remote monitoring system. The MILO high-power curvilinear array is the

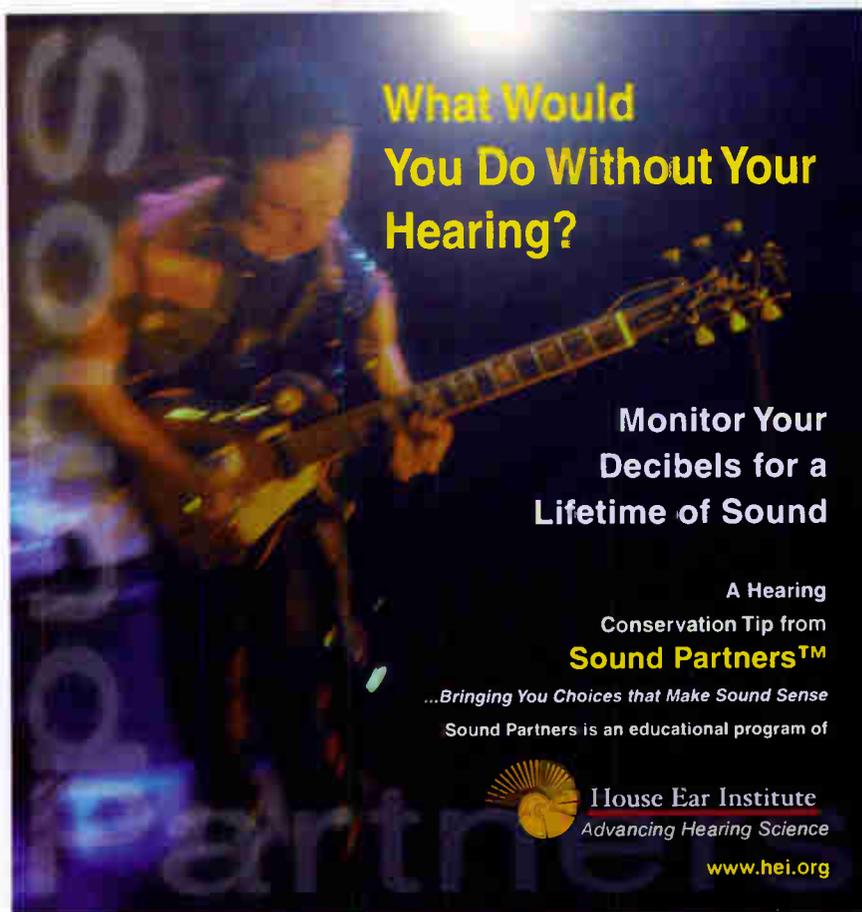


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Line Arrays



Meyer M100

M Series' best-known product. M100 is a four-way system delivering 140dB SPL peak output and contains three dedicated 2-inch HF transducers for the very high section, dual neodymium 12-inch cone drivers with 4-inch voice coils for the low/mid section, and a mid/high section comprising a 4-inch diaphragm and a 1.5-inch exit compression driver coupled to a 90° constant directivity horn through Meyer's patented REM® ribbon-emulation manifold. The REM waveguide couples to a compression driver and creates a narrow beam of sound radiation in the vertical direction and a wide coverage pattern in the horizontal direction. The system's frequency range is 60 to 18k Hz. The M100 expanded coverage high-power curvilinear array loudspeaker complements M100 for downfill applications.

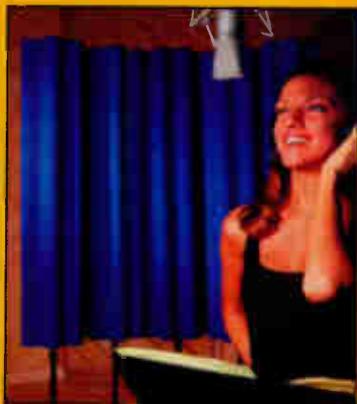
Nexo's (www.nexo-sa.com) line array offerings include the GEO S Series (S805/S830) and the GEO T Series T4805/2815 Tangent Array Modules. With the S805 and S830, each enclosure employs a single 8-inch neodymium LF driver and a 1-inch throat neodymium HF driver on a Hyperboloid Reflective Waveshield. This waveshield enables the 30° trapezoidal S830 and the 5° trapezoidal S805 to be arrayed tangentially. Frequency response for the S805/S830 enclosures is 67 to 19k Hz. The GEO T4805 employs a unique LF section that uses paired front- and rear-firing 8-inch neodymium woofers, processed with DSP algorithms to produce a cardioid pattern from 70 Hz to 250 Hz. The HF driver is a 1.4-inch throat neodymium with a 3-inch voice coil. Frequency response for the T4805 is 60 to 19k Hz. The T2815 controls mid-bass energy with a cardioid dipole that pairs the front-firing woofers with resistive acoustic radiators. When used as the near-field element in a curved vertical Tangent Array with T4805 modules, the T2815's passive radiators enable it to generate a 120° dispersion in the noncoupling plane from 77 Hz to 250 Hz. The T2815 can also be used stand-alone. Used with Nexo's NX242 Digital TD controller, GEO Series systems can be networked using the EtherSound protocol.

The FT.LA and FT.LA-P compact line arrays from PAS (www.pas-toc.com) are

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identical enclosures except that the FT.LA-P is the company's powered version. These two-way enclosures utilize a single 15-inch coaxial loudspeaker with a Kevlar-reinforced cone, and a 4-inch voice coil for the LF and a 2-inch compression driver for the HF. Both enclosures employ the company's Time Offset Correction™ technology. Frequency range for these enclosures is 50 to 20k Hz. The enclosures are made from Baltic birch plywood. The amplifier in the FT.LA-P features selectable mains input (115/230 VAC), thermal and over-current protection and HF protection.

QSC's (www.qscaudio.com) ISIS Wide-Line is a full-range, wide-angle line array speaker system with a 140° horizontal dispersion pattern. Incorporating a selectable three-way, bi-amp or tri-amp design, the WideLine's internal midrange frequency shading can be switched to either of the two woofers. Both drivers handle the low frequencies, but only one driver handles the mids. The frequency-shading circuit enables the operator to redirect mid-bass buildup without touching the EQ for improved intelligibility in an otherwise problematic frequency range. Each WideLine element uses dual 10-inch, long-throw LF speakers in a ported trapezoidal enclosure. The high-frequency driver is a 1.4-inch exit (3-inch voice coil) neodymium compression driver, mounted on a proprietary multiple aperture diffraction slot waveguide. The enclosure's lightweight, cored-composite construction weighs only 70 pounds per element, with all rigging included.

Employing a two-point suspension system for easy assembly, the PN102/LA and PNX102/LA enclosures from Renkus-Heinz (www.renkus-heinz.com) share the same components, with the PN102/LA being self-powered. Both models provide 150° horizontal dispersion and have a frequency response of 50 to 18k Hz. These enclosures use two 1-inch exit HF drivers and two 10-inch woofers for the LF. The crossover point of these two-way systems is 1 kHz. The PN102/LA uses the company's PN-1 Power-Net amplifier rated at 300W RMS. STLA and STXLA line array modules are based on the company's CDT1.5 high-output CoEntrant driver with a 6.5-inch carbon-fiber cone for the mids and a neodymium HF driver with a 2.5-inch voice coil and titanium diaphragm. The enclosures use dual 12-inch woofers for the LF section. The STLA and STXLA provide 90° horizontal dispersion. Their frequency response is 45 to 18k Hz with crossover points of 500 kHz and 2,500 kHz. Renkus-Heinz line array systems include the company's AimWare software design tool.



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Line Arrays

Designed for large venues, the SLS (www.slscloudspeakers.com) RLA/1 incorporates multiple LS9900 three-way modules. The LS9900 comprises two 15-inch LF woofers, four 6.5-inch cone drivers for mid-range and two PRD1000 push-pull neodymium ribbon drivers for HF. The RLA/2 is designed for medium to small venues and utilizes multiple LS8800 modules. Each LS8800 employs two 8-inch high-powered woofers and the PRD1000 ribbon driver. The RLA/3 is a lightweight, compact line array comprising multiple LS6500 modules. Each LS6500 utilizes a 100W RMS, 6.5-inch woofer and an SLS PRD500 5-inch Planar Ribbon Driver in a compact bass-reflex trapezoid enclosure. Available in nonpowered and powered models, the LS8695 and the P-LS8695 employ eight 6.5-inch woofers coupled with nine PRD500 ribbon drivers. The P-LS8695 incorporates 24-bit, 96kHz DSP.

TCS Audio's (www.tcsaudio.com) TL1200 is a three-way, full-range tri-amplified line array element featuring two 12-inch neodymium transducers deployed in split quadrant waveguides to minimize side lobing. Four 6-inch slot-loaded midrange drivers coupled between the LF and HF devices provide high coherence and intelligibility. HF has three 1-inch exit compression drivers mounted to the company's Pure Path Lens System, which is coupled to the mid-frequency horn. The Baltic birch plywood enclosures are finished with the Duratex external coating. Frequency response for the TL1200 is 78 to 18k Hz (± 3 dB per single enclosure). A matching line array sub, the TL1200S, features dual 12-inch drivers. Response for the TL1200S is 35 Hz to 120 Hz (± 3 dB per single enclosure). All drivers for the TL1200 and TL1200S sub-woofer are manufactured by B&C Speakers. For rigging, the TL1200/TL1200S line array system features a proprietary quick-release pin system, designed and manufactured by ATM Flyware.

Founded 25 years ago, WorxAudio (www.worxaudio.com) offers the TL-V8, a high-efficiency, two-way compact line array. Dual 8-inch woofers coupled to an AIM (Acoustic Intergrading Module) minimize cone filtering. A 3-inch compression driver coupled to a proprietary FlatWave Former delivers highs over a predictable, controlled coverage area. Its multi-ply plywood enclosure is available unfinished or in white or dark gray catalyzed polyurethane. A custom rigging system offers versatile array options. ■

Roger Maycock is a freelance audio writer based in Los Angeles.

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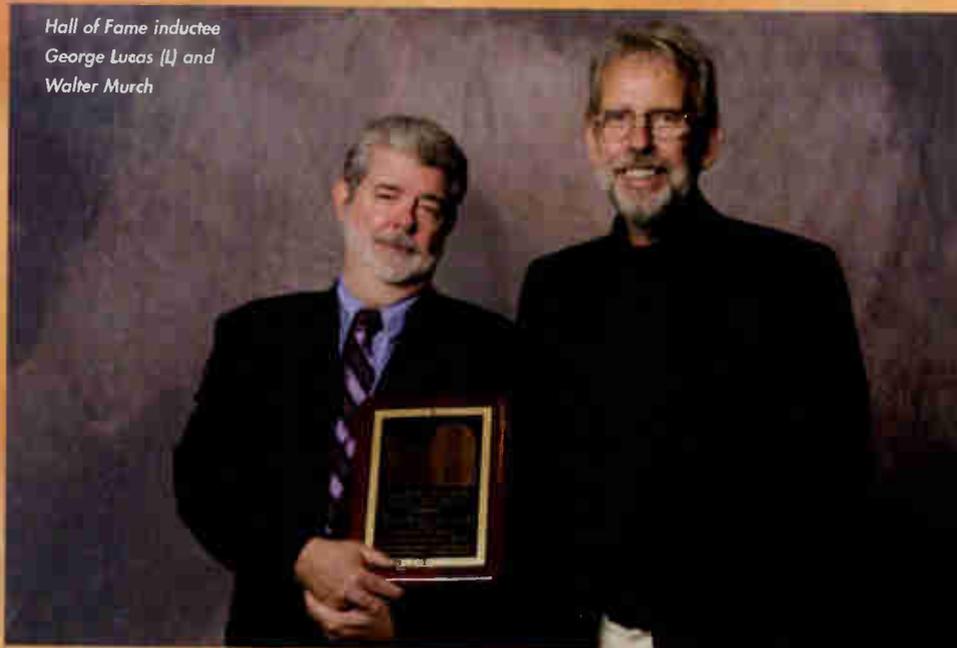
20th Annual TEC

The stars came out to celebrate the 20th Annual Technical Excellence & Creativity Awards, held October 30, 2004, in San Francisco. The evening's highlights included the induction of famed filmmaker George Lucas and engineer extraordinaire Elliot Scheiner into the Hall of Fame, and the presentation of the Les Paul Award to producers Jimmy Jam and Terry Lewis by surprise guest Janet Jackson. Dweezil Zappa opened the evening with a banging performance of Van Halen's "Eruption." The evening was hosted by the ever-popular Harry Shearer. Proceeds from the ceremony will go to assist the hearing conservation efforts of the House Ear Institute and H.E.A.R., and to scholarship funds for students of the audio arts and sciences.



For a complete list of winners and more pictures of the evening's festivities, go to www.mixfoundation.org or mixonline.com.

Hall of Fame inductee
George Lucas (l) and
Walter Murch



(L-R) Mix Foundation president Hillel Resner, Hall of Fame inductee Elliot Scheiner and presenter Walter Becker

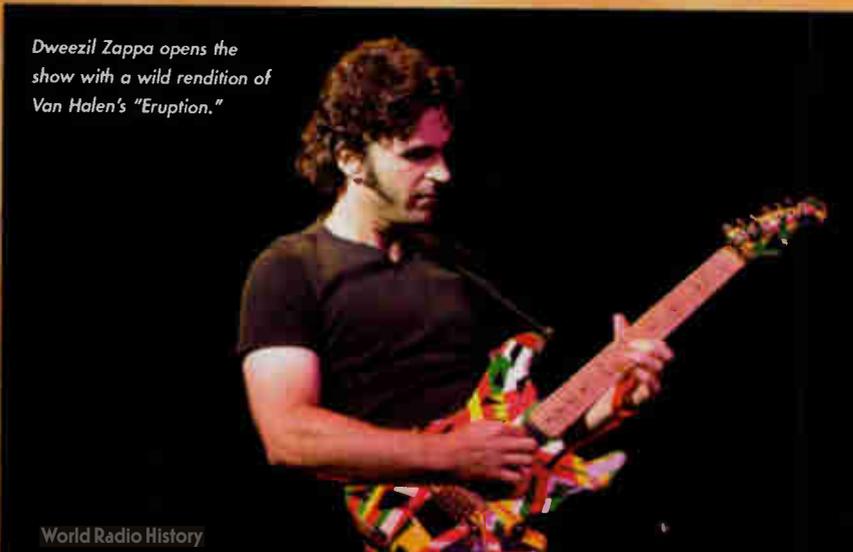


Presenters Phil Ramone (l) and Ed Cherney (second from right) with Bob Ludwig (second from left), winner for Record Production/Album, and Bernie Grundman, winner for Record Production/Single



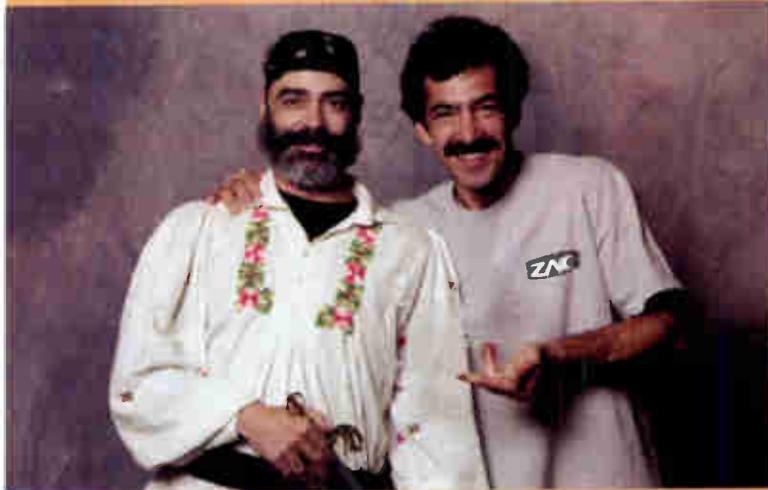
Master of ceremonies Harry Shearer keeps the crowd laughing.

Dweezil Zappa opens the show with a wild rendition of Van Halen's "Eruption."



Awards

VIP reception and show photos are by Eric Slomanson
Backstage photographer is Kirk Wuest



Tree Sound Studios' Paul Diaz (l), winner for Record Production/Single for "Hey Ya!," and Jim Zaumpano of Zac Recording, nominated for OutKast Speakerboxxx/The Love Below



Les Paul Award recipients Terry Lewis (l) and Jimmy Jam with their presenter, Janet Jackson



Rupert Neve (l) and Taylor's David Hosler accept the TEC Award for Musical Instrument Technology (Taylor Guitars/Rupert Neve Expression System)



Presenters Ray Benson (l) and Jerry Harrison at the VIP reception



Presenters Jeff Greenberg (l) and Rafa Sardina (second from right) with Focusrite's Dino Virella (second from left) and Phil Dudderidge and their TEC Award for Mic Pre-amplifier Technology (Focusrite ISA 430 MkII Producer Pack)



(L-R) Michael Semanick, Chris Boyes, John Kurlander and John Neil received the TEC Award for Film Sound Production (The Lord of the Rings: The Return of the King).

The Clubhouse

Cowboy Junkies Bid High for Low-Pressure Environment

That “one man’s trash is another’s treasure” saying proved doubly true for the Cowboy Junkies and their project studio, The Clubhouse. For starters, they outfitted their studio with equipment found through eBay and by putting the word out on their Website, www.cowboyjunkies.com. From their significantly upgraded rehearsal/demo space, the Toronto-based group compiled “throw-away” tracks, unreleased demos, old lyric sheets and rough takes for *Anatomy of an Album*, their new CD-ROM featuring remnants and musings from their latest album, *One Soul Now*.

The group began their equipment search three years ago while touring in support of their 2001 album, *Open*. “We have always had this goal of writing and recording an album in the studio,” says guitarist/songwriter Michael Timmins. “But the cost is sometimes prohibitive when you’re paying hourly rates.” However, their demo/rehearsal space, which is actually a renovated garage on a friend’s property that’s within walking distance for Margo, Michael and Peter Timmins, showed promise. “We realized that we didn’t really need that much stuff; a few more high-end items to make it worthy of recording an actual release. We started to get a lot of second-hand stuff, did a lot of shopping on eBay and cobbled together the studio.”

The group found three more Tascam DA-88s, bringing their total to four, replaced their Mackie 16-input console with a Mackie 32x8, and added Avalon 747 and TL Audio compressors, Dynaudio monitors and augmented their microphone supply. “We found a Milab microphone in Sweden when we were touring there,” Michael Timmins says. “We also bought a couple of really nice large-diaphragm Neumanns, a collection of condenser mics and others that we could use on guitars.”

Once they returned to their Toronto space, they plugged in and wired together their acquisitions and decided to give the new digs a whirl. Michael Timmins, who had operated their demo equipment, engineered. “Part of the reason we did this was so the schedule would be completely our own, and we wouldn’t have to get an engineer in there to push the button,” he says. “And if I was working on something, I could walk in anytime and everything was set up. If we felt like doing it or were on a bit of a roll, we’d just stay in there and work, but if things got stale, we’d take a day or a week off. For me, the schedule was relaxed enough that I didn’t feel overly pressured as far as the engineering goes. Once we got things set up, we pretty much left things as they were.”

Margo Timmins notes that her brother multitasked with very few glitches. “I was quite impressed because



The Cowboy Junkies “hide out” in The Clubhouse, from left: Michael, Margo and Peter Timmins and bassist Alan Anton

this was something totally new to him, and with having to push all the buttons and play guitar and everything else, he was able to figure everything out,” she says. “There were certainly occasions where he’d have to take out the manual, but that’s where teatime comes in!”

The group didn’t even have to leave the room for teatime. Their studio—decorated with memorabilia and gifts from fans—includes a small kitchen and storage areas for equipment and merchandise, as well as an isolated space, separated from the main studio by glass doors, in which Margo Timmins can record her vocals without losing sight of the band. The studio also contains a couple of homemade baffles, used only on rare occasions. “Part of our sound is that bleed of the instruments,” Michael Timmins says. “We isolate my guitar amp for some songs, but the best sound for us is to keep things fairly open.”

Their warm, melancholic and decidedly open sound became even more relaxed on this album, partially a result of their environment. “We approached all of the writing and recording as rehearsal or demoing or just playing, really,” Michael Timmins says. “Some days, we got something good; some days, we got little pieces of things that we kept or worked on later.”

“I like the idea of being able to go in and feel that I don’t have to sing my best that day,” Margo Timmins adds. “And I like the quietness. Often in big studios, you run into some other band from down the hall. But I did miss the comfort. We spent a lot of time at The Clubhouse in the wintertime and it was very cold; sometimes the toilet freezes up and I end up running to my sister-in-law’s house! When you’ve been there all day long, you wish that the comforts were a little less rugged. But I certainly wouldn’t trade what we have.” ■

Heather Johnson is an assistant editor at Mix.

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Randy Thom

The Year of Living Animatedly

A lot of people ask Randy Thom for advice about creating sound for film. That's not really surprising. Although the nine-time Academy Award-nominated sound designer/supervisor/re-recording mixer's filmography is intimidating (running the gamut from *Shrek 2*, *Harry Potter and the Chamber of Secrets* and *Cast Away* to *Forrest Gump*, *Backdraft*, *Wild at Heart*, *Colors*, *Indiana Jones & The Temple of Doom* and much more), he's actually extremely approachable. He also loves to teach.

Originally from Shreveport, La., Thom got his start in the sound business working for the campus radio station at Antioch College in Ohio. From there, he migrated to Berkeley, Calif., where he was hired on at famed Pacifica station KPFA, recording everything from news and documentaries to live broadcasts. It was seeing—and hearing—*Star Wars* that inspired him to seek work in film sound. ("It rearranged my chromosomes and opened my ears to possibilities," he recalls.) Persistence and a lucky break got him hired by Walter Murch as a sound effects recordist on *Apocalypse Now*, and he never looked back. In 2004, he celebrated his 25th year with Lucasfilm.

When we caught up with Thom, he was on a rare break. The two films that had taken up his life for most of 18 months—*The Incredibles* and *Polar Express*, on which he was both sound designer and supervising mixer—were battling it out at the box office. Amazingly, he'd managed to coordinate working on both at the same time, something quite unheard of. But then, Thom's done quite a few unheard of things in his career.

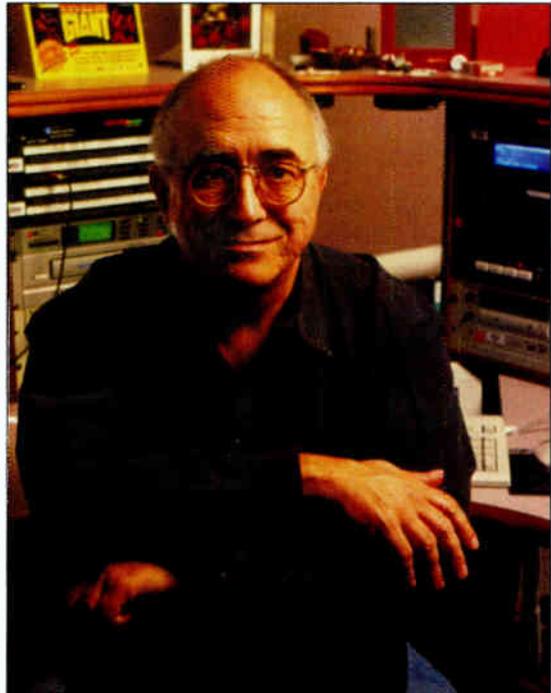
Are you enjoying the time off?

Actually, when I finish a project, I always go through a little post-partum depression. I start thinking that everything I've done [on the film I've just completed] is wrong. It takes me a few days to get over that before I can relax.

When you revisit films after a break, do you tend to find that your work is better than you thought?

I think anybody who attempts to do something creative becomes obsessed with what we perceive as the failures and the things that didn't work. That's what dominates your brain. Part of being able to do good work is to sort of hypnotize yourself so that you're not obsessed with that negative stuff. And after you get some distance, you're generally better able to see what's good about what you've done.

A very essential chemistry about the artistic sensibility is that balancing act: having enough self confidence—and maybe ego—to dare to think that you can do something interesting while also, occasionally, oscillating back to the other side, where you're full of self-doubt. If you maintain the balancing act, you're in the state of mind where good work happens.



With all of your experience and success, one might expect you'd have progressed beyond that kind of self-doubt.

When I give talks at film schools, I tell students that you often do your best work in those moments when you're feeling most desperate about not being able to do anything. It's funny, but people who hire me, or somebody like me, often expect that we'll know exactly how to do whatever it is that they want. Let's say, for example, you've worked on one or more dinosaur movies and they want you to create a dinosaur vocal. They assume you just know how to do that. But you'd be an artistic hack if you simply duplicated what you've done before. You want to create something new. And if you want to break new ground, no matter how much experience you have, you're always starting from zero with a blank piece of paper in front of you trying to figure it out.

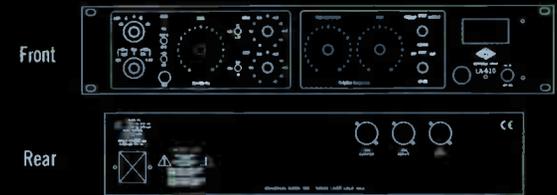
On the other hand, if you have a lot of experience, once you find a direction that seems to be working, all of the technique you've developed over the years kicks in. You know which kinds of experimenting will tend to be fruitful. But it's still scary every time you start a new project. When I started *The Incredibles*, for example, I was terrified at the number of sounds I had to come up with.

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The Incredibles presented many opportunities for new sounds, even at the dinner table.

and amazing chase scenes.

It's all over the ballpark. It was also intimidating working with [director] Brad Bird. He's really knowledgeable about sound, which is a double-edged sword. [Laughs] You never, ever play something for him and have him say, "That's perfect; don't change anything." It's always, "I love that! Now how about if we also do so and so?"

Brad's a wonderful leader—he's always positive. Some directors are so insecure that they panic when you play them something they don't think is right. They can't help but convey that sense of fear and negativity to you. Brad always finds something good to say and builds on that. He constantly pushes you to push your own envelope as far as possible. It's inspiring, but it's also a lot of pressure.

The overall sound for The Incredibles is terrific: warm and rich with great depth of field. The exact opposite, actually, of the trailer that I heard just before it that made me reach for my earplugs.

Brad and I both like dynamic range in a film. One way to make things extremely loud is to emphasize the middle part of the audio spectrum, the 1kHz to 4kHz information that people's ears are most sensitive to. When I'm doing a film, I do the opposite. I avoid emphasizing that range of frequencies most of the time. If there's an explosion or something that needs to be loud, I try to get as much of the feeling for it as I can in the bass. That makes it seem like a big event without hurting your ears.

I fabricated as many new sounds as I could for *The Incredibles*, partly because Gary Rydstrom did such a stellar job of establishing an identifiable voice on all the previous Pixar films. I tried to do the same thing on a similarly high level. Also, there were so many opportunities for new sounds.

For the six weeks when we were mixing the movie, I was still madly revising sounds and designing new ones. I had a mini sound design station on the dubbing stage and I'd stay there during lunch.

But about new sounds, I think it's rare that you do anything that's brand-new. My approach to the art is almost always to take something from the past and put an interesting twist on it. Young sound designers, I think, often get caught up in the idea of making a sound that's unlike anything anybody has ever heard before. But that's really hopeless. It also isn't very useful, because a sound needs a frame of reference.

Did you do much field recording?

Some. The Velocipods, the flying saucers [in *The Incredibles*], were a combination of new and existing recordings of Formula One racing cars combined with jet-bys. For something like that, the best place to start is to think in very general terms rather than thinking literally. For the Velocipods, that was they're fast and they fly. First, you think of everything you can that's fast, whether it flies or not, and whether it looks anything like a Velocipod or not. You listen, try variations, then make them faster by adding some artificial Doppler Shift and heating them up with added reverb—all of the usual stuff. Then, when you come up with a set of sounds that are emotionally and dramatically satisfying, you have to bring them down to earth, to where the sound is believable in the space it's in. To do that, you combine it with more conventional sounds and maybe some wind. Now you've got not only the sound of the object moving through the air, but the sound of the air itself. You combine all of those things in random ways and you happen upon a few really compelling moments. Then you try to remember what you did to create those few moments so you can make more variations!

The best work always comes from experiments. You have to be willing to go down hundreds of dead-end streets, and you learn something from each of those dead-end streets that you will eventually use.

Doesn't the intense time pressure of today's films make that kind of experimentation more difficult?

Short schedules make it harder to take risks, but that's always been true. The most valuable thing on a movie is the director's time. He or she is, typically, being pulled in a hundred directions at once. Any moment that you get to talk to the director, you have to use as efficiently as possible. For me, it works best to not theorize too much early on when I'm talking with a director. It's better to get just a few words that describe what they're thinking about. Then I go off and produce a bunch of sounds and sync them up, more or less, with the picture so that the director can hear them in context. Once you have something concrete to talk about, the next conversation is much more specific and useful.

That's what I did on *The Incredibles*, while I was jumping back and forth between it and *Polar Express*. I'd work a day or two, or a week or two, coming up with specific sounds. Sometimes they'd be cut to picture, sometimes not. I'd either play them for Brad in person or send them over to Pixar, then we'd talk about them. And Brad knows enough about sound to be able to make specific suggestions, like speeding them up or playing them backward.

The Incredibles' soundtrack is definitely full, but it doesn't sound cluttered.

There's a persistent myth that good mixing is about playing as many sounds as possible at once. But if you listen carefully to almost any complex sound sequence in a film, you're not actually hearing everything all of the time. You're hearing a constantly shifting change of the sound source from one thing to another. When you do that artfully enough, the impression the audience gets is that they're hearing everything all the time. But they're not, because that would just be a wall of incoherent noise. Although when you begin mixing that kind of sequence, that's often how it sounds. [Laughs] All of the faders are up, you're playing back hundreds of sound effects, more or less at the same time, along with a huge score and a full dialog track. It's frightening; typically, you can [sense] everybody's heart sink as they wonder how they're going to get it to make sense.

The art of mixing is deciding from moment to moment what you want to focus on. Everything else either has to come down in volume or it has to be altered in EQ so that it doesn't grab as much attention. In dense sequences, one of the tricks is to make sure

that the sounds you want to get people's attention have some kind of special quality to them. Just making them loud isn't enough; what gets the ear's attention is change. The easiest and most readily apparent kind of change is pitch. So to design a sound effect that will grab attention, you need to find a way to make the sound change in pitch over time. A gunshot isn't just a bang. It's an initial bang, followed by the reverberation of that bang, which will occupy a different part of the audio spectrum. Then there's maybe a third reverberation so that you get this constant kind of spectral or pitch change. That gives it character, grabs the ear and makes it seem like a big event.

Do you find more film directors becoming sound savvy?

The awareness is a little better, but sound is still the most neglected craft and art in movie-making, and it's not taught very well in most film schools. It's still seen as a necessary evil: a long succession of technical operations that you have to go through to make a movie. I've actually written an article on designing a movie for sound that you can read on Filmsound.org. It's a long list of complaints about sound not being taken seriously, but it also suggests steps to rectify that.

Unfortunately, a large percentage of directors tend to fall into one of two camps. Some are ultra-literal. For them, sound's main job is to provide a grounding function for the picture. They can do picture cuts and dissolves and perspective tricks, and sound will always be there in its gritty, realistic way to reassure everybody. There's another set of directors who think sound's main goal is to make people's intestines shake from the beginning of the film to the end. All they're really concerned about is that every sound be as loud and as cool as possible.

Certainly, sound can provide those functions. But the wise approach to sound design begins with the script; it's not about coming up with cool sounds to paste on the outside of a *fait accompli*. The effectively sound-designed movies are the ones that have been designed for sound, either before the sound designer even shows up or with the collaboration of the sound designer. That way, there are open doors in the story, in the way things are shot and blocked, in how much dialog there is and the way music is going to be used. Then sound participates in the storytelling. It isn't just a decoration put on at the end of the process.

I get a lot of questions from young writers and directors asking for advice on how to use sound. The first thing I tell them is, when you're writing a scene, think about what the characters are hearing. The most effective

way to do sound design is to channel the sounds in the scene through the characters on the way to the audience. That allows the sound designer and the director to stylize the sound in ways that tell the audience what the characters are like because of the way they hear the world around them. Most of the great sound sequences, certainly most of the great sound effects sequences in movies, come from the point of view of the characters. That has to be set up by the visual design and picture editing. I'm lucky to work mostly with directors who understand that. *You're fortunate in your career in that you work in many different film genres.*

I don't like being pigeonholed. Working at Skywalker, people often assume that you're a sci-fi/action adventure specialist. I love working on those movies, but I also love to work on mysteries and movies that use sound in really subtle ways, and occasionally a comedy. The sound designers I admire don't necessarily have identifiable styles. They're the ones who mold their techniques and approach to work with the style of the director and of the movie. That's what I try to do.

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Maureen Droney is Mix's L.A. editor.

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WIDEBAND | **DUAL CONCENTRIC**

Genuine Rock 'n' Roll

Chicago Music House Delivers Style and Substance

By Tom Kenny

Rock 'n' roll sells. It always has. But here in 2005, we have Zeppelin selling Cadillacs, the Stones licensed to Microsoft and Iggy Pop being used to hawk Royal Caribbean Cruises. Aerosmith is there for Buick, The Who gets you to look at Clarinex and Bowie might tempt some to send FTD flowers.

It's not new, this use of classic songs to appeal to a highly targeted demographic, but it does seem to be more prevalent as the dollars go up. Perhaps that's why it's refreshing that an original rock track for Coors Light in 2002 created more brand identity and more buzz than anything else on television. And it shows no signs of letting up.

The 60-second "Love Songs," with music by John Ferreira and produced by his Chicago music house, Genuine Music (www.guinemusicinc.com), is a dynamic, guitar-driven, vocal-effected homage to '70s rock that struck a cultural chord. Its opening, "I love football on TV/shots of Geena Lee/Hanging with my friends/...and Twins!" plays to multiple fantasies that seize beer-drinking young men, but it's the song itself, and the *sound* of the track, that fueled the appeal. After the commercial aired, the Genuine Website registered more than 400,000 hits, many asking how they could buy the "song." Hollywood took notice and made the Twins a part of *Scary Movie 3*—with a new version of the song. *Saturday Night Live* even did a parody.

"The whole thing just clicked," says Ferreira. "It had it all going—a little sex, a little fantasy, a cool rock track with a singer nobody knows. And then it's just pumped through the airwaves over and over again. It just hit pop culture, and it got to the point where everybody was singing the song. I heard it on Sunset Boulevard, and that's not even the hippest track we've done."

"We have done some very cool ads for other clients before 'Love Songs,'" adds Genuine executive producer Dave Dakich, "but that really put us in a rock market. It had this feel, where it wasn't just great hard rock, but it was an album-type track—very un-jingle as far as the sound."

Since then, the Genuine crew has gone



PHOTOS: CRAIG DALTON



Clockwise, from top left: Owner/composer John Ferreira; chief engineer Mike Tholen at the Helios; the hard-working Genuine crew of studio manager/asst. engineer Brian Beggs, executive producer Dave Dakich, Ferreira and Tholen.

out to L.A. to record a full-length song version, worked with the producers of the *Scary Movie* series and landed a weekly gig with ESPN Sports Center, where every Sunday night, they cut a new 90-second segment for the show, tailored to that day's NFL action. All-new lyrics and a whole new track, every Sunday afternoon, posted to Genuine's Website for ESPN to pick up.

The craze over the song helped put the small music house on the national map and created a lot of awareness among car and beer companies, which tend to lean toward energetic, moving spots. Genuine has since done Budweiser, Jeep, Ford Mustang, NASCAR, the U.S. Army and many others. Not bad for a single-composer, four-person

original music house that doesn't even employ a rep to bring in jobs.

The strength of Genuine starts with the talent and personality of its owner, John Ferreira. Born in South Africa to Portuguese parents, Ferreira fled to Europe at the age of 17 and began playing in bands across Spain, Italy, Portugal and the south of France. He came to New York in 1990, then landed in Orlando writing and producing for Universal Studios. Soon bored with that, he moved back to New York, then to Nashville, before finally settling in with a local band, the Groove Merchants, in Chicago.

After he had done some studio work in

—CONTINUED ON PAGE 64

The Aviator

Vintage Planes, Eccentric Billionaires, Challenging Sound

By Blair Jackson

Most people probably remember billionaire Howard Hughes for the crazy, pathetic creature he was in his last years: wildly unkempt, living in complete isolation in a Las Vegas hotel, equally afraid of germs and people. But the Hughes of Martin Scorsese's latest film, *The Aviator*, is a dashing young man who became a successful producer and director in Hollywood beginning in the late 1920s. He was also a fearless pilot, plane developer and airline executive, and as portrayed by Leonardo DiCaprio, "all the eccentricities Hughes exhibited later in life were certainly present early on," comments *Aviator* re-recording mixer Tom Fleischman.

One of the most challenging aspects of *The Aviator* was dealing with so many different kinds of airplanes: the bi-planes that dogfight in the making of the Hughes-directed 1930 film *Hell's Angels*; the speedy racers that Hughes pushed to the limit (and even crashed); the mammoth wooden H-4 called *Hercules*, but mocked in the press as the "Spruce Goose"; and many more. Sound designer Eugene Gearty (*Gangs of New York*, *Eternal Sunshine of the Spotless Mind*) had wanted to record the vintage plane sounds he needed for the film, but was initially turned down. This caused problems when the temps were being worked on during January and February of 2004, and Thelma Schoonmaker, Scorsese's longtime film editor, wasn't happy with what she had been given from libraries.

"Even Marty complained about it," Gearty says. "But that became my ace in the hole—to say, 'I told you so. Now let's go out and get the real stuff.'"

So in early summer, Gearty and a small crew did a week of recording at four different airfields in California's high desert, putting a wide variety of pre-World War II radial engine planes through their paces. Patricio Libenson "was my go-to guy," Gearty says. "He's a pilot, so he handled a lot of the logistics. Tom Fleischman is also a pilot, and he came out to help record the last

couple days of work." Giovanni Di Simone and Jeremy Pierson also worked on the recordings.

"We always tried to have three [sound] perspectives simultaneously," Gearty says. "One was a close-up, which was usually me with a Schoeps [KFM6] binaural head, and then we also had two spaced stereo pairs—Shure SM-7s and B&K 401s—at different spots on the tarmac. Then, when we actually got into the B-25, we had some Schoeps BLM-03 boundary-layer contact mics taped to the fuselage." Recordings were made to Zaxcom Deva (the Shure and B&K mics) and DAT (the Schoeps).

"My assistant, Larry Weinland, and I set up this database [in Pro Tools] so every entry in Sound Miner has at least three components representing the three mic setups," Gearty explains. "We'd get these multiple pass-bys of liftoffs, and when you'd line them up later to a sync point, it was pretty cool. I could rifle through my library and get different perspectives of the same action."

The crew captured a number of different planes. "Steve Flick said to me on the way out, 'Get more than you ever think you'll need because you'll be amazed at how little you have when you really need it,'" Gearty says. "Now I know exactly what he meant, because even though I had a lot of material, I had to edit the living hell out of it to make it work. Using a Pro Tools|HD system, I edited everything myself and premixed it, and it ended up being so much cutting."

He also cheated a little bit: "Patricio and I would come back every night after the records and go in his studio and download the data to Pro Tools, listen to it and assess it. He didn't have air conditioning, but he had these big, regular home fans. Every time I walked by one of the rooms where a fan was on, I wondered, 'Why am I not using that?' So we recorded two of them, and sure enough, the proximity of the mics to the fan really made it feel like a plane. It had



Recordists (L-R) Eugene Gearty, Jeremy Pierson and Patricio Libenson

this soft, warm feel, and that was what we used for the sound of the Sikorski in what Marty thought of as his big love scene." Gearty did all his effects (and Foley) mixing at C5 Sound in New York, his home base. C5's Phil Stockton, another Scorsese vet, was supervising sound editor on the show and cut the dialog.

"When I was premixing, I built 5.0 elements for Tom [Fleischman]," Gearty says. "He had those on a master [fader] on the Euphonix [System 5 at Soundtrack in New York City, where Fleischman does his mixing], so I'd give him four or five 5.0s, and those showed up as a fader for each."

Not surprisingly, too, the plane sounds afforded Fleischman some interesting possibilities in the surround mix. "There's a point early on in the film where Hughes is flying a racer, and we have a couple of nice flybys that come and go from the surrounds, and it feels like it's going through you. One of the interesting things about CGI is you're able to do things that could never be filmed in reality."

In the end, Scorsese wanted the sound effects to serve the story—nothing more. "A lot of the qualities Hughes has are qualities that Marty has, so in a way the film's a little autobiographical," Fleischman says. "He would even joke about it. Hughes was this driven, obsessive-compulsive character, and so is Marty. And that's one reason he makes great films." ■

Christmas With the Kranks

Scoring a Kranky Comedy

By Matt Hurwitz

leigh bells, an accordion and a theremin. Oh, and a 100-piece orchestra, too. Those are some of the ingredients for film composer John Debney's latest release, *Christmas With the Kranks*. And while Debney is most proud of his score for *The Passion of the Christ*, he is best known for his work in comedies such as *Elf*, *Bruce Almighty* and *Liar Liar*.

So does recording a comedy score differ much from recording for a dramatic film? "The short answer is yes," says Academy Award-winning scoring mixer Shawn Murphy, who recorded the score for *Kranks* at Sony Scoring Stage in mid-October. Debney and Murphy have worked on countless films together since their days at Walt Disney Studios in the early 1980s.

"The way it varies depends on the musical approach and on the picture itself," Murphy says. "Comedy, somewhat like animation, requires a little more of a spotlight presentation in the orchestra. You want to make sure that all of the detail in the orchestra is brought further forward because it is often commenting on either dialog or action on the screen."

Often, particularly in Debney's case, comedic scores feature an additional mix of unusual instruments. "It's a rather eclectic blend of everything," says Debney. "We've got tubas and piccolo solos. And lots of percussion, particularly on this film, with crotales, glockenspiel and celeste playing to give it a nice Christmas-like feel." And, of course, an accordion. "John uses that a lot in his comedy scores—I think it's a little bit of a trademark now," notes Murphy.

To bring those spotlight instruments forward without sacrificing good overall balance, Murphy works with microphone choice and positioning, balance, equalization and a small degree of reverb, "to keep it a little more up front, a little drier, a little more defined than you would in a full symphonic treatment that might be devoted to a dramatic presentation," he says. "Just so that all of the elements that are specifically meant to go with action are available and don't have to be pushed forward in the mix, requiring the dubbing people to move the whole orchestra forward."

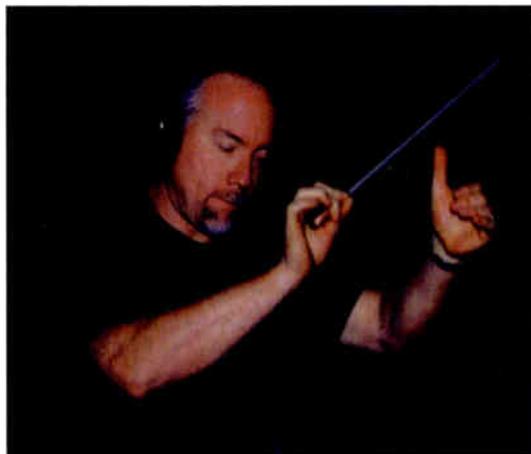
Murphy would normally use ribbon mics, such as Cole 4038s, for the wood-

winds, but for this film, he uses Schoeps 4s and 41s placed closer to the instruments, which allows them to pop through to a greater degree. He typically uses a Decca Tree setup with Neumann M50s, though for this film, the Tree was outfitted with Schoeps 222s with MK2H capsules. "Because of the kind of score it was, and because I knew there would be a lot of spot miking, I didn't feel that I needed a lot of reach."

Debney credits Murphy for his skill in balancing the orchestra, helping to create a clear recording with good separation, which proved helpful later on the dubbing stage. "It's critically important, depending on what room we're in, to balance the blaring brass or the hits on the percussion so that nothing becomes too overblown," Debney says. "I don't know that a lot of other engineers I've worked with are as aware of that as Shawn is." Says Murphy, "A lot of it really depends on good orchestration. John uses a top-notch orchestrator, Brad Dechter, who writes the music so that it's playable and balanced internally very well."

A loud cue doesn't necessarily need to be played loud to provide full effect. "A studio's not a concert hall," notes Murphy. "In a live room, the music might be played in four times the room volume, which means the sound has a chance to dissipate in the room and not necessarily come back quickly or at a high amplitude. In a studio with a 100-piece orchestra playing fortissimo, what comes back quickly is what you don't want to hear: reflected material off walls and floor, which comes back delayed and, consequently, out of phase with the direct material. It causes a lot of congestion and lacks clarity."

Kranks was recorded to 192 kHz/24-bit Pro Tools 6.4, 36 channels wide, using Genex GX A8 8-channel AD/DA converters provided by Burbank, Calif.-based DMT Rentals. A second rig, 24 channels wide and running at 96 kHz, was provided by Gear Works Professional Audio in North Hollywood. That rig, operated by Erik Swanson, was used to mix stems, play back



John Debney

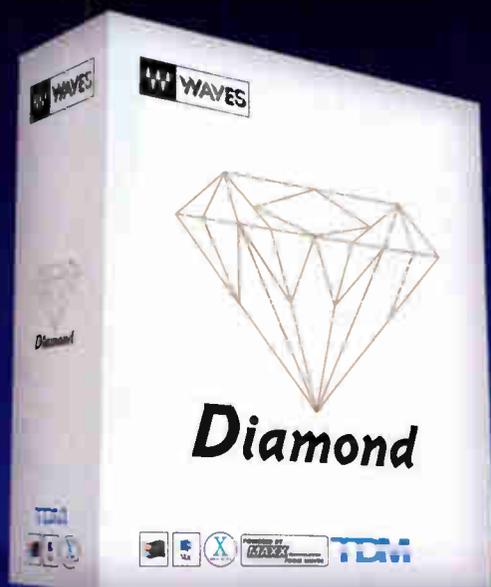
pre-recorded material and record overdubs. Murphy often records live stem mixes during sessions, particularly on a film such as this, when dubbing was taking place almost concurrently with recording.

Regarding Pro Tools, Murphy says, "I look for a sound quality that's as close as possible to the original source. Up until about a year ago, there has been nothing that I have preferred to analog tape. Over the last eight months or so, though, we've been concurrently running 192kHz 36-track Pro Tools with Genex converters to get a handle on what it sounds like. It's come to the point where I'm satisfied that we're getting a close enough replica to the bus that, after switching back and forth, I'm happy to use that as a master and not analog tape." Murphy still runs 2-inch analog as a backup, which—after the Pro Tools takes are checked during breaks and at the end of the day, and backed up to two other drives—is wiped clean and reused.

Debney likes the results Murphy achieves. "There's a transparency to his sound that I've not found from many other guys," he says. Murphy credits the overall picture. "Good composition, good orchestration and proper attendance to the dynamics in the space so that it sounds good in the space, and making sure the loud dynamics never get too loud and the balances stay intact. If you do that, it will always sound better." ■

Matt Hurwitz is a freelance writer based in Los Angeles.

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World Radio History



 **WAVES**

The Professional Standard

Inside *The Assassination of Richard Nixon*

An Auditory Journey Into One Man's Madness

By Maureen Droney

Based on actual events that took place in 1974, *The Assassination of Richard Nixon* documents the evolution of an ordinary furniture salesman into a would-be assassin who plots to kill the president by hijacking an airplane and flying it into the White House.

Written and directed by Niels Mueller, *Nixon* stars Sean Penn in the lead role of Sam Bicke. Mueller was already working on the film's thesis—the progression of a person from “normal” to tragically extraordinary—when he happened upon Bicke's true-life story and deemed it the perfect illustration. Set in Pittsburgh, the plot unfolds over the course of a year, during which Bicke becomes increasingly isolated and delusional, eventually focusing on then-President Nixon as the source of both his own and America's problems.

“Sound-wise, it's a really different kind of movie that I feel lucky to have worked on,” says supervising sound editor Anna MacKenzie of Soundelux, who numbers among her editorial credits *Black Hawk Down*, *The Bourne Identity*, *The Bourne Supremacy* and *The Sopranos*. “It's beautifully shot and very realistic in its early '70s time frame. The sound needed to complement that. At the same time, the film follows a man descending into madness. A major theme is that he's the only one going there. His friends, his ex-wife, his kids—none of them see the problems with the world that he does. So we had to balance between Sam's point of view and the world going on around him as usual.”

“When I first sat with Emmanuel Lubezki, the cinematographer, to talk about shooting the film,” comments Mueller, “I said that this film would be as singular a point of view as you'll ever see in a movie. The success of the film depended on the audience taking this journey through Sam's eyes. Anna really helped by also taking the journey through his ears.”

“We started with Sam and his perspective,” MacKenzie adds. “For example, there's a scene where he visits his ex-wife's house. His children are in the background, but you don't really hear them until they interrupt him. It's about what Sam notices. When we had those pieces down, we added the rest of the world as a counterpoint.”

Weaving in and out of the soundtrack is a constant flow of media: television and radio news dominated by the unfolding Watergate scandal and congressional hearings. Prior to post-production, Mueller and picture editor Jay Cassidy auditioned Watergate hearing tapes and a vast amount of original news footage.

“At the beginning of the movie, Sam isn't aware of world news,” MacKenzie explains. “As the story progresses, he becomes inundated with it. It becomes part of his motivation for the assassination. It's almost constantly there, and we had to fit that in, sometimes in the background, sometimes more prominently, with normal backgrounds taking a back seat. It was from different sources and of varying sound quality, but most of it had already been digitized for us. Niels and Jay had been living with the recordings for a long time, but we still had sessions where I'd load in Watergate tapes and we'd pick through to find pieces for different sections. Then it was a matter of mixing them, with all their varying sound quality.”

Music, both the original score by Steven Stern and the classical music that Bicke listens to, was also a component in the sound design. “I wanted you to feel almost enveloped,” notes Mueller. “You're entering a world. The score and the classical music are a part of it. The challenge for Steven was to write a score that gave voice musically to some of what Sam is feeling, while also tying into the music that he listens to.”

Nixon had no temp soundtrack and no test screenings. The first mix, featuring almost entirely Bicke's sonic point of view, accompanied a Cannes Film Festival screening. It was, MacKenzie says with a laugh, “Our temp. It was very sparse and we decided that it was a little barren. Sam is very focused on certain things that don't exist for the rest of the world. At first, we went a little too far in that direction. When we realized that, it became a matter of blending sources, deciding what to feature

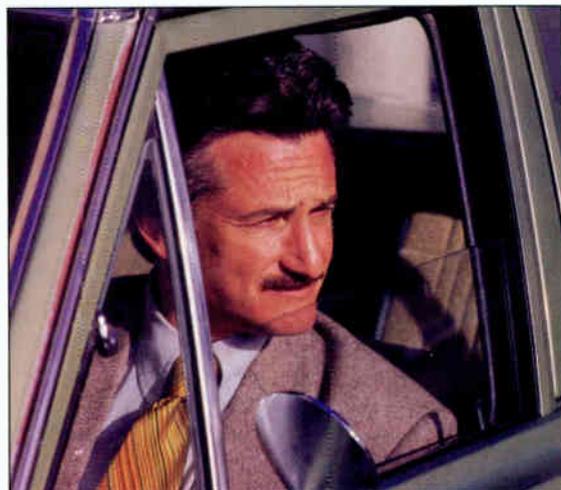


PHOTO: PHIL BROW

and when to go back to Sam's perspective. Since we were also constantly bringing in television and radio news sources, we had a lot of choices to deal with at the mix to get the balance right.”

Mixing for both versions was handled by Tony Lamberti (sound effects) and Marc Fishman (dialog and music), with final dubbing in Hollywood at Todd-AO/Ascent Media's Stage 2. MacKenzie gives high marks to production mixer Jose Garcia, pointing out that little ADR was necessary. “It's pretty amazing when you see the noisy industrial environments he was working in,” she notes. “Mark also did a great job during mixing to pull all the dialog out.”

“At first glance,” she concludes, “this may not seem like a big ‘sound’ movie. But a lot of thought went into making it right for its time and to be suggestive. It's a full soundtrack, but also very understated. The performances, especially from Sean, Naomi Watts as his wife and Don Cheadle as his best friend, are subtle and beautiful. We had to tread very carefully to stay out of the way, while working psychologically with the performances. When you're fortunate enough to have these kinds of performances, what you do is aid them. We wanted the audience to lean in and really be with the characters. Even after all this time working on it, every time I see this movie, I see new things in the acting. It's a sad story, but there's also this amazing dark humor. I think everybody should see it five times! They'll see more each time.” ■

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Genuine Music

—FROM PAGE 58

town, Sun Paradise Records hired him to produce, and later he began ghost-writing for commercials. In 1995, he decided to open his own shop, with Oldsmobile and Kellogg's as his first clients, but continued to use studios like CRC and Streeterville to record. By the following year, he opened his own studio.



PHOTO: CRAIG DALTON

Slimmy on a Sunday, singing his "Love Songs" into a U87

Today, Genuine, a single-room facility in the River North gallery district of Chicago, is busting at the seams with classic amps, vintage modules, prized old recorders and guitars, guitars, guitars. (The vintage keyboards—B3, Farfisa and "the Wurly," among others, reside in "the keyboard room.") Past the modern kitchen/lounge area, it has a lived-in, working-musician vibe, a testament to many 4 a.m. nights meeting the compressed deadlines of today's ad market. Ferreira is the owner/composer, Dakich the executive producer. Mike Tholen is chief engineer and Brian Beggs is studio manager/assistant engineer. First and foremost, they are all musicians, and while they work in a variety of styles, they all love classic rock. They've stocked Genuine to get that sound, starting with a 16x4 Helios console.

"Sonically, it's amazing," Ferreira says. "It's a simple board but it just rocks. The mic pre's are extremely dynamic and the EQs are simple but get what you need. The coloring of it is just awesome, and we track pretty much everything through it. If we need a more tube vibe, we'll use the [Telefunken] V76s and V72s. If I need

compression on guitar, I can go straight to the Neve 2254s. But most everything is Helios. I just think it's so much easier to get a good sound out of good gear than trying to get a good sound out of bad gear."

"This console came out of a radio station in Canada," Tholen explains. "It was installed there in the mid-'70s, and when we got it, there were four faders with tape on them, with 'Dan,' 'Jimmy,' 'Stephanie' and some other name. So whatever DJ was in that day would just pull their fader up. On the mic pre gain pot, on the filters, the whole channel strip, there were fluorescent stickers that said, 'Do not touch!' Only four channels had ever been used. Our only real tweak was to actually exercise the pots 'cause they had never been moved." [Laughs]

Nearly everything done at Genuine is tracked live and wet with effects, and nearly everything, at least for the rock tracks, runs through the Helios before being sent through a RADAR (for its converters; it also serves as master clock) to Pro Tools. (Whenever possible, Tholen prefers recording to the two Studer J37 1-inch 4-tracks.) But beyond that, there are no recording formulas, except perhaps for singer Steve "Slimmy" Simoncic, known for the distinctive "Love Songs" vocal heard every Sunday night throughout the fall.

"Slimmy's chain never changes," Tholen says. "It's a mid-'70s U87 with the backplate redone by Tracy Korby. That gets shoved into channel 13 on the Helios and gets filtered from there at about 80. He doesn't need EQ or anything. Over the insert of that, I always throw a Neve 2254 with some mild compression. That gets direct outs into RADAR, which goes into Pro Tools. But 99 percent of what Slimmy does here goes from quiet to loud to quiet again. So at the same time, I split off out of an echo send and go into these old Telefunken U73V tube push-pull, Fairchild-type compressors. I go into one channel of that, out and back in a second channel, then bring it back on channel 14 of the Helios, tracked side-by-side with the clean vocal. When we go to mix, those loud parts are mixed in with the clean and it adds a hell of a lot of attitude."

For Ferreira's 1959 Les Paul Junior, Tholen goes straight into a custom 1-in, 6-out splitter, then to a Dual Rectifier and a Diezel V114. Both amps go to different cabinets in the live room, each miked, typically, with an Sennheiser 421 and a Coles 4038. "Once I bring those four mics back into the Helios, I usually mix all four

down to one bus. I like to get all my sounds while I'm tracking, so there's not four tracks to deal with when mixing in Pro Tools. If it's not right, we'll re-track it."

While "Love Songs" raised the profile, Genuine has been producing A-list work for years, often on location. Comfortable enough with FTP delivery, e-mail approvals and video downloads, they also travel extensively. "We're a small boutique-y company that likes to remain nimble," Dakich says. "We can produce and perform music anywhere in the world, and we're just an airport away from doing it. We've been to Italy to record a 90-year-old mandolin player for a pizza commercial. We went to South Africa to record tribal drums for Budweiser. We just got back from Abbey Road, and we go to L.A. regularly. Just recently, we did a 70-piece orchestra conducted by Alf Clausen for a Nintendo spot."

They also were recently in L.A. recording the sounds of the new Mustang's engine, driven by Bobby Unser Jr. on the Pacific Coast Highway. Ferreira took those engine sounds and turned them into a broken, grungy, yet very musical version of "Star Spangled Banner," which Dakich describes as what it might sound like "if Jimi could strap on a Mustang."

Genuine has certainly benefited from the ad agencies turning to rock 'n' roll to attract the Boomer generation, but Ferreira has a long record in a variety of styles. "Music is a very personalized thing," he says. "Ads need a specific look, so every time they shoot, it's with a different director. There's a little more loyalty with picture editors who they feel comfortable with. But a good music house has to do everything. When I write harmonies, I write at the piano. When I rock, I pick up the guitar. For gospel, I pull out the B3. R&B and hip hop, I sequence at the MPC 4000 because I love the groove. We might go from full-blown orchestration in L.A. to a four-piece rock band to big band horn sections. Anything. But we always take the same approach in that we do most of our production live and we track to real gear. We take our time to make it sound like a record."

The danger, of course, in hitting big with a track like "Love Songs" is that the ad market is quick to pigeonhole houses as a certain type. To that, the Genuine team responds by pointing to the variety on their Website or their reel. "But," Dakich says, "if we are pigeonholed as doing authentic, kick-ass rock tracks, there could be a lot worse things to be." ■

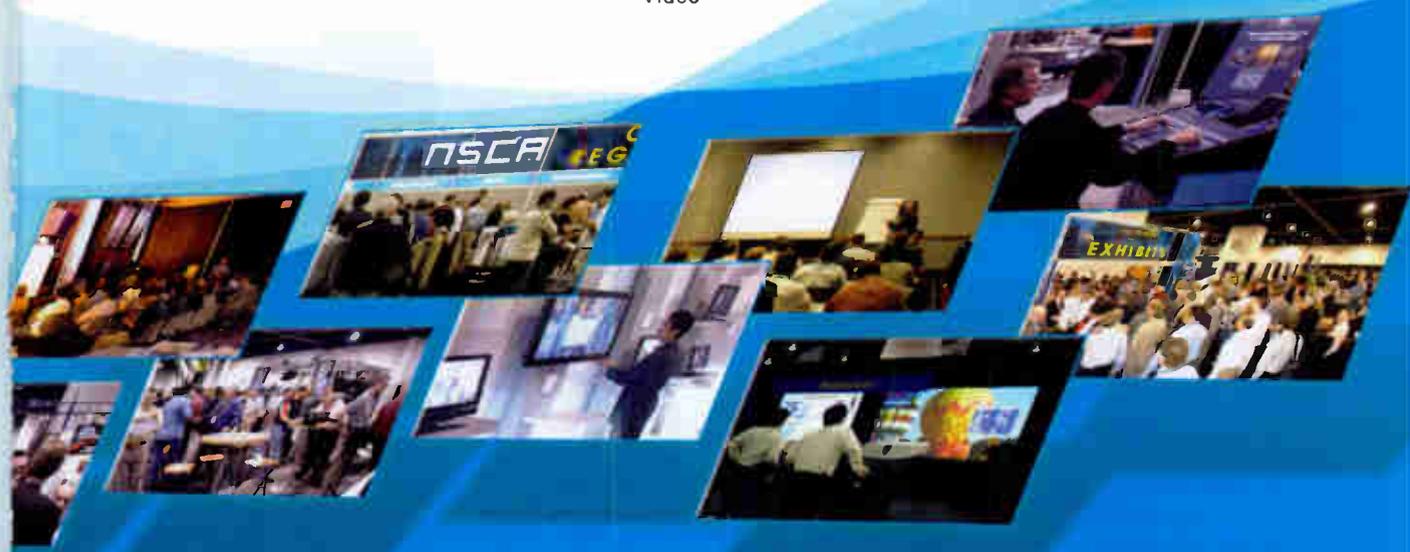
Tom Kenny is the editor of Mix.

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World Radio History

Kasey Chambers



Text and Photos by Steve Jennings

Australia's Kasey Chambers keeps it in the family: On tour, her father, Bill, plays guitar/dobro; and her brother, Nash Chambers, is her producer/manager/front-of-house engineer. Nash Chambers first began mixing by doing the Dead Ringer Band, which comprised the entire Chambers family. "It gave me something else to do that I enjoyed while we were touring," Nash Chambers told *Mix* when we caught up with Kasey Chambers on her current tour supporting *Wayward Angel* in early November at San Francisco's The Fillmore.

"For Kasey's vocal," he continues, "I've been using a Neumann KMS 105, which is fantastic and good when she belts it out in a harsh area, like around 4 kHz. The mic feeds an Amek 9098 mic preamp/EQ and a BSS 9012, which I love. I always have a handful of SM57s—it's still my all-around favorite mic." Nash Chambers uses the 57s on snare, toms and guitars, and opts for a Shure Beta 52 on kick.

"When going from gig to gig where you might have a different P.A. system every show, my starting point is tuning the P.A. to Kasey's mic. flattening out the graphics and going from there. I generally don't use reverb on Kasey's vocal unless it's a really dead room, but I generally mix her records relatively dry, as well. We tend to use a lot of reverb but in short amounts: for the snare on some songs and guitars a bit. For inserts, I use a couple of gates on the toms and sometimes the kick and then a good stereo compressor.

"I spend part of the night walking the room: I'm mixing for everybody in the room and not just the mix position—which can be located in some strange places at times."



Nash Chambers (brother, producer/FOH engineer)

FixIt

Freelance engineer Sean Sullivan has toured with Sean "P. Diddy" Combs, Justin Timberlake, Jennifer Lopez and 98 Degrees and is currently on tour with Jessica Simpson.



The real-time analyzers most touring vendors send out are simple LED units with few features or functions—not much help if you want to measure the room in 20 different spots and save 20 different presets of what the room looks like. I use [Metric Halo's] SpectraFoo, which can re-create a third-octave-style analyzer, but being software-based, it can memorize as many snapshots as I want. I can also send my console solo cue bus to it and use SpectraFoo's phase scopes. For interfacing several sources from my console to a laptop (which lacks multiple inputs) to run SpectraFoo, I use [Metric Halo's] Mobile I/O. This turns your laptop into a miniature console, with eight analog I/Os, and AES and S/PDIF digital I/Os. With that setup, you have a little matrix mixer and everything a console would have, except there's no surface.

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News



EML, a European sound, lighting and video company, took delivery of a DiGiCo D1 Live digital mixing console, seen in use here by engineer Igor Dockx during the classical/pop celebration, Night of the Proms.

SLS Loudspeakers was part of an install done by Rutherford Design for nightclub Blush (Burlingame, CA). The venue's DJs spin house, hip hop and funk, and project their sound over the dancefloor via multiple SLS 112R and US218SW speakers. The DJ booth features US819 while private party suites offer US 8190 and 212EL speakers. Sound reinforcement company 3G Live (La Habra) took delivery of new L-Acoustics systems to service business and win upgraded bids. The rig includes V-DOSC and 12 dV-DOSC, 16 SB218 and four dB subwoofer enclosures, 24 115XT HiQ floor monitors, 13 racks of power amps, patching systems and rugged hardware...Shure donated \$50,000 to benefit hearing conservation programs, including the Deaf Research Foundation, the Kresge Hearing Research Laboratory at Louisiana State University and the House Ear Institute. Shure president and CEO Steve LaMantia says, "We are proud to support the cause of hearing conservation and the efforts of the organizations who are also dedicated to educate people about the dangers of noise-induced hearing loss..." Syn-Aud-Con announced new and revised seminars for 2005, which are available now at www.synaudcon.com/sched.htm.



Latest Installs

JBL Roars In San Francisco

JBL and Pro Media/UltraSound (Hercules, Calif.) recently completed an install requested by San Francisco-based stadium Monster Park. The original system, which was installed in 1988 by JBL, was expected to last only five years as a result of the area's climate, but lasted 16 years, when the upgrade took place this past fall. Using JBL's AE Series for the main bowl of the stadium, Pro Media's Demetrius Pavalos built custom enclosures for its rear/front down-firing components, which are used around the stadium's upper and lower decks. Other products used throughout the stadium include JBL PD 700 Series, Control 25T and 28T-60 speakers, driven with Crown CT 2000 and 3000 amps with IQ modules, and BSS Soundweb processing.



Filene Center system engineer Gavin Pearce

L-Acoustics, Yamaha Camp Out

The 7,028-seat indoor/outdoor Filene Center, part of the Wolf Trap national park (Vienna, Va.), upgraded with an L-Acoustics V-DOSC P.A., which includes 12 elements and four double 18-inch sub-low cabs per side, and a center cluster containing three arcs driven by QSC 6.0 amps. A 69-channel active splitter divides signal between the house, lawn, monitor areas and provisions for a recording truck. Other gear includes six bays of proprietary JBL cabinets (powered by Crown and JBL/UREI amps), a Yamaha DMC2000 console and additions to the outboard rack.

Now Playing

Tom Waits

Sound Company: Rat Sound
 FOH Engineer/Console: Deanne Franklin/Midas H3000
 Monitor Engineer/Console: Derek Van Ord/InnovaSon Grand Live
 P.A./Amps: L-Acoustics V-DOSC, dV-DOSC; Rat sub/Crown VZ5000, 3600, 2400
 Monitors: Rat MicroWedge 12, sidefills and drumfills; Sennheiser 300 IEMG2
 Outboard Gear: Focusrite Red-3; Drawmer DS201; BSS Audio DPR-404, DPR-901; Lexicon PCM60; TC Electronic 2290; Yamaha SPX-990; XTA DP226, DP224
 Microphones: Shure, Audix and Sennheiser
 Additional Crew: Lee Vaught, system tech; Stuart Ross, tour manager; Daniel Choi, production manager

Hoobastank

Sound Company: Clair Bros.
 FOH Engineer/Console: Brendon Brown (also tour manager)/Midas Heritage 3000
 Monitor Engineer/Console: "We do not have a monitor engineer," Brown says. "We use a Crest XRM rackmounted console for all of the in-ear mixes and the guys mix themselves."
 P.A./Amps: racks and stacks rented locally
 Microphones: Audio-Technica 5000 Series Wireless System with AEW-T300 capsule (vocals), ATM63HE (top and bottom snare), AE2500 (kick), AE5100 (hi-hat, ride), AE3000 (rack toms), AT4050 (overheads, guitar amps), AT4047/SV (bass)

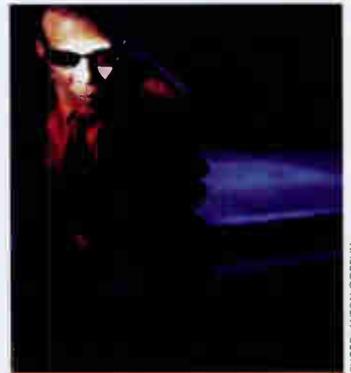


PHOTO: ANTON CORBLIN

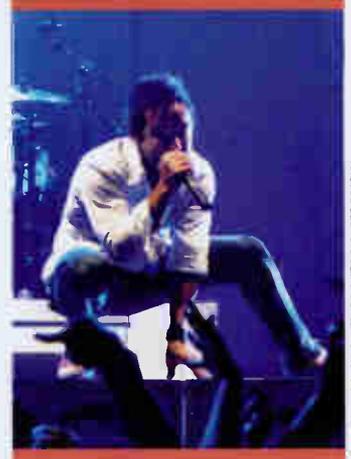
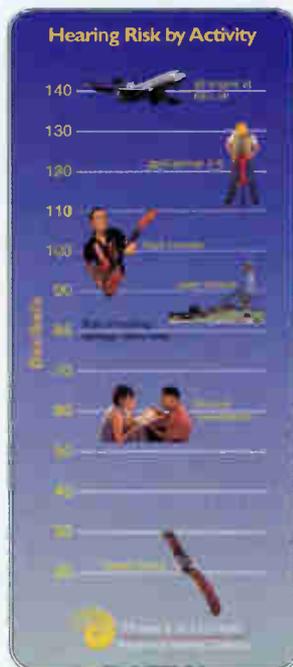


PHOTO: JACQUES BAUTBAR/WIREIMAGE.COM

House Ear Institute Listens to Industry, Provides Services

The House Ear Institute (HEI), a non-profit hearing health institute located in Los Angeles, offered complimentary hearing screenings and hearing health information at the AES show held October 28 through 31, 2004, in San Francisco. Record numbers of screening participants turned out to use the company's services, which was attributed to audio industry's mounting awareness of and interest in preventing Noise-Induced Hearing Loss (NIHL). NIHL occurs when the ear is over-exposed to excessive sound levels and the inner ear becomes damaged. Says HEI director of marketing and outreach Marilee Poitthoff, "We've seen an encouraging shift in the awareness of the issues of noise and hearing loss and a greater willingness to address personal hearing issues as a part of maintaining a long-term career in sound."

For more information, please go to HEI's Website at www.hei.org.





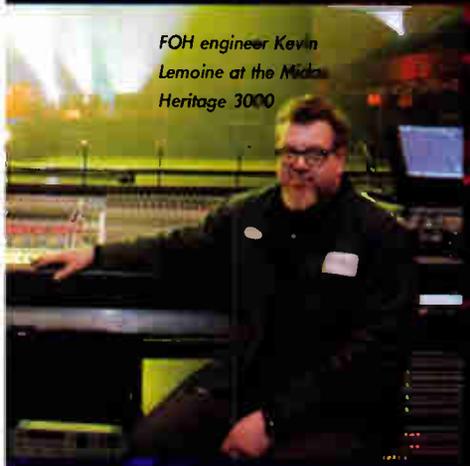
Photos & Text By Steve Jennings

Reaching Number One on Billboard the week it dropped in September 2004, Green Day's *American Idiot* follows Jesus of Suburbia through his confusion, alienation and disillusionment, while fueling that "rocking out in front of a mirror when you're 15" energy that this punk powerhouse has become famous for.

Stepping back into the spotlight (the band took a hiatus from touring since the 2000 release of *Warning*), Mix caught up with the high-energy Oakland-based band at their hometown show—across the bay at the Bill Graham Civic Auditorium in San Francisco in late November.



FOH engineer Kevin Lemoine at the Midas Heritage 3000



A Midas Heritage 3000 handles front-of-house duties with a TC 2290, Yamaha SPX-990 and Lexicon 480X in the effects rack. House mixer Kevin Lemoine likes the tube sound: "On the kick and snare inputs, tube comps keep them nice and fat in these big arenas," he says. "The kick lines have a Summit DSL-200, and the snare channels and bass guitar lines get Tube-Tech 2-channel compressors. I'm using BSS compressors on horns, acoustic guitars, keys and background vocals. Billie Joe's [Armstrong] vocal lines have the Distressor limiter inserted on them.

"Jason Vroebels tunes the Clair Bros. P.A. [14 i4s per side with 12 i4Bs on the front hang; eight i4s and six i4Bs on the side hang; 10 ground-stacked subs per side; and six P2 frontfills] in the afternoon. He's quite good at it—all I have to do is just talk into a 58 a few times, play a CD and make a few, if any, changes.

We're using the Clair iO system controller to tune everything, controlling everything right down to individual components in the i4 boxes. Once the show's up and running, Jason walks the venue with the iO wireless controller and evens out any weird areas, such as up in the top sections or in the corners.

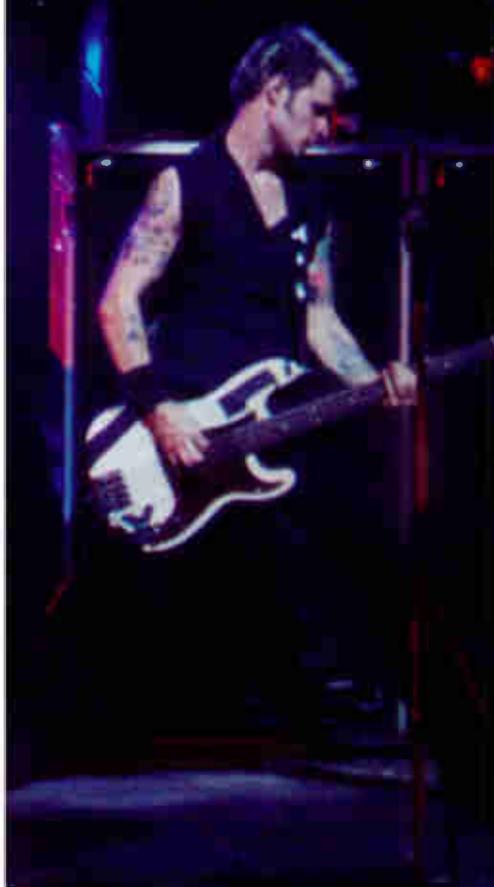
"Billie Joe has a 20-foot extension that jets out from centerstage. Every day at soundcheck, he'll walk out to the end of it and face the speakers to see how things sound; he's been happy with what he hears. [Bassist] Mike [Dirnt] has amazing ears. Every once in a while, he comes out to FOH before soundcheck and listens to DAT tapes of previous shows. Everything he's mentioned has been spot-on. He'd make an awesome sound guy if he wasn't such a great bass player."



Monitor engineer
Ian Beveridge

"I've been using the Yamaha PM1D for almost two years and it's now my console of choice," says monitor engineer Ian Beveridge. "There are no time delay effects for the band but I do use a good amount of compression on various inputs—all using the PM1D's onboard comps. With all of the processing [EQ, gates, comps] inside the console, I have no outboard—apart from the radio rack. No insert cables to break! I love the power of the EQ and the ease of dialing in-ear mixes with the board in Mix mode. Tre [Cool] has seven mixes just around the drum kit. We have sub L, sub R, high L, high R, guitar box, thumper and ears! The band puts on a hell of a live show—you have to pay attention, it's wild up there at times!

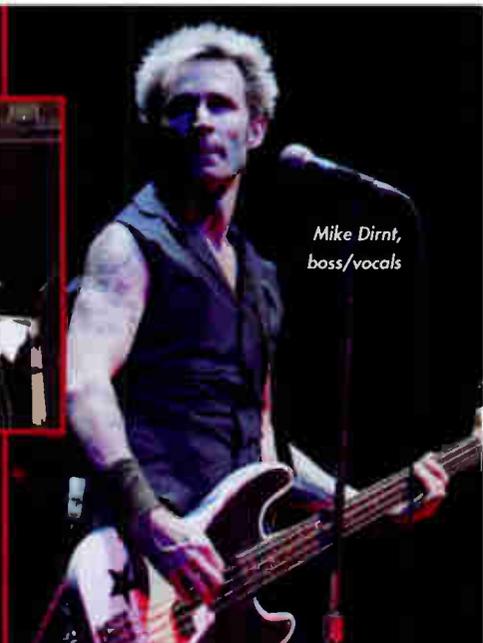
"The vocal mic is a Shure 58 UHF wireless, although we use a hardwired SM58 on one song. We go through three or four mic changes a night because they get wet, and sometimes because Billie hits the cymbals with them!"



"Mike [Dirnt] uses his own signature bass from Fender, essentially a '53 P-Bass with a contoured body, modern P-Bass pickups and a BadAss II bridge," bass tech Micah S. Chong says. "He also uses a '69 P-Bass named Stella for the older songs. Mike uses a Fender Bassman 1200 with a Crown CE4000 power amp, driving three Fender 8x10 cabs. He also has an Avalon Design U5 that he uses for a DI."



Bass tech
Micah S.
Chong

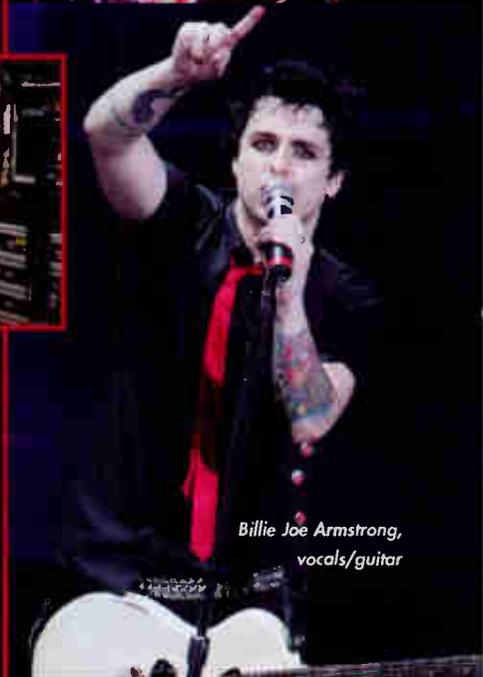


Mike Dirnt,
bass/vocals

"Billie [Joe Armstrong] uses various '55 and '56 Gibson Les Paul Juniors, as well as his trusty old light-blue Fernandes Strat, [which] he used on the first record," says guitar tech Bobby Schneck. "We're starting to experiment with the Tone-Pro's bridges on some of the guitars, which I love. Billie basically has three sounds: a clean sound, a 'mid-clean' that is a bit dirtier and his huge crunchy loud tone that he's best known for. For the 'big' sound, Marshall model 1959 100-watt Plexi re-issue heads modded by Martin Golub at Custom Audio Electronics power the two bottom cabs; the top two cabs are driven by a Mesa/Boogie stereo 2:90 power amp."



Guitar tech
Bobby Schneck

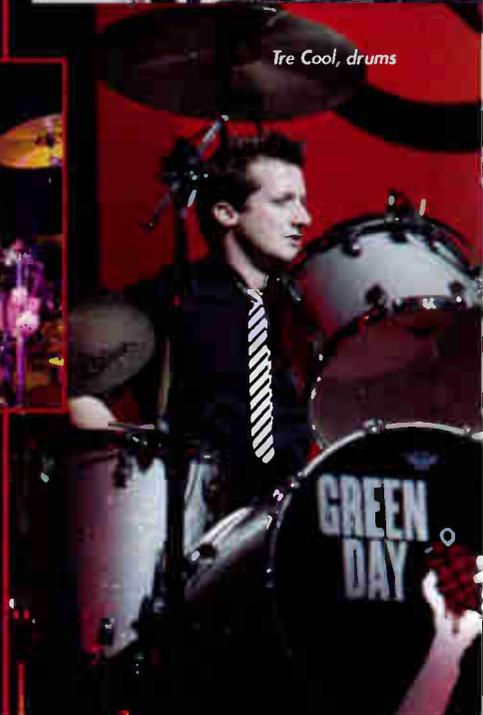


Billie Joe Armstrong,
vocals/guitar



Drum tech Ken Butler

Drum tech Ken Butler mikes Tre Cool's kick with a 91 and a 52; toms are all 98s, as is percussion. Cymbals are miked from underneath with 98s. Ride and hi-hat are 81s and there is a 414 about six inches from the snare for a more natural sound.



Tre Cool, drums



Joe Satriani

On the Road With Digidesign's VENUE Console

showcases the guitarist, who is always on the move. "Because Joe is the main artist," Nightwine says, "he can't be locked down in front of his amp where he would normally get the feedback and sustain he needs. Joe can step into his zone of wedges—which we call 'Guitar-vana'—and get the sounds he needs. It makes for a loud stage volume, about 112 dB on his side of the stage all the time, but at least the tone is good. It's not 112 dB of crap!"

Satriani travels between three pairs of Showco SRM wedge monitors, mixed through a Midas Heritage 3000 console by monitor engineer Bobby Diller. "The SRM wedges are the finest on the planet," Diller claims. "They're one of the best things about my gig. They're very flat, and the more you give them, the better they sound."

For main monitors, the theater tour is using a 32-piece Prism Sound P.A. system with eight subs. "We're carrying a little bit of front-fill for those occasions when we need it," Nightwine says. "The only outboard that I have in my rack is a Clair Bros. iO system drive for loudspeaker management, so it's a pretty clean-looking rack."

How is it that Nightwine gets away with having such a feather-weight rack? On this particular evening, a lack of backstage space at the theater required Nightwine to run main and monitor mixes on the Heritage 3000 at FOH. For every other stop on this tour, however, Nightwine has gladly—and successfully—used a beta version of Digidesign's brand-new live digital console, VENUE.

An avid Pro Tools user, Nightwine has previously considered bringing a Digidesign Control|24 console and Pro Tools TDM system on the road to be able to use plug-ins in a live setting. "I thought about using it as a live console and just 'record-ready' everything," he explains. "In the course of think-tanking that idea,

To always equate exciting, high-energy rock shows with microphone-wielding vocalizing frontmen is to ignore any live performance by renowned guitar virtuoso Joe Satriani. Granted, most great rock shows are led by charismatic, swaggering singers, but when Satriani steps onstage, he is the front man. Mic or no mic, vocals or no vocals, Satriani always wins over an audience with his deft digits, delivering signature hooks and melodies.

On October 13, 2004, hundreds of music fans observed a blistering performance by Satriani and his equally proficient band at the Lincoln Theatre in Raleigh, N.C.

For front-of-house engineer Doug Nightwine, touring without a traditional vocalist makes for jam-packed schedules but also a well-oiled musical machine. "The fact that there's not a singer means that we can go eight or nine shows in a row without a break," Nightwine explains. "We don't have to give a singer the mandatory 'three-shows-and-a-day-off' kind of thing. By the time you've made it to the second week, you've got your game on strong."

While Satriani does sing on a couple of tunes—using a Shure SM58 to do so—the vast majority of his two-part instrumental set



(l. to r.): Doug Nightwine, FOH engineer; Bobby Diller, monitor engineer; Jim Rogus, Showco systems engineer

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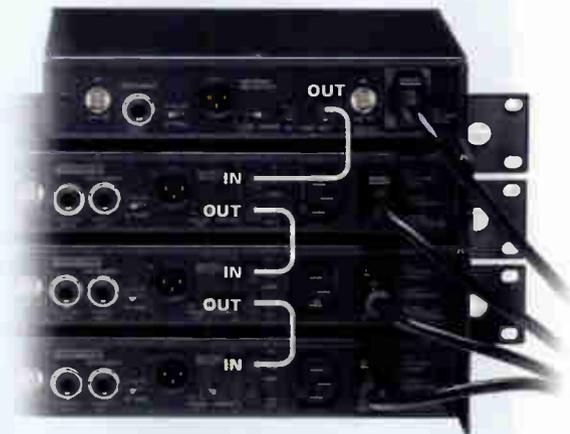
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5000 Series & 4000 Series UHF Frequency-agile True Diversity Wireless Systems:
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IntelliScan™ Link = One Scan

IntelliScan™ link cables (left) let you perform complete RF environment scanning and frequency coordination of every linked receiver—all at the touch of a button.

 **audio-technica.**
always listening.

it turned out that Digi was already working on VENUE."

Upon hearing about VENUE's imminent release, Nightwine volunteered to take an early version of it on the road with Satriani for a trial run. So far, Nightwine says that it has been smooth sailing. "It's been flawless," Nightwine attests. "I'm glad we're using it as the main console."

Although VENUE had been out on tour with John Mayer last summer, that situation was strictly beta testing. "They would set it up and tear it down every day, and they would go through soundcheck with VEN-

UE tied in along with the other consoles while doing some ghost mixing," explains Nightwine. "The show was never run on the console. The audience wasn't hearing it and the engineers weren't relying on it. I'm the first knucklehead that went on the line to use VENUE as the main console."

"The guys that are out there mixing on digital consoles now like the [Yamaha] PM1D, PM5D or the DiGiCo—are going to take to VENUE because they're used to the concept of selecting a channel and working on a master channel where you do everything on one set of knobs," Nightwine

adds. "And users who know anything about the Pro Tools plug-in architecture are going to be all over it. In my opinion, it's going to be a DiGiCo D5 killer. The price point is half of the D5's, and you can have the great-sounding plug-ins you want—all onboard."

Each night, Satriani's three-piece backing band—featuring drummer Jeff Campitelli, bassist Matt Bissonette and rhythm guitarist Glen Henson—provides the sonic foundation upon which he builds his fiery six-string ditties. Campitelli's seven-piece DW drum kit is miked with a Shure SM91 on the kick, top and bottom; Shure SM57s for the main snare; Shure SM98s on each tom; and another SM57 on an auxiliary snare. For hi-hats, ride and stereo overheads, Nightwine uses four AKG 414s.

Bissonette's signal chain is simple but sufficient. Nightwine takes the bass direct from an Avalon U5 tube DI, while the bass cabinet is miked with a Shure Beta 52. Because of VENUE, Nightwine can dial in a plug-in-enhanced sound that Bissonette absolutely loves. "I dialed up [the Line 6] Amp Farm on an aux send and set up a Fender Bassman with the drive cranked," Nightwine recalls. "I brought that back into an input and bused it back down the snake for him to have it in his monitors. When blending it with the tube DI sound, I can use it where I need it. We've both become hooked on it!"

Nightwine uses SM57s on Henson and Satriani's guitar cabinets, each with just a touch of compression at FOH; again, VENUE-enabled plug-ins are utilized. "I'm using the Sony Oxford dynamics package," says Nightwine. "You can be 6 or 8 dB into the compression before you can perceive it at all."

After successfully using VENUE in a real-world, city-to-city setting for the Satriani tour, Nightwine is confident that live engineers of all stripes will absolutely love it. "For the guys that aren't familiar with Pro Tools, it shouldn't really be that big of a deal. It's not a redesign of Pro Tools. It does share some of the same technology, like the HD Accel cards are the basis for the mix engine and the plug-in architecture, but that's where the similarities end. VENUE is purpose-built from the ground up for live mixing. There's a lot of uncluttered, visual feedback on the console. And it's not a prerequisite to have experience with Pro Tools. If you do, then you've certainly had experience with the plug-ins and how you manage DSP, but it's certainly not something you have to be familiar with before."

Nightwine can be contacted at info@nightwine.com. ■

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cake

Success on the Club Circuit

By David John Farinella



PHOTO: WIREIMAGE

To outsiders, it seems like Chris Bailey should be pushing 11 on the stress-o-meter. He's handling front-of-house duties *and* tour managing for Cake's club circuit. The band is relying on house gear and rented P.A.s—including outboard and mics—at each venue. On the night *Mix* caught up with the band (mid-November at San Francisco's sold-out Warfield Theater), Bailey and monitor mixer Bobby Mack show nary a hint of stress. “The nice thing is this band sounds great coming out of the box,” Bailey reports. “So we're not necessarily requiring a certain sound out of the equipment. The sound is in the band.”

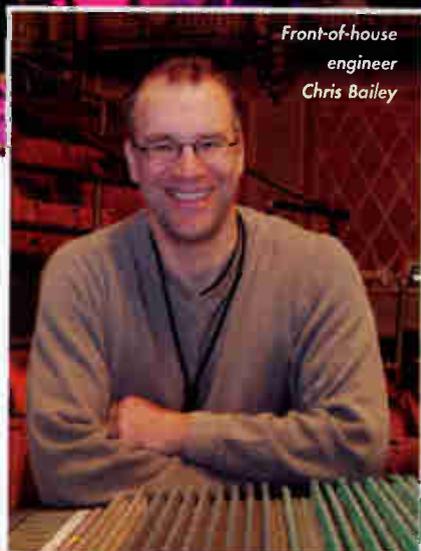
This leg of Cake's winter tour was played in 1,200 and 2,500 seaters, with the crew only carrying backline. Tonight, Bailey and Mack are relying on a Meyer Sound MILO line array system and a pair of Yamaha PM4000 consoles (one at FOH, one at monitor) rented from Pro Media/UltraSound. A total of 16 MILO cabinets—four flown and

four onstage per side—are used at the show, with a pair of Meyer MSL-2s front-fills and a two M3D subs carrying the bottom end.

The Meyer monitor rig is powered by Crest amps, a crucial choice for Cake, as the band relies on audience participation during their set with call-and-response interaction. According to Mack, Cake uses wedges, as personal monitors aren't needed. “These guys play at a really decent volume onstage. You can stand with them onstage without plugs in and your ears feel good after a show. We don't even use sidefills, so everyone has their own particular mix.”

At FOH, Bailey approaches the band as a rhythmic entity. “These guys are not big low-end guys,” he reports. “There are a lot of rhythmic things going on, but it's not all about the drums. A lot of the warmth on the bottom is coming from the bass guitar.” Bailey mikes the kit with a pair of overheads and lets those channels drive the mix. “I'm going for that '60s drum sound, not that pointy, clicky drum sound,” he says. “Paulo [Baldi] knows how to tune his drums and they sound great, so any mic that's in good condition over the drums sounds pretty good.” On this night, Bailey used a pair of Shure 81s as overheads, a Shure 52 on the kick, a 57 on the snare and a tight condensers on the hi-hat and toms.

Vocalist John McCrea sings into a Shure 58, while his Goya classical guitar runs through a Fender practice amp miked with an SM57. Tonight, 57s handle most everything from Gabe Nelson's Ampeg SVT 8x10



Front-of-house engineer
Chris Bailey

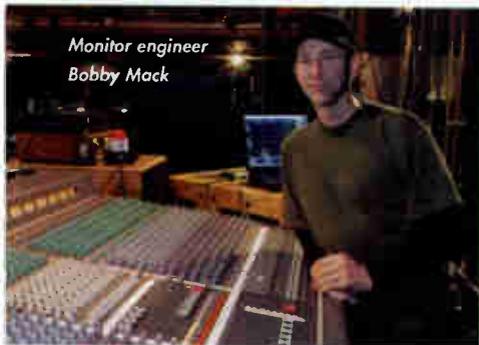
PHOTO: STEVE JENNINGS

bass cab to Xan McCurdy's Fender Blues Deville amp to Vincent di Fiore's Bach trumpet. “A lot of these guys have used 57s for years and they freak out if they see a different mic in front of them,” Mack says.

A signature sound of many a Cake song is the trumpet-blowing. “It is very dynamic and [di Fiore] knows when to stay on the mic,” Bailey reports. “I do compress it a little bit to warm it up and smooth it out.” He also watches di Fiore's keyboard channels. “There are some different keyboard patches that are the trickiest things for me because they are different in perceived level. Some of them are more pointed and others are really soft and warm. I gain-ride that quite a bit.

“The bottom line is that it's about the music,” Bailey concludes. “If you become too anal about the other stuff, you lose sight of what you're doing.” ■

David John Farinella is a writer based in San Francisco.



Monitor engineer
Bobby Mack

PHOTO: STEVE JENNINGS

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Who Is Fiberplex?

Experts in fiber optics for more than 25 years, Fiberplex pioneered some of the first commercial fiber optic devices. Our work in audio and data communications products is known in US government applications worldwide. With LightViper, we combine the technology we pioneered with our expertise in audio engineering.

Why fiber optics?

Fiber transmits light rather than electrons, permitting digital transmission over much greater distances (more than 1.25 miles without attenuation problems). Optical fiber provides complete electrical isolation, immunity to radio frequency interference (RFI) and electro-magnetic interference (EMI) and eliminates ground loop problems. Plus, it can be easily routed, overhead, around obstacles, through walls, or underground.



The cable's small diameter and extended range allow for routing that avoid foot traffic, yet maintain the aesthetic of the venue. A 32 x 8 channel copper snake of 300 feet weighs more than 100 pounds, whereas 100 feet of the LightViper's fiber weighs less than 6 pounds. Built to "ruggedized" military standards, the LightViper 1832 will outlast copper snakes by many years.

How does it work?

The LightViper has two main components: a stage box, the size and form of a traditional



snake box, and a 1U rack unit at the mixer. The stage box features 32 Neutrik XLR/1/4" TRS combo connectors going into high-quality pre-amps for each input, and eight Neutrik XLR male connectors on the returns. All inputs accept balanced or unbalanced signals, eliminating the need for costly direct boxes. When using the digital, the unit can be slave or master using either Word Clock or Super Clock via BNC connectors. Each input has three gain level adjustments: 0 dB (line), 26 dB, and 46 dB (mic) as well as 48V phantom power. The outputs of the ultra-high quality pre-amps are sampled at 24bit/96 KHz for pure and rich audio before being multiplexed and sent to the mixer on a single fiber pair. The stage box also offers the option of two additional fiber outputs,

providing lossless digital splitting of all 32 inputs for use in monitor mixes and/or broadcast/recording.

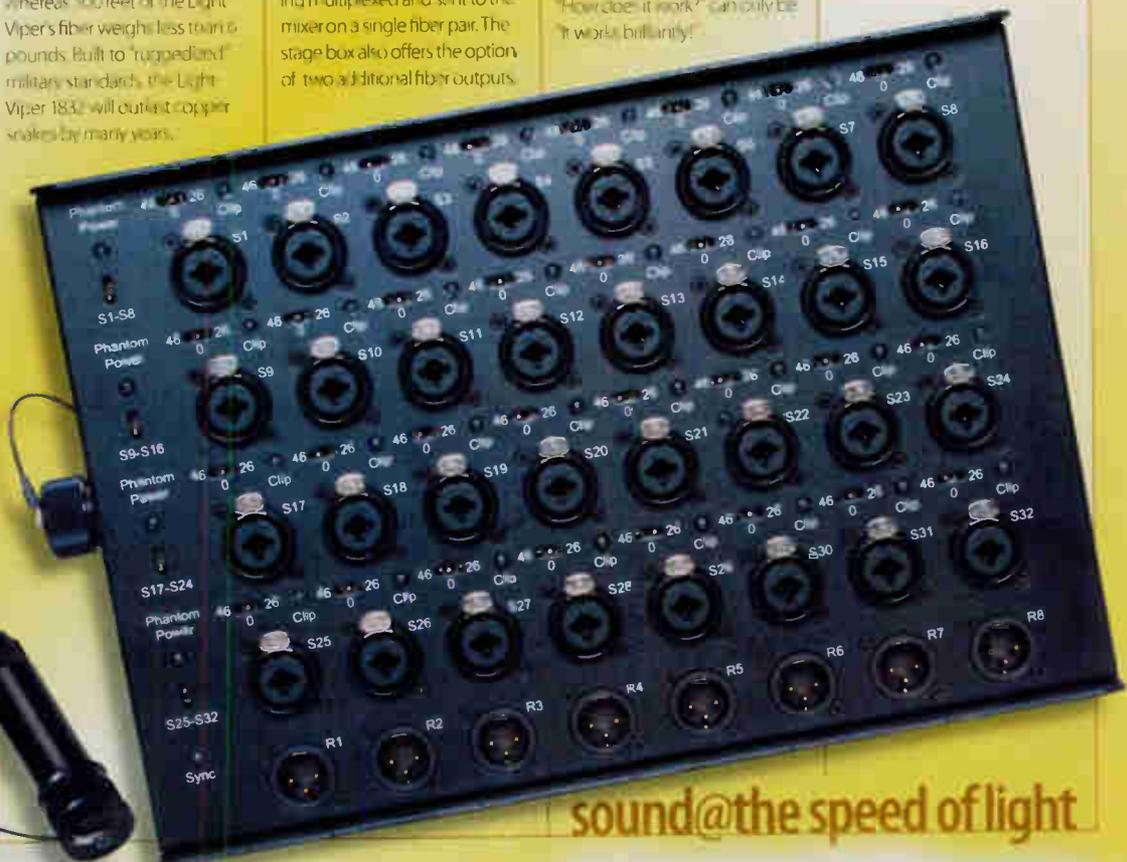


ing mixes. The mixer end is a 1U rear- or front-mount rack unit with DB-25 connectors utilizing Tascam DA-88 balanced pin-outs, the connectors, eight channels per connector. There are also three DB-25 connector with simultaneous AES1 digital inputs/outputs for direct feeds to peripheral digital equipment, such as recording, broadcast or archiving feeds.

The best answer to the question "How does it work?" can only be "It works brilliantly!"

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- Rugged fiber cable smaller in diameter than standard mic cable!!
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- Flat frequency response and better than 100 dB dynamic range - delivers true, crystal clear sound
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- Optional lossless 3-way split of all 32 channels on stage end
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World Radio History

All photos and text by Mel Lambert

Big Sound,

The Hybrid Approach to the Sound Reinforcement System

At L.A.'s Walt Disney Concert Hall

Large symphony halls are carefully designed to enhance the sound of acoustic instruments. Normally, they feature reflective surfaces that help the audience and performers hear more clearly the balance of classical orchestras, string quartets, choirs and similar ensembles. But when the same reverberant hall is used for performances that involve amplified instruments and a P.A., things soon become a shade more complicated.

It's a situation that Fred Vogler faces on a daily basis. As sound designer and lead mixer at the world-famous Hollywood Bowl, Vogler also works with the Los Angeles Philharmonic in its winter home, the new Walt Disney Concert Hall, located within the Frank Gehry-designed building in downtown L.A. "While the Hollywood Bowl is a unique environment," Vogler concedes, "it is at Walt Disney Concert Hall that I face some of my biggest challenges."

The 293,000-square-foot Walt Disney Concert Hall (WDCH) and companion buildings encompass two outdoor amphitheatres and space for pre-concert

events. The centerpiece of the complex is a 2,265-seat concert hall in which the L.A. Philharmonic presents more than 150 concerts a year. The interior was designed to retain the acoustical characteristics and intimacy of traditional "shoebox"-style concert halls while allowing more flexibility in architectural design. Audience members surround the orchestra platform; a pipe organ occupies a central position between the seating sections at the rear of the stage.

"As a sound designer," Vogler says, "I need to find a balance between sound level and sonic fidelity. After all, even the most classically minded purists like amplified music. It's challenging to make sure that sound systems work with, rather than against, the acoustical environment in which they are located. Here at Walt Disney Concert Hall, we now have a state-of-the-art sound system that is excellently balanced for this environment."

CONTROLLING REVERB

Given its primary use for classical music performance, WDCH features a reasonably live reverberant field within what is considered one of the best-sounding symphony halls in the world, thanks in no small part to the outstanding work of acoustician Dr. Yasuhisa Toyota from the Tokyo-based Nagata Acoustics. "Toyota-san ensured that the RT60 is remarkably consistent at all frequencies," Vogler says, "but it is that reverberant field that can muddy up amplified sound and announcements. When we have a mixture of acoustic energy and amplified instruments onstage, ensuring a natural balance between the

two sources can be problematic, even for the most experienced sound mixers."

Determining the ways in which proper sound reinforcement should be provided at WDCH falls to a sound council that regularly meets to discuss progress with the hall's various acoustic and electroacoustic systems. The committee comprises Gail Samuel and Paul Geller from the philharmonic; Kevin Wapner, the hall's head of audio/video; and Vogler, independent consultant/sound designer. Because WDCH offers an eclectic mix of symphonic and leased events, the hall's sound system needs to be fully removable.

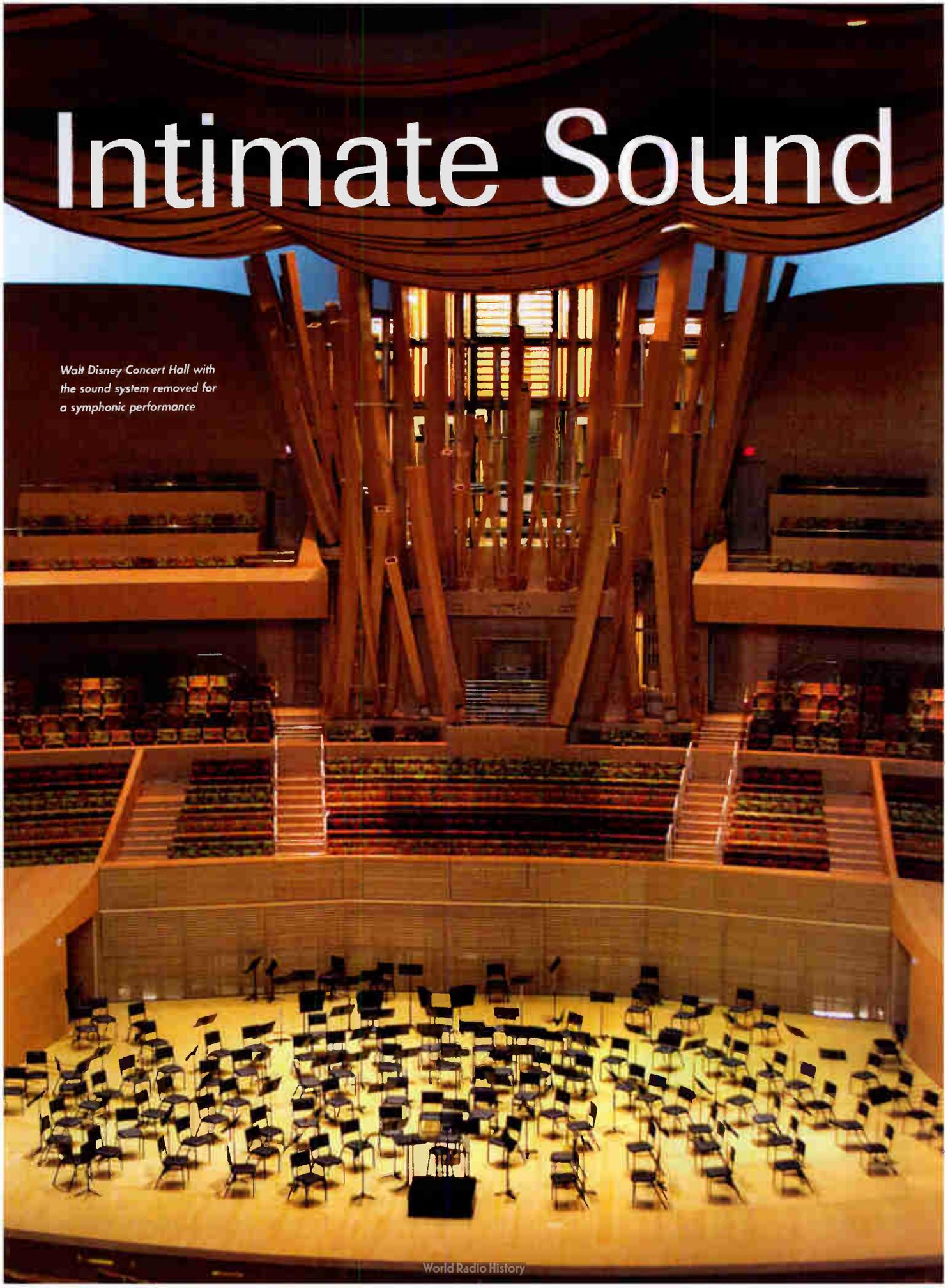
"We have focused on controlling reverb time," Vogler states. "We've added a series of motorized curtains in all four corners of the hall." A quartet of 40-foot-tall, white acoustic curtains per corner can be set to overlap one another or extend to their full width, covering approximately 60 feet. "We have also added pipe and drape with absorbent material close to the onstage sound sources," the designer continues. "These materials prevent first reflections off the wooden surfaces adjacent to the stage from building up in energy and becoming difficult to absorb elsewhere in the hall."

A major revision this season has been a central cluster with left/center right and rear-firing elements that was derived from last year's left/right JBL VerTec line array. "We felt that the original stereo line array posed problems," Vogler recalls. "The speakers were suspended high above the stage and about 20 feet off-center. As a result, the acoustic center of the sound-field did not match the location of onstage performers; audience members were distracted because the sound was coming from a different position. Since the concert hall environment has such a clear and present sound, directivity is critical."



L-R: Bruce Leek, ATC consultant; Ben Lilly, ATC Transducer/R&D engineer; Fred Vogler, WDCH sound designer; and Bob Polley, ATC operations director

Intimate Sound



*Walt Disney Concert Hall with
the sound system removed for
a symphonic performance*

Big Sound, Intimate Sound

The new center cluster was designed by Patrick Baltzell from Baltzell Design Associates, with modifications by independent consultant Don Pearson and Ted Leamy, JBL Professional's director of engineered sound marketing. "The new center array is an organic evolution that marries the acoustical image with amplified sound," Leamy explains. "This system is being used for true sound reinforcement of voices and certain instrumentation in an already spectacular acoustic environment."

The cluster is suspended 28 feet above the stage close to the downstage edge in a central location, and comprises 11 forward-facing VerTec VT4887 cabinets and trios of six 4887s facing stage-left/right/rear, all powered by Crown MA Series amplifiers. Custom-designed ATM FlyWare swivel suspension was also specified.

ON THE STAGE, LEFT AND RIGHT

If the central cluster design represents a bold move, even more adventurous was the evolution of a new stage-mounted left and right array. After a recommendation from Dr. Toyota that the loudspeaker system be stage-mounted, Vogler consulted with longtime friend Billy Woodman, owner/chief engineer of ATC Loudspeaker Technology in England. "I've been using ATC studio monitors for a number of years," Vogler states, "and, with Billy's guidance, had experimented last season with an array of six SCM150A cabinets: two per side facing forward into the audience and one per side tilted to serve the upper-

side audience members. Due to the success of this experiment, we asked Billy to develop a custom design for the Walt Disney Concert Hall."

Woodman's team of engineers, including Bob Polley, ATC operations director, and Ben Lilly, acoustic design engineer, set out to create a system that would work with the natural acoustics of the hall, the performers and the audience. As Woodman states, "The hall is designed around the acoustic source being located on the stage; therefore, it [is] essential to have the electro-acoustic source on the stage, as well." During tests, the design team found that the concert hall offered an extremely flat magnitude response and even reverb time for all frequencies. "Using our soft-dome midrange transducers, wide lateral dispersion is maintained across the frequency band," Woodman adds.

The resultant arrays stand 7.5 feet tall and weigh some 1,000 pounds each. Both left/right systems comprise a large low-frequency cabinet containing eight 15-inch transducers, on top of which is mounted an adjustable assembly supporting the three MF/HF elements. The single front-facing MF/HF cabinet houses—from top to bottom—a pair of HF drivers, two midrange drivers and a single HF unit. The upper two HF and one MF driver comprise a long-throw combination for the distant audience sections, while the lower MF and single HF driver cover close audience areas. The shorter side and rear-facing MF/HF cabinets each house single HF and MF drivers.

The new cabinets are finished in the same light-colored Douglas fir as the organ pipes located in the rear of the stage, with grille cloths that complement the fabric used for the seat coverings. "ATC took its aesthetic inspiration from the design of the hall's organ pipes with great success," Vogler says. "Our major question now, in terms of maintaining the acoustic center of the soundfield to match the onstage visual focus, is how much of the central cluster is needed?"

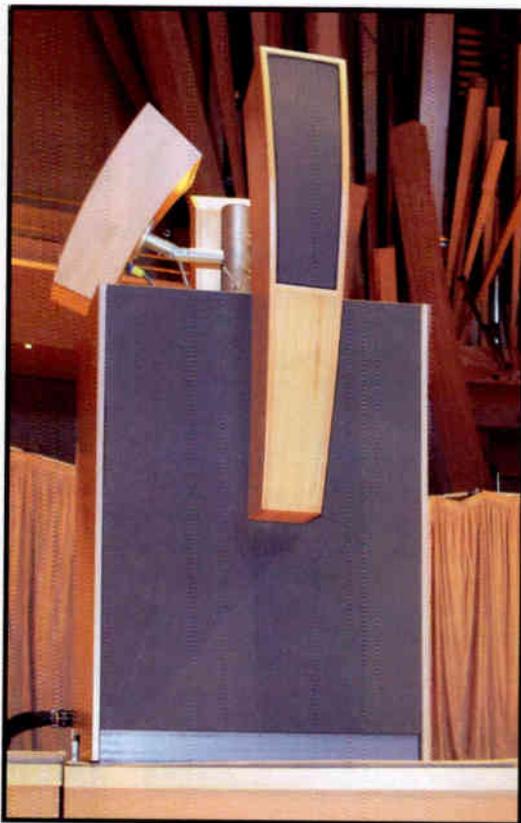
Mixing at WDCH is handled with a 96-channel Yamaha PM1D digital assignable console; a second PM1D is available for onstage monitoring. For added flex-

ibility, the PM1D's control surface can be moved out of the control room into an acoustically treated audience area directly in front of the mixing booth. For added control, dedicated stem-mix outputs from the front-of-house console connect to the front/side and rear-facing cabinets within the onstage array, with the front-facing long and medium-throw components being driven with an approximately 4dB gain offset. A submix feeds the central array.

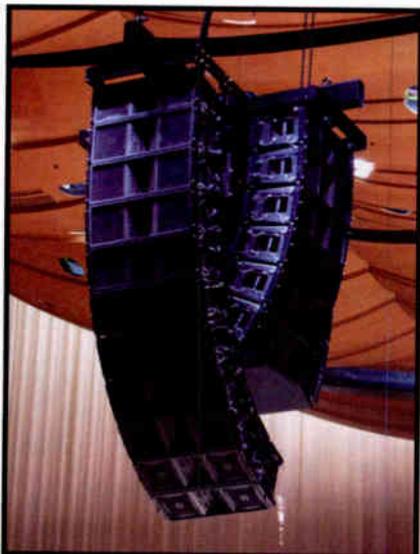
"I often compare sound systems at the Hollywood Bowl and Walt Disney Concert Hall in terms of an analogy with race car technologies," says Vogler. "If the Hollywood Bowl is like NASCAR—brute force and power, but outstanding excitement and long-distance performance—the WDCH is like Formula One: constant acceleration or deceleration with many straightaways and curves. One mistake and you can be very surprised at the results!"

MIX ONLINE
EXTRAS

Mel Lambert (www.mel-lambert.com) heads up Media&Marketing, a full-service consulting service for pro audio firms and facilities.



The stage-right cabinet includes a movable, forward-facing HF/MF element that houses a pair of HF tweeters, two midrange drivers and a third HF tweeter. The upper two HF and one MF driver comprise a long-throw combination for the distance audience sections, while the lower MF and single HF driver cover close audience areas.



The JBL VerTec center cluster is suspended 28 feet above the stage, close to the downstage edge in a central location.



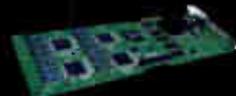
Mastering Tools for PowerCore



From the legendary System 6000

System 6000 is an industry milestone, and the most research intensive audio processor ever created. Processing once exclusive to the System 6000 is now available for Mac and PC via the PowerCore platform. PowerCore users can now take advantage of the top-level processing and precision limiting of the MD3 Multiband Dynamics and BrickWall Limiter algorithms in the MD3 Stereo Mastering package.

For stereo and single sources, this package brings professional production and mastering possibilities to the realm of DAWs, and integrates smoothly with serious music and film editing applications. Please visit www.tcelectronic.com for more info on the MD3 Stereo Mastering package and the PowerCore platform.



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World Radio History

Dedicated Speaker Processors

Nexia software configuration are accessible through the SP's Ethernet port; an RS-232 port allows third-party control.

Version 2 software for BSS Audio's (www.bss.co.uk) lauded FDS-366 Omnidrive Compact Plus adds the first pro audio implementation of Whiseworks-Neville Thiele Method filter technology. This feature lets users increase loudspeakers' operating bandwidths without overdriving. The Windows 2000/XP platform software also lets engineers use a wireless tablet PC with a stylus for control. The FDS-366 can drive a true stereo three-way system or three bi-

Lake Technology (www.lake.com.au)—which recently received a takeover offer from Dolby Laboratories—unveiled the Lake Mesa Quad EQ, a 4x4 digital matrix processor that incorporates the same DSP-based EQ, delay and dynamics featured in Lake's popular Contour digital speaker processor. The Mesa Quad EQ is also supported by Lake Controller V. 3 software. Four channels of 24-bit, 96kHz converters, each with analog I/O and AES/EBU digital I/O, are included. All eight outputs of the Mesa Quad are simultaneously available to allow use as a distribution matrix.

Meyer Sound's (www.meyersound.com) new Galileo 616 loudspeaker management system is a 6-in/16-out, all-

alone applications in which a single unit handles all processing between source gear and the amplifiers. Along with analog I/O, Express Cobra offers an 8x8 CobraNet license that supports Peak Audio's protocol for networked digital audio. All of the dual 100MHz SHARC-based processing units are driven by SymNet Designer's latest V. 5 software, providing many options for system creation and control, and new software features such as additional mixers, auto firmware upgrade and a British EQ module.

A slick Live EQ available in 2/4/8-channel configurations, EQ Station from TC Electronic (www.tcelectronic.com) is now controllable from a PC via VirtualEQ Station PC application and EQ Station V. 1.5 software. The free, downloadable application allows all EQ Station parameters to be manipulated from a remote PC, while V. 1.5 software supports the EQ Station's new digital AES I/O card. Features of the EQ Station include 6-band parametric EQ, 29-band graphic EQ, 3-band dynamic EQ, 600ms delay, a peak limiter and 250 user presets.

Distributed by Group One Ltd. (www.g1limited.com), XTA's new AES digital interface option can be fitted to the DP6i audio installation controller, DP224 and DP226 speaker management systems, SiDD, all Series 2 products and all OEM units. The interface includes a sample rate converter accepting AES audio streams up to 96 kHz and down to 32 kHz, and comes fitted with digital I/O. Internal processing of the XTA units remains at 48 kHz. Also new from XTA is free, downloadable software for wireless interface control for the range of the company's AudioCore products. The upgrade allows up to 32 units to be controlled via PC using MIDI, RS-232 or RS-485 interfaces.

New from Yamaha (www.yamaha.com/proaudio) are the DME24N and DME64N Digital Mixing Engines. The DME24N has 24 mic/line I/O channels including eight analog channels and a card slot for additional digital and analog I/O. The DME64N includes up to 64 channels of I/O with four mini-YGDAI slots that accept a range of 8- or 16-channel digital and analog I/O cards. Both models feature headphone outs, four control panel options (including GPI- and Ethernet-equipped versions) and the ability to develop a complete control system by using a DME, a Yamaha PM5D digital mixing console and the 16-channel Yamaha MY16-C CobraNet YGDAI expansion card. ■

Strother Bullins is a North Carolina-based freelance writer specializing in the professional audio and entertainment industries.



Above: dbx 640. Below: XTA DP6i



amp outs for monitoring purposes. Adding extra units and MIDI slave-linking allows for up to six-way stereo systems. Also new is BSS' Soundweb London programmable DSP/matrix systems. London offers increased I/O flexibility, dual-redundant CobraNet audio networking, more efficient DSP via Analog Devices SHARC processors and a new core system design package.

dbx Professional's (www.dbxpro.com) new ZonePro 640 and 641 Digital Zone Processors feature proprietary AFS (Advanced Feedback Suppression). According to dbx, the 640 and the blank front panel 641 are the first system processors purpose-built to deliver DSP power to the background music market, but offer the same processing engine found in dbx's DriveRack products. ZonePro 640/641 offer EQ, dynamics processing, bandpass filtering and BGM functions such as priority override and ducking.

Version 4.1 software for JBL Professional's (www.jblpro.com) DSC280 Digital Controller offers both Sound Power and Venue Series tunings—two new programs for this 2U signal processor. The DSC280 features two/three/four-way operation, two parametric EQ sections for each output band, polarity invert and phase adjust on each band, overall and band-specific delay, and 60 user memories. The front panel graphic display shows all function parameters and LED output metering.

inclusive digital matrix processor to drive and align multizone systems. The 2U Galileo 616 employs a collection of popular features from Meyer's analog processors such as atmospheric compensation and filters from the CP-10, VX-1 and LD-3. It can be operated stand-alone and via PC using Ethernet (Windows or Mac), and offers AD/DA conversion via 24-bit/96 kHz and 32-bit floating-point processing. Regardless of how much processing is used, Galileo 616 offers low-latency performance courtesy of its massive 1GHz vector DSP architecture.

Rane (www.rane.com) has updated the Drag Net Windows-based DSP processing and control software for its family of multiprocessors. Version 4.1 lets users update firmware, configurations and remote bitmaps over the Internet or a network. Also new from Rane is the RPM 2m, a "drag-and-drop" DSP-based programmable multiprocessor controlled via Drag Net software. Offering 24-bit converters and 48-bit internal DSP processing, the RPM 2m includes two balanced mic/line inputs with phantom power, two balanced analog outputs and an RJ-45 Ethernet connector for computer control.

Symetrix's (www.symetrixaudio.com) SymNet Express Series features seven models: Express 12x4, 4x12 and 8x8; and Express Cobra 12x4, 4x12, 8x8 and 4x4. The Express line is geared toward stand-

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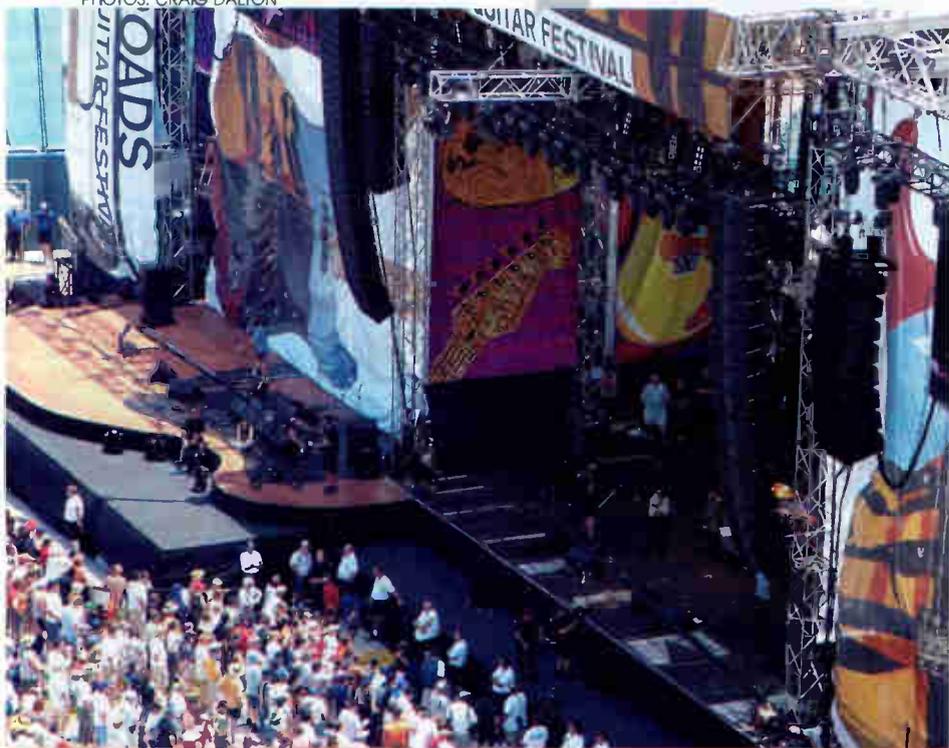
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Tracking At the Crossroads

By Craig Dalton

PHOTOS: CRAIG DALTON



Eric Clapton's One-of-a-Kind Guitar Festival

It was nearly seven decades ago when Robert Johnson recorded his talisman tune in a Memphis hotel room onto wax cylinders.

If he were still alive, I'm sure he would have been an honored guest at Eric Clapton's Crossroads Guitar Festival, held July 4 to 6, 2004, at the Fair Grounds Park and Cotton Bowl in Dallas. More than 65,000 people saw it live, the DVD on Warner Home Video is already out and there are plans for a December PBS special.

The stellar Sunday stadium show opened with Neil Schon and Jonathan Cain of Journey, and ended more than 11 hours later with ZZ Top. In between, the incredible lineup included Steve Vai, Sonny Landreth, Booker T & The MG's, Larry Carlton, Pat Metheny, David Johansen with Hubert Sumlin, James Taylor, Vince Gill, Joe Walsh, B.B. King, Buddy Guy, Jimmie Vaughan & Tilt-a-Whirl, Larry Carlton, Robert Cray and, of course, several performances with Clapton with a special appearance by Jeff Beck. Saturday performances on the Fairgrounds Esplanade stage featured such artists as John Mayer, Robert Randolph, Tommy Shaw of Styx, Eric Johnson and, again, several drop-in jam appearances by Clapton.

The Guitar Center Village, with performance stages, vendors and workshops, rounded out a virtual guitar players' amusement park, which included a display of instruments owned by Clapton, Pete Townshend and Vai. Clapton organized the show and the subsequent auction to benefit The Crossroads Centre, a drug and alcohol rehabilitation center that helped him and many others get back "on track." Commenting on how many blues musicians experienced tremendous difficulties because of alcohol addiction, Clapton thanked all of the artists that volunteered to help him. "I

wrote to a list of people that I wanted to hear play, and they all showed up."

A far cry from Johnson's bone-simple recording, Kooster McAllister's remote truck was there to capture the Esplanade performances on Saturday, and David Hewitt with the Silver Studio truck from Remote Recording captured the Cotton Bowl all day Sunday, along with the MTV truck. New York PBS affiliate WNET took care of the video capture. Elliot Scheiner was in charge of audio recording as executive producer, with an all-star crew headed up by Fred Maher and Ed Cherney. The venue was set up with two stages to the center and left of the audience, which facilitated quick act changes for the enthusiastic crowd. At the time of this writing, final mixing in 5.1 was being overseen by Scheiner, with the Clapton portion of the show being mixed by Simon Climie (Clapton's producer) and the rest by Neil Dorfsman (Dire Straits, Sting, Paul McCartney) at the Record Plant in Los Angeles.

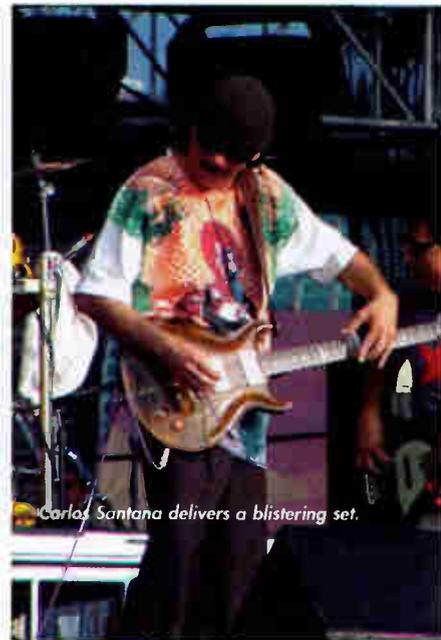
Before the show started, Scheiner says, "I've got Ed [Cherney] and David [Hewitt] here, so I know it will all go well." When asked how he's going to make choices with

so many guitars onstage at once, he responded, "I hope they are going to make those choices."

SOUNDCHECK SATURDAY

Sound Image president Dave Shadoan took *Mix* inside the Cotton Bowl on Saturday, where the JBL VerTec system sounded punchy and tight. Yamaha's PM1D served as the main mixing console, with Climie mixing Clapton on a DiGiCo D5 digital board.

Meanwhile, Hewitt, Scheiner, Cherney, Maher and crew set up all of the inputs and outboard gear and met with each other numerous times during the day. On Sunday, acts would switch from the more casual front porch stage area to the larger portion of the stage that was dedicated as the main stage. While the acts readied on the opposite stage, the crew called in all of the inputs again. Scheiner stated that the setup



Carlos Santana delivers a blistering set.



Studio photo courtesy of Solid State Logic Inc.



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MXL 2003

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- Complete with mic clip and zipper pouch

Applications

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- Voice Over, Announcing, Dubbing
- Close miking Guitar Amplifiers
- Overhead miking



MXL 603

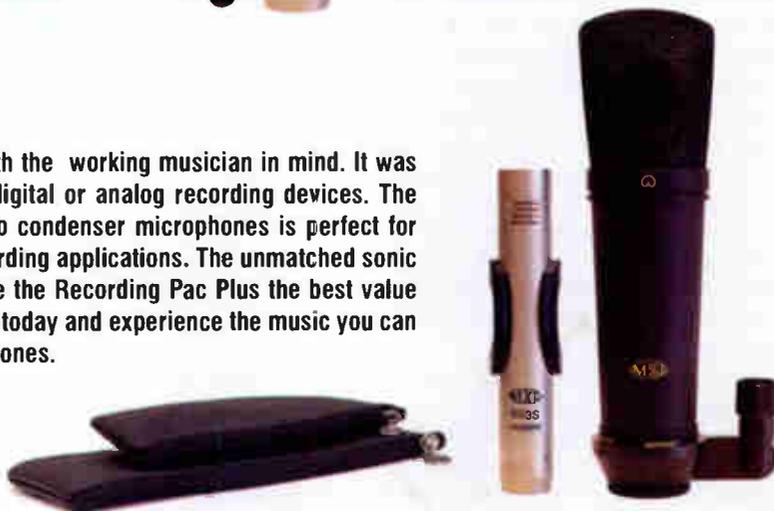
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Tracking At the Crossroads

would work similar to what he and Cherney had done at Woodstock '94, with one truck getting a quick line check on the stage that was being set up for the next act while the other stage was in use.

No one seemed to notice Saturday's heat



From left: Ed Cherney, Studio Network Solutions' Gary Holladay and Elliot Scheiner

and humidity when Santana played a full, jaw-dropping set during soundcheck. Outside the Cotton Bowl, the festival stage at Fair Grounds Park pumped out the sound of numerous acts, including Clapton's many walk-ons. The promise of great music on Sunday would materialize into what Scheiner later called, the "greatest show I've been a part of."

RECORDING SUNDAY

Several corporate sponsors stepped up to help optimize the recording environment, with Guitar Center and AMD having high-profile participation. The AMD64 Opteron Processor provided the power in Remote Recording's Silver Studio with the Verari DAW64 and 4 Terabytes of SAN storage supplied by Studio Network Solutions. SNS' Gary Holladay and Eric Neubauer were both on-hand to lend assistance. Steinberg's Nuendo 2 was used as the tracking medium in all trucks and at the mix position in the stadium. Analog/digital conversion was handled by Euphonix AM713 analog-to-MADI and MA703 MADI-to-analog converters. Backups were done to Sony 48-track digital tape and Sony DAT.

I asked Scheiner what was absolutely essential, what he couldn't live without. Unequivocally, Scheiner considered Nuendo as one of his can't-live-without items for this show, describing it as "so good, it's amazing." He also pointed to the Neve VRM

console in the Silver Studio as mainstays, with speed, reliability and support boosted by AMD and Studio Network Solutions.

In studio recordings, most engineers tend to focus on mic selection and placement as the bedrock of tracking. For Scheiner, one of the main concerns during a remote recording is keeping the signal chain clean. "We didn't want to complicate things by placing dedicated recording mics onstage," he says.

"We'll split the signal from the stage microphones and use the preamps in the truck as needed. With the line mix being used for so many things—the SBC Web broadcast, the Sirius Radio broadcast—it's pretty important to keep it clean; that's the hardest thing to do. My main concern was the drum mics and the vocal mics—with remotes, soundchecks are always about making the drums and vocals sound right. I was pleasantly surprised that the drum mics all sounded good at soundchecks." As for vocal mics, Scheiner adds, "We aren't pushing anyone to use what we want; we'll take what each artist

specifies and make it sound good for us. The biggest thing I learned from working with Phil Ramone was to make what you have work for you."

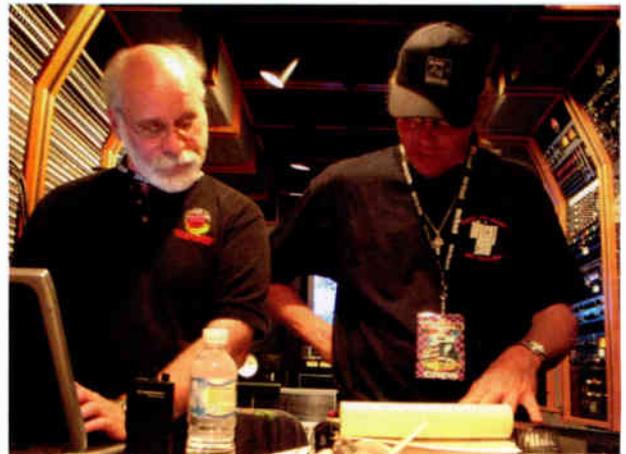
At 11:30 a.m. on the bright, muggy Sunday, Schon's Les Paul cut through the air with a rendition of "Star Spangled Banner." As the day of great rock 'n' roll and blues went on, the recording crew stayed in constant communication with their designates inside the stadium, checking lines and radio'ing input assignments to the truck during set changes. Scheiner watched the camera feeds for cues.

An enlightened Buddy Guy practically had to be dragged off the stage at the end of a nice long jam with Clapton, B.B. King, Vaughan and Mayer. "I thought James Taylor was incredible," Scheiner says, giving high marks also to Walsh's set during the day. The evening went smoothly, although a testy connection during Vince Gill's set ruined the vocal during one song. The edge of a major rainstorm that dumped five inches of rain north of Dallas showed up in the

last half-hour of the show, and cries of "bag everything" went out over the walkie-talkies. The impending rain and lightning cut Jeff Beck's appearance to only one song, and ZZ Top's set didn't include a planned Beck/Clapton/ZZ Top jam. Minor glitches aside, the November DVD release is loaded with plenty of guitar boogie and blues.

While Scheiner was the overseer on location, during post-production, his role turned to a true executive producer. "I've been getting the mixes back for approval [Clapton's portions from Climie, the rest from Dorfsman], but really don't have to do much here at the end." Scheiner says he doesn't usually think about the 5.1 format during the recording process, aside from hanging ambience mics out in the stadium. He also doesn't believe in using stems, as giving the video engineers choices in the sound portion is not his preferred way to work.

For this type of show, Scheiner leans toward a more conservative surround mix. "There's basically two guys doing the final mix, and I know Simon prefers the effects to be a little aggressive in the back, so there is plenty there in the back, but it's not overdone." PBS came up with the rough cuts of video for them, and the result will most likely be a PBS 90-minute show format, with a longer DVD release.



In the Silver Studio, David Hewitt (left) with assistant Garth "Gaff" Michael

"It was one of the greatest shows ever; the talent of everyone playing was amazing. And just as we thought would happen, everyone kept out of everyone's way in the playing," Scheiner says, referring to the times when there were as many as six world-class guitarists onstage. "Working with such professionals onstage, along with the Remote Recording Silver Studio crew, makes my job much, much easier."

Craig Dalton is a contributor to Mix.

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New Sound Reinforcement Products



ALLEN & HEATH XONE VF-1 FILTER SET

An enhanced version of the filters built into the Allen & Heath Xone (www.xone.co.uk) mixers, the Xone VF-1 is a single-rack-space, universal analog stereo filter that offers three basic 24dB/octave valve filter types (highpass/bandpass/lowpass), which can be combined to create further filter types. In addition to MIDI capability, the VF-1 also includes an envelope follower and LFO with triangle and square wave outputs. Unique valve overdrive circuitry lets the user dial in an amount of tube "warmth" while maintaining a constant output level.

SENNHEISER HEADSET MICS

Designed for live performance and broadcast use, Sennheiser's (www.sennheiserusa.com) HSP2 omni and HSP4 cardioid headset mics are rugged, lightweight and feature versions of MKE capsules with integrated windscreens. Other features include tough beta-titanium construction, adjustable boom arms and up to 142dB handling.



CELESTION FTR SERIES

Celestion (www.celestion.com) is now shipping FTR, its next generation of pro cast-aluminum loudspeakers. The series features low thermal compression, low distortion, evolutionary voice coil

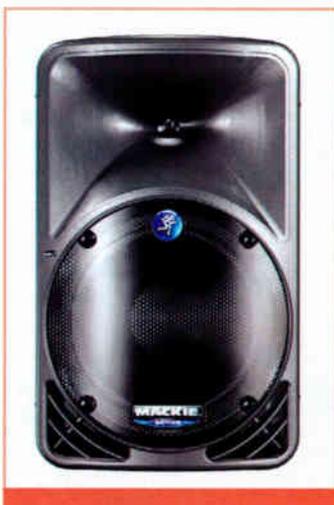
construction and high power handling—up to 1,000W RMS.

ALTO ORIENT EXPRESS

Unveiling at NAMM is Alto's (www.altoproaudio.com) Orient Express, a portable P.A. in a body that resembles a vintage locomotive. The top-end OEX 900 features 1,200 watts driving a 15-inch subwoofer and two satellites with dual 6.5-inch cone mids and a 1-inch compression driver/spherical horn for 122dB max SPLs. Also included are a 14-channel mixer (with 24-bit effects and dual 7-band EQs), three mics, speaker tripod stands and cables—which all store inside the unit. Other versions include options such as an MP3 player, wireless mics and a 560W model with 12-inch subwoofer. The satellites store atop the main body, and large wheels and a handle make for easy transport.

MACKIE SRM350

Now shipping, the newest active loudspeaker from Mackie (www.mackie.com), the SRM350, is a two-way, bi-amplified unit said to be capable of 121dB SPLs. The unit combines a single long-throw 10-inch woofer and 1-inch compression driver mounted on an integral waveguide. Its asymmetrical, rugged, lightweight and high-impact plastic enclosure is geared for P.A. and floor monitor applications, and is easily transported via top and side handles; the cabinet can also be flown or pole-mounted. Besides its built-in 165W (LF) and 30W (HF) amps, onboard electronics include EQ, crossover, phase alignment and protection circuitry. The rear panel has a level control, mic/line switches and a Neutrik Combo connector for mic/line input. Retail is \$699; a subwoofer is optional.

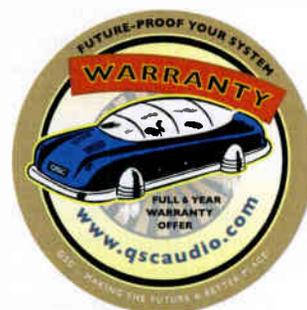


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Pedant In a Big Box

Part Seven of the Ongoing Saga of Nerdy Nomenclature

SDDS (SONY DYNAMIC DIGITAL SOUND): Sony's 12-channel professional version of its *ATRAC* lossy *codec* used for motion picture soundtracks.

SDK (SOFTWARE DEVELOPER KIT, SOFTWARE DEVELOPMENT KIT): a collection of programming "interfaces" or abstractions, shortcuts, reusable subroutines or "libraries," and documentation that allows a third party to create software accessories for an existing software product or family.

SDLT (SUPER D): See *DLT*.

SDMI (SECURE DIGITAL MUSIC INITIATIVE): Yet another clueless attempt by the *RIAA* to "protect" digital assets.

SECTOR: the minimum *track* length or logical assignment that can be used to store information on a magnetic disk or optical disc.

SERIAL: The opposite of parallel, a serial approach to data handling uses a single path rather than the multiple paths employed by the parallel approach.

SERVER: In Ye Olden Days, computers were big and expensive—*very* expensive. During that era, the "client/server" model was born, whereby all of the investment in hardware, software, infrastructure and personnel was centralized in one big computer: the server. In modern computing environments, it is still often sensible to centralize some computing resources, such as backup, with servers.

SFTP (SECURE FILE-TRANSFER PROTOCOL): Secure *FTP* provides basic, secure file and directory *management* between remote computer systems.

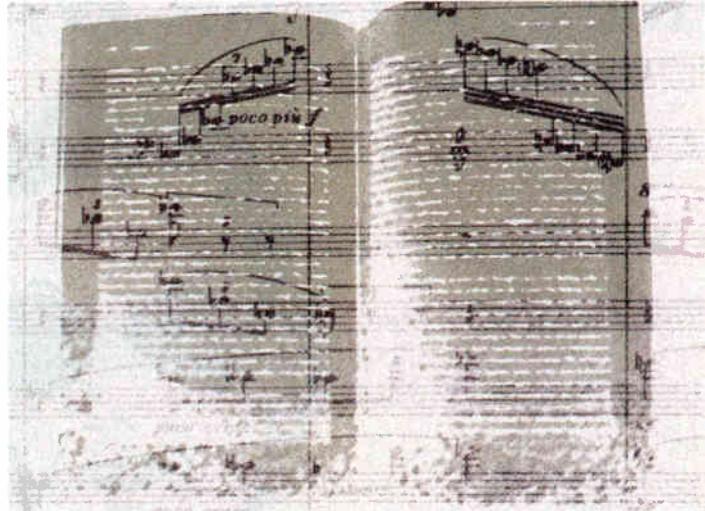
SGML: See *XML*.

SIMPLEX: A simplex connection provides simultaneous bi-directional data transfer, in which each channel continuously transmits in both directions.

SMB (SERVER MESSAGE BLOCK, SMALL MEDIUM BUSINESS): The Server Message Block protocol, invented by Microsoft, is used to share Windows file systems over a *network*. The Small Medium Business version is a favorite of IT vendors, considering that sales to large-scale businesses are increasingly flat. See *CIFS*.

SMIL (SYNCHRONIZED MULTIMEDIA INTEGRATION LANGUAGE): The *W3C* defines SMIL as, "The Synchronized Multimedia Integration Language enables simple authoring of interactive audio/visual presentations."

SOAP (SIMPLE OBJECT ACCESS PROTOCOL): SOAP is a lightweight, *stateless*, one-way messaging protocol for the exchange of information in a distributed environment. SOAP is often used in *Web Services*.



SOFTWARE: Known in Ye Olden Days as "programs," software is a collection of instructions that cause a computer to perform some useful function.

SONET (SYNCHRONOUS OPTICAL NETWORK): a *Layer 1*, physical high-bandwidth *telephony* transport protocol that provides interoperability between disparate carriers' optical infrastructure.

SPYWARE: See *malware*.

STATEFUL: A stateful paradigm refers to maintaining a well-defined state, as opposed to *stateless* or impromptu operation. Stateful operation can be applied to an application running in a memory partition on a computer or a telephone call with its switched-circuit connection. In a phone call, a temporary circuit is built and the two or more parties are patched in. That temporary circuit or "state" is then broken down after the phone call is terminated.

STATELESS: Also known as connectionless, a stateless paradigm refers to moment-by-moment operation. Ethernet is an example of a stateless, packet-switched protocol, in which there is no fixed connection between end *nodes*.

STORAGE: In the world of *IT*, storage refers to any device or subsystem that holds some data for future use. Storage is usually implied to be nonvolatile and can employ magnetic, physical, optical or quantum techniques to store the information.

STORE AND FORWARD: In a store-and-forward approach to data transfer, a download is initiated and the desired data is stored and then operated on locally. This is the opposite of *streaming*.

STP (SHIELDED TWISTED PAIR): In IT land, shield cable is more rare than unshielded varieties and is only used for very high-speed Bs or in "hostile" environments, in which high levels of RFI and EMI are present.

Waves' Convolution Revolution Continues



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Introducing www.Acoustics.net

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



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STREAM, STREAMING: A stream of data refers to a real-time flow and use of data from a source, usually a Web server, to a sink or destination, usually a Web client or browser. This differs from the *store-and-forward* method in that a stream is not usually, or casually, saved to the local client. Streaming can be thought of as transitory data transfer, which is by design, because streaming is used by content providers to lessen a consumer's ability to redistribute the streamed content. As with all attempts to selectively prohibit unauthorized use

and reuse of digital content, modern *software* allows streams to be captured locally for later reuse.

SUBNET: a logical subdivision of a LAN used to partition network activity and resources.

SWITCH, TO SWITCH: A switch connects multiple *nodes* together in a direct, virtual point-to-point method rather than a broadcast method. A switch specializes in exchanging *packets* within a *subnet*. In the *TCP/IP* world of Ethernet, a switch is typically a *Layer 2* or data link layer device that provides *filtering* and for-

warding of packets. *Layer 3* switches are also manufactured, providing routing via hardware at "*wire speeds*." Switches can either be "managed," meaning that they have remote control over operating parameters, or "unmanaged," which means all parameters are factory-preset. Unmanaged switches are also known as "dumb" switches.

SWITCH(ED)-FABRIC: A switch-fabric architecture decouples I/O operations from memory by using channel-based point-to-point connections rather than the shared bus, load and store configuration of older technologies.

SUBNET: a set of *nodes* that are interconnected and "agree" on a common set of device addresses. In the *TCP/IP* world, subnets encompass all devices whose IP addresses have the same prefix.

SYMBOL: In IT speak, a symbol is the logical equivalent of some physical variable that encodes a datum.

SYNCHRONOUS: The opposite of *asynchronous*, synchronous means either that two or more data paths require a common timing signal or that two or more signals are operating at the same *symbol* rate or employ identical symbol sequences.

T-N: Used to designate various tiers of leased telco services, T1 or T-1 represents a *stateful* connection or *circuit* that provides 1.544 Mbps of symmetrical bandwidth between end points. T-1, quite costly relative to newer *packet*-based WAN services, is also available in "fractional" increments of 128 kbps, which reduces the monthly cost in trade for less bandwidth.

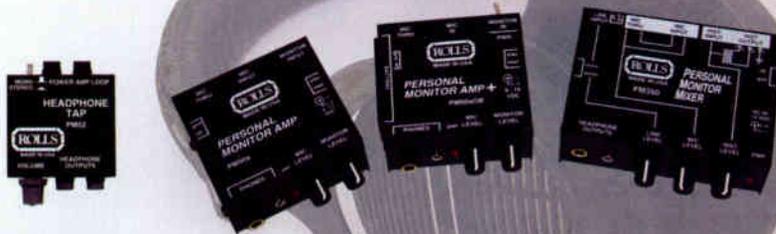
TARGET: can be thought of as a device, such as a disk array or network adapter, that receives command from another *node*, device, *application* or service.

TB, TERABYTE: A terabyte, though not precisely so, is commonly thought of as 1,000 Megabytes.

TCA (TARGET CHANNEL ADAPTER): the *IB* component that connects an input/output device to other *IB* devices. TBAs only require support for capabilities appropriate to the particular input/output device. TCAs are used inside of, or are attached to, a device, such as a solid-state memory cache, or device group, such as a tape library. ■

Welly well, my droogs, we're almost done with this darn Pedants thing, so this new year, I'll continue to split time between emerging trends and plain ol' useful geek intelligence.

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Future Music no. 147, April 2004 (UK)

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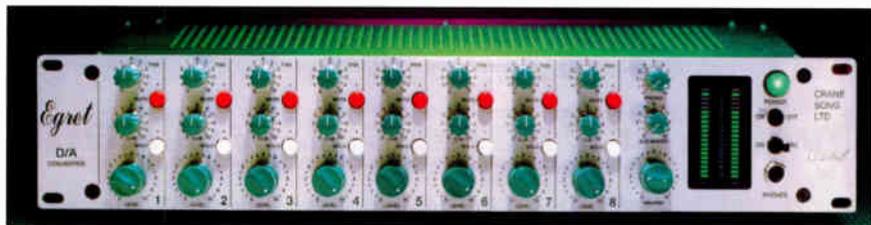
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Tools of the Trade



CRANESONG EGRET

Cranesong's (www.cranesong.com) Egret is an 8-channel D/A converter with a stereo mixer. Each channel has level, cue send, solo, mute and pan controls. The master section has a level control, a master cue send control and headphone out. Each channel has a TRS insert and direct balanced outputs. The DACs support up to 192k and have defeatable sample rate converters on each channel for input jitter reduction, and the converters can be used independently—even at different sample rates.

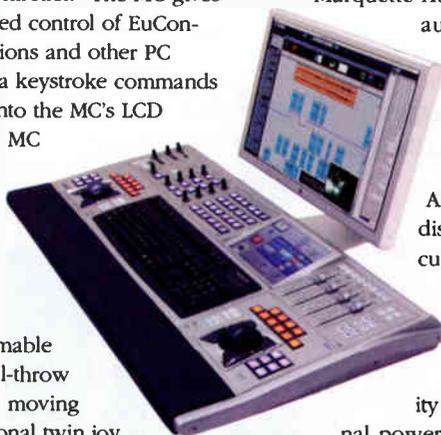
PROPELLERHEAD REASON 3

The latest version of Propellerhead Software's (www.propellerheads.se) Reason promises to take users from studio to stage and offers new features including a new browser and an improved soundbank providing a wide palette of multisampled instruments and Combi patches. Reason 3 is now conversant with most control surfaces and also includes a Mastering Suite, offering EQ and dynamics, and the Combinator, which allows users to build elaborate chains of Reason devices that can be saved as a Combi patch.



EUPHONIX SYSTEM 5-MC

Nuendo and Pyramix users will be interested in the Euphonix (www.euphonix.com) System 5-MC "Intelligent Application Controller." The MC gives users high-speed control of EuCon-aware applications and other PC applications via keystroke commands programmed into the MC's LCD SmartSwitches. MC includes a 7.1 monitor section, twin trackballs, standard full-size keyboard, eight programmable knobs, four full-thru touch-sensitive moving faders (or optional twin joy sticks) and 56 programmable LCD SmartSwitches together with a small touchscreen. The console can be fitted with 16 to 48 faders and starts at \$75,000.



ROSENDAHL BONSAIDRIVE

Designed to provide compact, affordable storage for both audio and video, the new bonsaiDrive from Rosendahl (dist. by Sennheiser, www.sennheiserusa.com, \$2,225) can simultaneously handle 4:2:2 PAL or NTSC video signals and 10 audio channels, while allowing users to specify their own choice of standard IDE drive to neatly slot into the unit. Audio I/O is configured as an analog stereo pair and a 48kHz/24-bit 8-channel digital stream (ADAT format), while video is handled in either composite, S-video or component formats and is processed via lossless 2:1 compression.

AEA RIBBON GUITAR MIC

The R92 from AEA (www.wesdooley.com, \$895) is a mic that shares the same 2-inch ribbon as the company's popular—and more expensive—R84, but has decreased proximity effect to avoid the LF build-up that can occur when ribbon mics are placed close to loud guitar cabinets.

MARQUETTE AM16 PREAMP

Marquette Audio Labs' (www.marquetteaudiolabs.com, \$2,199) AM16 is a 2-channel rack version of the original 1960s AM16 mic preamp, known for its musical, open top end. Now the AM16 is back with the same discrete transistor circuit and custom transformers modeled after the originals. New features include (-0/6/12/18/24dB) input pad, 48V phantom, polarity reverse, output fader, internal power supply and newly designed FET DI inputs.

M-AUDIO AUDIOPHILE 192

M-Audio's (www.m-audio.com, \$199) Audiophile 192 I/O box raises the bar on features while keeping a low price. This PCI 2.2 digital audio interface operates at up to 24-bit/192 kHz and has analog and digital I/O and a 1x1 MIDI interface. Analog I/O is provided on balanced TRS jacks; the S/PDIF co-ax digital ports handle 2-channel PCM with SCMS copy-protection control and pass-through of surround-encoded AC-3 and DTS pass-through. The Mac/PC unit includes drivers for ASIO, WDM, GSIF-2 and Core Audio-compliant applications.

PRINCETON DIGITAL SST-282 PLUG-IN

Going back to the '80s isn't bad when you're re-creating the sounds of the coveted Ursa Major Space Station. Princeton Digital's (www.princetondigital.com, \$499) Tony Agnello worked with SST-282 original designer Chris Moore to

port the Space Station to Pro Tools|HD (Version 6 or later), creating a plug-in that is true to the original. The software offers multitap delay-based echo, ambience and reverb, and works at sample rates up to 96 kHz.

EDIROL R-1

Finally proving size doesn't matter, the 4x5.5-inch, 10-ounce Edirol (www.edirol.com, \$550) R-1 is a mobile, 24-bit/44.1kHz recorder storing stereo audio directly to Compact Flash. The R-1 runs on two AA batteries and has two electret mics and external line/mic inputs. Its 24-bit effects include mic simulation, noise reduction, hum cut, 10-band EQ, reverb, center cancel and more. There's also a metronome, tuner, headphone jack, S/PDIF optical out and features such as half-speed playback and A-B repeat to loop one section of an audio file. A USB 2 port transfers files to your computer.

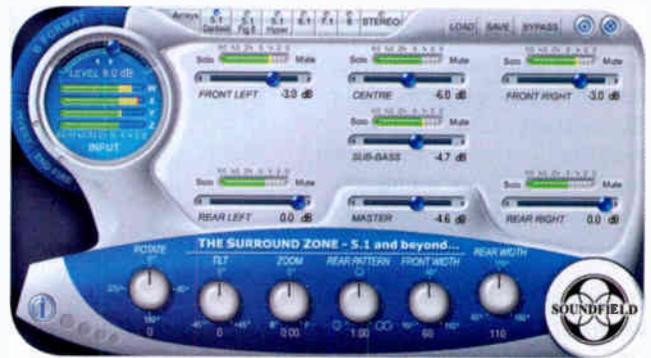


MOTU DP 4.5

This major step up for MOTU's (www.motu.com) Digital Performer promises hundreds of new features such as Beat Detection Engine, automated tempo analysis, plug-in latency compensation and the MasterWorks EQ plug-in. A new Consolidated window lets users work entirely in a single configurable window. Pro Tools TDM operation has been enhanced with support for RTAS and Audio Suite plug-ins, full RTAS and TDM plug-in automation, sample-accurate latency compensation for plug-ins, virtual instrument track support, stereo sends, send automation, automatic voice allocation, QuickPunch support and more. Price: \$795; registered users can upgrade for \$149 or \$349 from a competing product.

SURROUND ZONE FOR PRO TOOLS

B-format junkies can now manipulate their Soundfield (www.soundfield.com) mic data from directly within Pro Tools (Mac/PC). The \$1,062 Surround Zone plug-in combines the hardware features of Soundfield's SP451 surround processor and offers a choice of three separate 5.1 arrays, individual 6.1 and 7.1 arrays, independently variable width of the front and rear pairs, phase-coherent LFE and individual level controls with mute/solo. The interface has extensive bargraph metering and provides additional control over the sound such as rotate, tilt and zoom.



UA PRECISION LIMITER PLUG-IN

Exclusively for Universal Audio's (www.uaudio.com, \$199) UAD-1 card, this powerful plug offers features available only in the DSP world. This single-band, look-ahead, brick wall limiter achieves 100-percent attack within a 1.5ms look-ahead window. Attack and release curves are optimized for mastering; other features include intelligent auto-release and contour mode switching, with the latter tailoring the attack shape to subtly control "presentation." Precision Limiter also features simultaneous RMS/peak metering and adjustable peak hold.

DYNAUDIO AIR BASE 12/24

Dynaudio's (www.dynaudio.com) new subs come in two earth-thumping flavors for your AIR system. The \$3,595 AIR Base 12 puts 500 watts into



a 12-inch woofer; the \$4,995 AIR Base 24 features 700W of amplification in twin 12-inch drivers. The subs adhere to the established AIR feature set, including networking, advanced bass management, extensive calibration, preset handling and the ability to control parameters via a PC or hardware remote.

DIGIGRAM PCX1222HR

This multichannel short-length PCI soundcard from Digigram (www.digigram.com, \$4,000) features one stereo input and six stereo outputs in balanced analog and AES/EBU formats. Features include 24-bit/192kHz converters, a comprehensive set of drivers (Digigram, WDM DirectSound, Wave, ASIO), hardware sample rate converters, a 66MHz/64-bit PCI interface and enhanced onboard DSP.

STEINBERG CUBASE SX3

The all-new Cubase SX3 (www.steinberg.net, \$799) offers a bevy of new features including Audio Warp, a real-time time-stretching and pitch-shifting tool; ACID file support; new tools for loop-based composing; and an in-place editing system for editing MIDI data directly within the project window. The GUI has new user-definable workspaces—all easily switchable via key commands. The DSP-saving Freeze function introduced in Cubase SX2 has been extended to include audio tracks and insert effects, and is now faster and more effective.

BETA MONKEY DRUM WERKS VOLUME V

Weighing in more like a gorilla than a monkey, the 700MB Drum Werks Volume V from Beta Monkey (www.betamonkeymusic.com, \$25) has acoustic drum loops in 12

groove genres, with 1,040 license-free drum loops and drum/cymbal samples, 738 loops (including beats, fills, cymbal patterns and one-shots) and 196 multivelocity drum and cymbal samples. All files are sonically matched from the same recording session.

OPEN LABS OMX64 EXTREME WORKSTATION

Open Labs (www.openlabs.com, \$13,995) has a solution for users wanting to tap into 64-bit processing power without upgrading their I/O. The OMX64 Extreme offers AMD processing and comes standard with 4 GB of RAM (upgradeable to 16 GB), a PCI Legacy and four PCI-X slots. In addition, more than 1,000 sounds and effects are bundled with the OMX64 Extreme for use out of the box. The computer works with Nuendo, Cubase or any other Windows-based recording software.

KJAERHUS AUDIO GPP-1

Offering a kinder, gentler compression, the Kjaerhus Audio GPP-1 is an internal processing, soft-limiter, peak compressor plug-in. Kjaerhus boasts that the 64-bit GPP-1 can compress troublesome



peaks, soften the sound and bring out instruments that would have been buried in the final mix. The VST plug offers five different release types designed for different material and taste, and program-dependent envelope times for increased loudness and minimum pumping. The \$69 GPP-1 supports up to 192kHz rates and is available directly from www.kjaerhusaudio.com.

CEDAR CAMBRIDGE V. 2

Cambridge Version 2 from Cedar (www.ceclaudio.com) boasts disk-to-disk and disk-to-world file processing capabilities. The new features allow users to analyze and process selected parts of, or whole, .WAV and .AIFF files, rendering the results back to hard disk in a fraction of the time needed to process audio in real time. The new 64-bit dynamics processors offer a compressor, an upward expander, a downward expander and limiter, all

offering up to eight channels of processing, making it ideal for all multichannel and surround requirements. The file processor is free to existing users, while the CAM11 limiter is \$1,725 and the CAM12 dynamics is \$4,975.

BRAUNER PHANTOM-V

This variable-pattern, large-diaphragm mic from Brauner (www.braunerusa.com) offers switchable omni/cardioid/figure-8 polar patterns. Specs include 8dBA self-noise, 142dB max SPL and a 20-22k Hz response. Its capsule is based on the Brauner VM1, and the \$2,500 Phantom-V includes SMV shock-mount, aluminum case and cable.



Upgrades and Updates



All E-mu digital audio systems and Emulator X desktop sampling systems now ship with E-mu's Power FX hardware-accelerated VST effects software. Current owners can get a free download at www.emu.com...Princeton Digital's Reverb 2016 plug-in is now offered as a VST-compliant reverb plug-in for Windows hosts. The plug-in operates at up to 96 kHz/24-bit and is \$200. Visit www.princetondigital.com...Now bundled with

Cakewalk's Sonar Producer 4 and Sonar Studio 4, a trial version of Minnetonka's discWelder DVD-Audio authoring program will burn up to five DVD-A discs before a license from www.discwelder.com is purchased...3D Audio is offering a limited re-release of its Mic-CD at the original 88.2/24-bit sampling rate, the rate at which the original sessions were recorded. Get it directly from www.3daudioinc.com... Need to make a low-fi version of a track that simulates vinyl? iZotope (www.izotope.com) now offers its free Vinyl plug-in for Mac OS X in Pro Tools, VST, MAS and AudioUnits formats...Brauner has a free DVD (from www.transaudiodelite.com) that tells the company's inside story and features Dirk Brauner talking about his mic design philosophy...Version 1.30, a major upgrade for Tascam's (www.tascam.com) FW-1884 audio/MIDI interface and control surface, lets

the unit send commands to soft synths, plug-ins and sequencers via its FireWire interface... Marathon's (www.marathoncomputer.com) \$699 12U computer rack enclosure is deep enough for Apple's Xserve, yet allows two G5s to stand upright. The steel unit features internal cross-bracing, dual top-mounted fans, removable side panels, removable bottom panels for cable management and four casters...Maxtor's (www.maxtor.com) 250GB (\$239) and 300GB (\$279) hard drives feature a 16MB buffer and 7,200 rpm performance. These Serial ATA (SATA) drives include SATA cable and MaxBlast install software...The CinemaSounds 5.1 music library has 24 compositions specifically for use in film trailers, TV promos and games. Composed by Linda Martinez and Gabriel Shadid, the music is available on stereo CDs and discrete 5.1 elements on DVD-Rs. Audition it at www.5alarmmusic.com. ■

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Apple Logic Pro 7 Workstation

Revamped Interface, Distributed Processing Streamline Workflow

What do you get when you cross Apple technology with a German-born DAW?

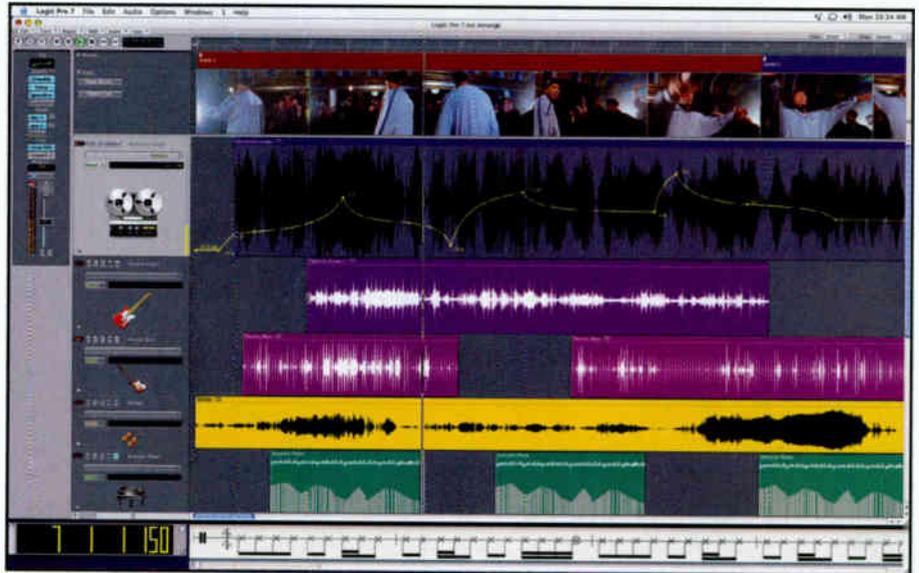
The answer will reveal itself later in this review, but suffice to say, the news is good. It's been nearly three years since Apple acquired Emagic, and since then, Logic has benefited much from Apple's Midas touch. This latest incarnation of Apple's DAW, Logic Pro 7 is the best Logic to date, featuring groundbreaking new plug-ins, a friendlier interface, GarageBand and Apple Loops integration, and even the ability to distribute the CPU load to other computers.

NO GUI MESS

When speaking of the changes to the GUI in Logic Pro 7, it's the little things that count. In the past, users have griped about Logic's nonintuitive interface. Version 7 shows a vast improvement—even the nonvisual aspects, most notably the nomenclature, have been clarified, eliminating inconsistencies in terminology. For example, in Logic 6, there were multiple uses of the word Object—in the Environment and Arrange windows, Object Parameter box and Sequence Parameter box, for instance. In Logic Pro 7, Object is now only used in the Environment window, and everything in the Arrange window is now called a Region, adhering more to the Pro Tools model. And speak of the devil, Logic now has a Shuffle mode.

In Logic 6, the Local menu in the upper-left corner was nonintuitive and it was difficult to remember where some functions were. Logic Pro 7 adheres more to the look of Final Cut Pro and DVD Studio Pro, and breaks parameters into Edit, Track, Region, MIDI and Audio, which makes it easier to find parameters pertinent to a particular function.

The new Logic eliminates what I call "the invisibles," useful but hidden features that only revealed themselves if you stumbled upon them, saw someone else use them or, God forbid, read the manual. For instance, in Logic 6, when you went to the lower-right corner of an Object (now known as a Region), there was no indica-



Apple Logic Pro 7 offers GarageBand and Apple Loops integration, and CPU load distribution.

tion of anything out of the ordinary, but if you clicked on it, a "finger" appeared and you could stretch the object. In V. 7, when you drag over the lower-right side of the Region, there is a small icon indicating that something different will happen when you click there. Also new in 7, clicking on the upper-right-hand corner of the region will create a loop, repeating itself as you drag to the right. Lastly, the once invisible tweakers at the right side of the Object parameter box (on/off, parameter up/down, etc.) now have indicators.

You can now save a channel strip's setting, name it and import it into another channel. This process brings up the EQ, plug-ins and the instrument, which makes for quick recalls of favorite sounds, settings and instruments in new productions. Channels also come with an array of sonic presets applied to a list of possible instruments (piano, guitar, etc.).

The new Global Tracks section at the top of the Arrange window offers choices for video, markers, time signature, key signature (this feature makes Apple Loops follow the new key), global transposition, global tempo and more. One nice feature in reference to Global Tracks is the ability to choose whether to move the Global Data

when you move tracks or keep it in place. In V. 6, when an object was moved, none of the other session data would move with it. This new capability is especially nice when working with video that has changed. It's also worth mentioning that you can now record across two audio instrument tracks at the same time, creating a layer of two instruments simultaneously, and that the Preference windows in Logic 7 are more Apple-like and much improved.

SÍ, SE HABLA GARAGEBAND

Logic Pro 7 is now completely conversant with the decidedly addictive GarageBand. You can start your session in GarageBand, open it up in Logic Pro 7 and all of the tracks show up just as they were. Apple Loops and Jam Packs are supported and are resident in both programs, as are the Channel section and the lightning-fast and simple search engine interface, making for an easy transition between the two applications. The free sounds and time-stretching function are both excellent. If that weren't enough, you can now import Acid files, as well. By the way, if you haven't played with GarageBand, you're missing out on something genuinely fun. (See "Power Tools" on page 176.)

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NEW PLUG-INS AND VIS

There are too many plugs to mention in this review, so we'll touch on the high points. Space Designer, Logic's resident convolution reverb, now comes with a boatload of new impulse responses. Pitch Correction is a basic pitch correction tool that uses an extremely simple interface. Linear Phase EQ has the same look as the existing Logic 6 EQ, so it won't be strange to users.

There is a slick multimeter with a phase correlation meter, both traditional and a goniometer; a meter showing RMS and peak; and a frequency meter. Ringshifter is a ring modulator that lets you go completely mad with ring modulation. Match EQ allows you to learn, copy and apply an EQ curve from a recording to another sample. Guitar Amp Pro is Logic's amp simulator.

Sculpture is probably the coolest virtual instrument I've seen in a long time. It operates on a virtual model of a string in which you move pickups to change the sound. You can also choose the type of string—nylon, steel, wood and glass—and mix between them all with a rotary slider. An exciter determines what you strike the string with—a pick, blowing, impulse, bow, wide bow, noise, etc. You can also pick where the exciter strikes the string. Another

nice feature lets you bounce something off the string in a random pattern, the intensity of which can be changed by another rotary slider. There is an EQ and many other modifiers available. Sculpture is completely automatable and is a tweaker's delight. But beware: Sculpture is a DSP hog—a perfect candidate for distribution to another processor.

Ultrabeat uses the groove box-type approach to beat production. Twenty-five sounds are mapped like a sample set across the keyboard. Three oscillators let you tweak the sounds, and there is an old-school step recorder, like a TR-808. You can also apply sequencer grooves to a key on the keyboard and play the whole song from the keys. The horizontal bars where the sample names are double as your faders; there are also solo, mute and panning functions. Ultrabeat's mixer lets you submix all of your drum ingredients within a single track, which keeps the Arrange window uncluttered.

DISTRIBUTED DSP

One of the most interesting new things about Logic Pro 7 is its ability to distribute the CPU load among other computers networked via 1-Gigabit Ethernet. (See "The G5 Logic Hat Trick" sidebar below.) The first step is to install the Logic Node

software app on the additional platforms to be used for DSP distribution. Then, enable the Node mode under Preferences in Logic and choose the Node Button option from the View window. This brings up Node icons on the tracks in the Arrange window. Once the Node button on a particular track is turned on, that track's CPU task is sent across the network. Logic then searches for other computers and the Node button turns green. The downside: No third-party plugs or EXS-based samples can be noded; only things such as Space Designer, Sculpture and Ultrabeat.

To see what's going where, the CPU meter displays an additional Node column of meters that reflects the other computers on the node. Another downside of this feature is that you can't use this function for live tracking—the latency makes it unplayable. However, once the track is recorded, latency is not a problem. Note to Apple: For future upgrades, it would be nice if when a user selects a track and record-enabled it, Logic would also de-select the Node button, saving steps when overdubbing from a "noded" track.

A STABLE INFLUENCE

Stability has become one of Logic Pro 7's watchwords. Apple has reined in a major cause of system crashes within the ap-

The G5/Logic Hat Trick: Three G5s Meet Logic Pro 7

Distributed processing in a DAW is nothing new, but to have Logic and Apple now working on the capability as one entity means that the DAW race could get interesting. As a test for this feature, Logic guru and co-author of the definitive app guide, *Apple's Pro Training Series: Logic 6* (Peachpit Press), Robert Brock set up three Apple G5s running Logic Pro 7. To be clear, we ran Logic Pro 7 on one G5 and then distributed the CPU load between the other two computers using Logic's new distribution feature. The network setup couldn't be easier. You simply connect all of the computers into a single 1-Gigabit Ethernet hub, install the Logic Node software on the non-host computers, activate the Node Mode in Logic Pro 7 and you're ready to send CPU tasks across the network.

The session began in GarageBand where Brock used the slick search engine to quickly create a drum and bass loop. After saving

the session, Logic Pro 7 was opened and the GarageBand session was opened up, where it neatly showed up in the Arrange window. Next, Logic's Loop Browser, looking very much like GarageBand's search engine, was opened and a conga sound was called up. Next, an audio track was created and the conga was dragged into the track and quickly looped. Logic conforms the chosen Apple Loop to the session tempo regardless of the original tempo.

Spectrasonic's new Stylus RMX and drums from BFD XL were called into the session, along with an Apple Loops guitar sample with Apple's Space Designer, a CPU-intensive convolution reverb. Integration of Stylus and BFD was seamless, with Logic communicating the session tempo directly to the plug-ins. Next, Logic's EXS sampler was brought up and the Vienna String Library's Pro Edition was opened. A VSL tab shows up in the EXS24 Instrument Editor, which makes it easy to do complex

MIDI switching in the background, resulting in more musical transitions between samples.

The bottom line: Even with all of these CPU hogs in the session, it was hard to get the CPU meter above the halfway point, even on one computer. We did put some items across the network, which showed up on the meter and eased the load on the first computer.

Distributed processing is a great feature for power users and will become even stronger when (and if) you are able to put more across the node. Right now, it only supports Logic-based plug-ins and not the EXS sampler. On the plus side, if you already have a second computer, then you can take advantage of its idle CPU power to use with Logic Pro 7. But with the Freeze function (Logic's ability to render and unrender tracks introduced in Logic 6), this new feature probably won't make you run out and buy a second or third computer.

—Kevin Becka

Listen to the XPERTS!



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REVIEWER'S PICK 2004 :: Aug. 2004

The Yamaha O1x is the answer to all my needs for integrating everything I do with audio and music. Its bargain price makes it a no-brainer purchase for anyone who wants a DAW control surface, high-quality audio interface and, of course, a hardware digital mixer.

Macworld :: Oct. 2004



KEYBOARD :: Jan. 2004

After using the O1x for a few months, the coolest aspect is that it blurs the lines between a traditional digital mixer, control surface and audio/MIDI interface — it's all three.

Electronic Musician :: Nov. 2004

Considering all the functionality packed into the O1x's silver-gray front panel, its user interface is a miracle of modern ergonomics.

RECORDING

The Magazine for the Recording Musician :: Dec. 2004

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

REMIX :: Dec. 2004

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plication: plug-ins that don't adhere to the AudioUnits standard. When you boot up Logic 7, Logic's AU manager validation app runs very quickly in the background. It assesses all plug-ins and quickly disables those that don't adhere to the standard. This may sound like a pain, but as Spock said, "The needs of the many [Logic users wanting to avoid crashes] outweigh the needs of the few [plug-in creators who slack on the AU standard]." Once Logic boots, you can go in and re-enable most plug-ins, but some won't run at all. For the most part, manufacturers have been quick to fix any problems.

THE VERDICT?

Logic Pro 7 (\$999; upgrade for \$299) is a greatly improved DAW that is getting ever closer to being your "DAW everything." Logic 7 now provides for all phases of production without needing much else. The GarageBand integration is nothing short of brilliant, there are some great new plug-ins, the GUI is much improved and very intuitive, and the DSP distribution is a step in the right direction.

Logic Pro 7 loses marks, however, in the choice of colors and fonts in the new GUI. The new darker look is harder to

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Test Systems

Hardware:

- (1) Apple G5 twin 2-Gig processor with 3.5 Gigs of RAM (host for Logic Pro 7)
- (2) Apple G5 twin 2.5-Gig processors with 4 Gigs of RAM
- (1) D-Link 1-Gigabit Ethernet hub
- (1) MOTU 896HD audio interface
- (2) Tascam US-2400 controller

Software:

Apple GarageBand
 Apple Loops
 Apple Space Designer (convolution reverb)
 Apple Sculpture (VI plug-in)
 BFD XL Drums
 Spectrasonic Stylus RMX
 Vienna String Library VSL Pro

read than 6, and the user often loses the war between readability vs. font/background color (one notable case being the Group Functions, which is blue on black). Some users will mourn the loss of the Telescoping function. The Telescope icons that once made zooming on the horizontal and vertical a small move have been replaced by sliders at the upper-right and lower-left areas of the window. With a larger display, such as Apple's 30-inch Cinema HD, this results in an oceanic voyage for your mouse when zooming with one hand. Lastly, Logic Pro 7 still doesn't give you proper pro panning on a stereo track; all you get is a balance control. The Direction Mixer is the only way to mimic a traditional panner, but it is nonintuitive and unlike any console or DAW that gives you proper twin panners.

Nonetheless, these are minor gripes when compared to the bigger picture: this all-in-one solution's enhanced production workflow. The upgrade will win big with current Logic users, and will have a magnetic appeal with users migrating from other DAWs or up from Logic Express 7, GarageBand or Soundtrack.

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Kevin Becka is Mix's technical editor.

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-Adam Kasper, Producer/Engineer, Cat Power, REM, Pearl Jam, Soundgarden, Foo Fighters

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Cakewalk SONAR 4 Producer Edition

PC-Based DAW Streamlines Workflow, Adds Surround Features

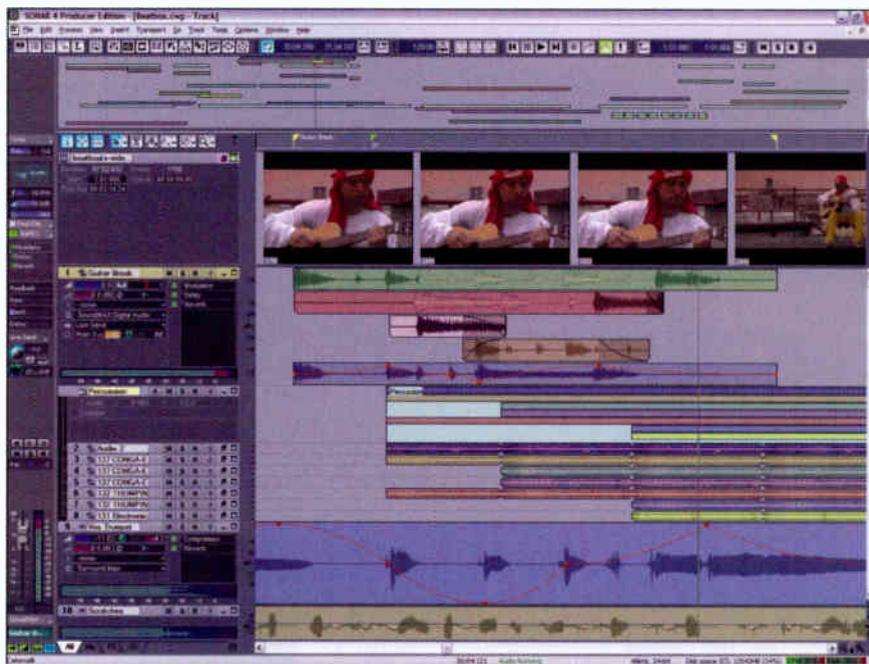
You can't speak of DAWs and not mention Cakewalk, a huge contender and contributor to the PC audio/MIDI realm. Roughly a year ago, Cakewalk released SONAR 3. The latest version, SONAR 4, is much improved, featuring support for any sampling rate and full-blown surround capabilities. I knew this was a serious piece of software when the well-written manual fell out of the box followed by a big thud. If cracking the books makes your eyes cross, the software is loaded with excellent help files.

WORKFLOW EFFICIENCY

Workflow efficiency and ease of use are important in any DAW, and SONAR 4 is all over it. New feature Track Folders, a combination of grouping mentality and file management for busy sessions, is brilliant for multi-mic work such as surround recordings, drums, choirs and orchestras, as well as combining virtual instruments and MIDI tracks. You can file multiple tracks (excellent for multiple takes) into a single folder and simultaneously mute, solo, record and archive all tracks within the folder by editing the Composite folder clip; or perform conventional editing quickly and efficiently on independent tracks within the folder; making it great for importing multichannel audio information.

Another workflow aid is Navigator View, a great little addition that gives you a colorful overall view of your entire project (including audio, MIDI and virtual instruments). Key Bindings lets you assign any keystroke to any function for efficiency. Conveniently, SONAR also includes key templates based on other DAWs including Cubase SX, Nuendo, Logic, Pro Tools and others, making cross-platform migration a breeze.

Comping audio/MIDI tracks has never been easier. With the Show Track Layers option, I could record as many takes as I wanted without skipping a beat. Every input, output, bus send and plug-in could be maintained during tracking/overdubbing. Having the ability to use the same plug-ins for multiple takes is a CPU saver. SONAR 4 simply creates visual "lanes" of new information within the same track.



SONAR 4's Track View demonstrates workflow improvements.

Using the new Mute tool allows you to isolate and audition all of the different takes. After editing all of the lanes, what's left is the perfect take. Track Layers is my new favorite way of comping vocal takes. During the same tracking session, I was able to direct the audio metronome level to any bus or output. This new feature makes setting up a click track for sessions simple and painless.

FREEZING FOR FUNCTIONALITY

If your session pushes your PC's limits, SONAR 4 can utilize its new Freeze function, which optimizes system resources (CPU and memory) by mixing down everything on a given track. For example, if you have a track with four plug-ins, you can easily right-click on the track number and select the Freeze option. SONAR instantly does a number crunch and bounces the waveform with all of your effects and dynamics but without the plug-in load. If you're thinking, "Cool, but not really new," SONAR 4 allows you to keep recording, editing and even convert frozen data into groove clips. If you right-click once

again, then SONAR unfreezes the track, reverting to the original setup with all of your plug-ins. You can also unload virtual instruments, which can be very taxing on systems. SONAR 4 actually rewrites the virtual instrument into waveforms.

FEELING SURROUNDED?

If you work in surround, then SONAR 4 is the software for you. There are some extensive features in Producer Edition that revolve around multichannel audio; for example, there is full support for the most popular surround configurations including 5.1, 7.1 and LCRS. SONAR 4 has more than 30 surround templates to choose from, with the default being 5.1 (SMPTE/ITU); any configuration can be supported. After selecting a template, click on Options, Project and then Surround and you'll have access to surround options such as output assignments and surround formats, as well as all of the speaker angles for every format. You are also provided with access to monitoring with bass management and lowpass cut-off control including 120 Hz (Dolby Pro/film), 80 Hz (Dolby Consum-

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Remember the great sound of all those classic recordings made on vintage British desks? Brought to you by Gareth Davies and David Dearden, the "D"s from DDA consoles, Audient represents the culmination of more than 40 years of classic British console design. Audient products capture that much sought after tone, and deliver unsurpassed performance through each stage of the recording process.

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ASP510 Surround Sound Controller



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er/DVD), 116 Hz (DTS) and 180 Hz.

But wait, there's more! Within the same screen, you can preview and downmix your surround project to stereo. Panning capabilities are also very impressive. The panner, which has joystick support, is visually appealing and makes sense: The labeling is big and informative. There is the typical click-and-drag approach and very effective sliders at the bottom of the panner that give you a fine-tuning



SONAR 4 supports most surround format configurations, as shown in the Lexicon Pantheon plug-in.

ability, including angle and focus parameters (perceived angle and focus), width, front/rear balance, LFE slider and LFE-only button. After my initial setup, I sent a stereo guitar track into a surround bus by clicking on the track's output, selected New Surround Bus and clicked on the surround panner—it was that easy. Once you have multiple surround buses, they now show up as assignable outputs. Soloing individual surround outputs is done via double-clicking on the desired speaker in the Panner view. When the surround session is ready for delivery, SONAR 4 offers an impressive array of delivery options, including Windows Media Audio 9 (WMA), WMA9 5.1 and WMA9 lossless encoding and decoding, QuickTime and many more. This is by far the easiest and most intuitive experience I have had with surround software.

SONAR 4 also steps up the surround environment performance with Surround-Bridge, which takes advantage of new and old stereo plug-ins that are inserted on multichannel buses. SONAR 4 performs this by loading enough instances of plug-ins to handle all of the surround channels. For example, when you load in a stereo effect over a typical 5.1 track, Surround-Bridge automatically loads in enough in-

stances to cover all six channels. The left and right channels would be loaded into instance one, the left and right surrounds get loaded into instance two, the center channel into instance three and—you guessed it—the LFE into instance four. (Channel assignments are also configurable.) Conveniently, all of the parameters are controlled with one interface. (They can also be unlinked.) On the downside, I received run-time errors while trying to insert a mono plug-in (DSP-FX Studioverb) across a 5.1 track. This is a known issue, documented in the help file.

BUILT-IN PRO FX

Lexicon's Pantheon Surround Reverb (which only works within SONAR) is included in SONAR 4. I had big expectations for the 'verb and Pantheon did not let me down: It remains true to the other Lexicon algorithms I'm used to. You can also take dynamic control over your multichannel audio with the included Sonitus Surround Compressor. Sonitus can span over nine channels and is fully automatable and quite efficient.

PRECISION ENGINEERING

I'm currently staring at a session with virtual instruments, MIDI tracks, a slew of stereo/mono audio tracks, a video track and a ton of plug-ins. I call this my DAW Crippler session, and SONAR 4 hardly broke a sweat. This is an impressive software engineering feat, in light of the advanced features that SONAR 4 offers. Features include full advanced MIDI support (recording and editing), superb sync capabilities, loop-based composition/editing, support for DirectX and VST effects, DXi and VSTi soft synths, ReWire support and extensive delivery capabilities. SONAR 4 also imports and exports video to MPEG video, QuickTime, Windows Media Video and AVI (5.1 audio).

Time- and pitch-stretching are accomplished with Prosoniq's MPEX3 time scaling, an algorithm that emulates how humans hear. Time scaling is performed through an advanced technique called Artificial Neural Networks (a simulation of how our ears work). MPEX3 was a beneficial tool for matching audio to video or working with samples. Another pro-quality feature is POW-r Dithering (Psycho-Acoustically Optimized Wordlength Reduction), a high-quality algorithm that transfers 20, 24 and 32-bit audio to CD-

standard format.

It's the little things that count and SONAR 4 completely irons out past issues with panning and metering. Now you have total configurable meter ballistics for RMS and peak metering and six industry panning laws.

MAXING MY MACHINES

Cakewalk recommends a processor speed of 1.2 GHz with 512 MB of RAM running on Windows 2000 and XP. (There is support for multiprocessors.) I ran SONAR 4 on a 2.8GHz Pentium 4 machine with 512 MB of RAM. The machine was powerful enough for all of the applications, but started to show signs of choking during surround applications. I recommend at least 1 GB of RAM if you plan on using a large number of virtual instruments and surround. For I/O, SONAR 4 works with WDM, MME (32-bit) or ASIO-compatible devices. A MOTU 828mkII worked flawlessly.

SONAR FOR EVERYONE

SONAR 4 is also available to the aspiring pro without some of the sophisticated extras of Producer Edition. Utilizing the same architecture and core engine, SONAR 4 Studio Edition omits surround mixing and editing, Lexicon Pantheon Surround Reverb (Pantheon LE is included), Sonitus Surround Compressor, Sonitus:fx Suite, enhanced mixing console with assignable effects controls and per-channel EQ, video thumbnail track, POW-r Dithering and MPEX time scaling.

A SOLID CHOICE

With SONAR 4, it is evident that Cakewalk is reaching for its piece of the surround sound pie. Well, the company is actually devouring it. The surround capabilities receive a standing ovation, but make sure you have a potent machine for the heavy load. Also, with the recent migration of Logic over to Apple, this leaves many users searching for a PC MIDI platform and SONAR 4 will do you right. It is the most complete, rock-solid PC system for everything revolving around audio and MIDI. Is SONAR 4 the definitive Windows platform? Well, for well under a grand, without a doubt!

MSRPs: SONAR 4 Producer Edition, \$959; and Studio Edition, \$479. Street price: \$599/\$299.

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PreSonus Central Station

Monitor Controller for a Modern Digital Studio

If there's anything that the small to medium DAW-based studio can use, it's more desktop space. PreSonus' Central Station accomplishes this and provides metering, talkback, footswitch control and other features found in a console's center section.

Central Station is a moderately priced monitoring solution for 2-channel stereo setups, featuring an excellent design and a number of conveniences. It also has an optional wired remote. The main unit is a 1U 5.5-inch-deep box with three pairs of analog inputs, and optical and RCA stereo S/PDIF digital ins. Two of the analog ins are ¼-inch TRS and the third one—the aux input—is RCA and has a trim pot.

an undocumented feature lets you change this to momentary peak hold.

It's easy to calibrate the meter to any desired level within a ± 12 dB range: Press the Calibrate button and send it a signal (most likely a 1kHz sine wave) and that signal's level becomes -18 dBFS/0 dB on the meter. There are also pairs of trims for matching the levels of different speakers and correcting left/right imbalances.

REMOTE ACCESS

The optional wired remote—which I consider mandatory—attaches to the main unit by a 6-foot 15-pin cable. This unit is well-designed, with its lighted buttons, er-

word clock input; the unit automatically locks to any standard sample rate between 44.1 and 192 kHz.

I compared Central Station's DAC at 24-bit/44.1 kHz and/or 96 kHz to the built-in DACs in the Panasonic DAT mixer, DigiDesign 24-bit ADAT Bridge and the MOTU 1224 (at 44.1), the Waves L2 (at 96k) and the Apogee Mini-DAC (44.1 and 96), and it sounded subjectively as good or better. Central Station's conversion is not quite up to the level of a higher-end Apogee DAC (acoustic guitar strings sound about 20 minutes newer through the Apogee, for example), but my ears were perfectly content listening to Central Station's converters.



There are two output paths in Central Station, each of which can be switched independently to any single input pair. The Cue output path feeds its own TRS outputs and the onboard headphone amp, which has two jacks. The built-in talkback mic or optional external mic, either of which can be triggered by a footpedal, feed this path.

The main output path feeds its own pair of outputs, as well as the A, B and C pairs of "speaker" outs (which are actually amplifier outs). A and B can't be active simultaneously, but C can be active at the same time as A or B as it's intended for a subwoofer.

QUALITY SIGNAL PATH

The analog signal path is passive throughout, but Central Station's D/A converters, lights, relay switches, headphone amp, talkback mic and meters are powered by a relatively hefty (3.5x2x2.5-inch) in-line supply. All but the two buttons that affect the meters are triggers for relays; they're not actual switches with audio passing through them.

The above-mentioned meter is an easy-to-read 3-inch, 30-stage stereo LED peak-reading meter. It holds the peak indication until you push the Clear Peak button, but

gonomic layout and compact case (roughly 5½ inches square) that won't slide around the desktop. Just about all of the main signal path's controls, plus a duplicate talkback mic, are included.

VOLUME CONTROL

To see how closely Central Station tracks between channels at various levels, I ran sine wave recordings through it and looked at the results in Pro Tools. Until you get down to the whisper range, the two channels were never more than 0.4 dB apart, usually less.

That was close enough for there to be no discernible image shift, and well within range of what one would expect from any standard stereo-ganged potentiometer. The only way to improve upon that (and to ensure that the level is precisely repeatable) would be to replace the pot with a stepped attenuator using a resistor array. Those parts are exorbitantly expensive and generally found only in units costing many times Central Station's price.

THE DIGITAL SECTION

The onboard stereo DAC boasts an impressive 117dB dynamic range spec. There's no

HOW DOES IT MEASURE UP?

One scratchy output on the review unit aside (most likely due to a dirty switch somewhere), Central Station's build quality seems fine. The relay switches don't glitch when activated, and combined with the passive circuitry, this makes Central Station an excellent unit for A/B comparisons.

This review coincided with an experiment to ditch the digital mixer in my MIDI-plus-overdubs studio in favor of a Pro Tools and MOTU PCI-424-based setup. Contrary to my apprehensions, living with Central Station's easy ergonomics turned out to be extremely convenient; having its non-invasive remote control constantly within reach was ideal.

At \$699 for the basic unit and \$199 for the remote, Central Station does its job at a fair price—without being obtrusive, either sonically or physically.

PreSonus, 225/216-7887, www.presonus.com. ■

Nick Batzdorf is a music and audio technology writer, composer and engineer/producer in Los Angeles.

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Drawmer 1968 Mercenary Edition Compressor

Twin-Channel Vacuum Tube Dynamic Control

When a re-issue comes in for a review, I typically have one of two reactions. When the original version has issues, I hope that the redesign addressed those issues. When the original works just fine, I hope that the company didn't screw anything up when it changed it. I've owned a Drawmer 1969 for a few years, so I was quite interested in seeing what changes were made in the 1968.

A warning system has been added, which causes the meters to glow brighter as the signal approaches the 1968's maximum +22dB (balanced) output. It should be noted that the bypass switches on the 1968 are hard-wired: If the compressor loses power, then the signal will pass from the input to the output of the 1968. This is perhaps not a big issue for most of us, but it can be of major importance to those in

to deal with percussive transients. A fairly amazing amount of tonal change can be achieved, especially on signals such as a kick drum, with a judicious combination of attack times and the Big switch. I used the 1968 in the recording chain on a variety of signals with good success: bass, acoustic instruments such as fiddle and mandolin, and even on an accordion.

In a mixing situation, the 1968 kept a big,



THE BASICS

The Drawmer 1968 is a single-rackspace unit that uses the same compression circuitry as the 1969: a FET-based gain-reduction element with a tube output stage. Each channel has threshold, attack and release knobs, as well as a Big switch and an output (gain makeup) control. The Big switch puts a highpass filter into the compressor circuit's sidechain, making the compressor less sensitive to low-frequency components of the program signal. In addition to the built-in Big circuitry, the 1968 includes a TRS patch point on the rear panel that allows access to the sidechain for complete flexibility in frequency-dependent ducking and a Sidechain Listen function.

The 1968 can be operated in a "true stereo" mode: When the Stereo switch is engaged, channel 1 becomes the master and controls the compressor circuitry for both channels; only the output control of channel 2 is operational. When the same gain reduction is applied to both audio channels, no image shifting can occur. The illuminated VU meters on the 1968 can display either gain reduction or output levels, and a +10 setting has been added for those who tend to push compressors; essentially, by setting the meter to +10, 0 dB shows on the meter as -10, and +10 is displayed at 0 dB. Besides this, an LED

the broadcast and live sound industries.

Attack times on the 1968 are controlled by a six-position switch and range from 2 to 50 milliseconds. There are three fixed release times and three that are program-dependent. The output of the 1968 can be raised (or lowered) by 20 dB with the output control. The 1968 is a soft-knee compressor so no ratio controls are necessary; the compression ratio is dependent on the amount of gain reduction taking place.

SO WHAT'S NEW?

The most visible change, of course, is that the 1968 is single-rackspace-tall rather than the two spaces taken up by the 1969. This is great for those with limited space available. Another nice feature is that the Big setting can be used on each channel individually; on the 1969, it was only available when using the unit in stereo mode. (I didn't consider that an issue with the 1969 because I usually use it as a stereo compressor.) I also appreciate the changes that Drawmer has made to the meters on the 1968: In addition to a +10dB switch, as the output signal gets close to its maximum output, the meter flashes on the peaks.

HOW'S IT SOUND?

Overall, the 1968 sounds great. It's not superfast, but it is certainly fast enough

beefy sound everywhere I tried it. The 1968 and the 1969 have become my "go-to" compressors for the main drum bus. The 1968 works for mild gain control (in which the gain reduction was smooth enough to be virtually unnoticeable) and for fairly outrageous compression, complete with artifacts. That's not a complaint, by the way. At the time, I was looking for that over-the-top sound; with the 1968, I found it. In addition to using the 1968 on the drum bus, I've used it to excellent effect on the keyboard bus, on the guitar bus and on grouped background vocals. I have gotten great results with it on the main mix bus on more aggressive music.

FINISH LINE

The 1968 has been hailed as a "stripped-down version of the 1969." I didn't consider it a stripped-down compressor at all—it's more like a streamlined version. For those who (like me) don't use the preamps or the aux input, a version that takes up half the space and costs a thousand dollars less (and offers some enhancements on top of that) seems to be an improvement and a relative bargain at \$2,150.

Drawmer, dist. by TransAudio Group, 702/365-5155, www.transaudiogroup.com. ■

Martin Allen is a Nashville-based producer and engineer.

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World Radio History

Vintech Model 473 Class-A Mic Preamp

Four Channels of Neve-Style Preamps and EQ

Is it possible for a company to offer a quality, retro-style mic pre with usable EQ for \$800 a channel? It seems like a lot to ask, but in the case of the Vintech Model 473, it is a can-do. As its model number implies, the Vintech 473 includes four mic preamps that use the same circuit design as the vintage Neve 1073 preamp. To limit the 473's list price to a moderate \$3,195 (plus \$200 for the unit's outboard power supply), Vintech employed switches that enable only 70dB maximum gain (vs. 80 dB in the 1073)—plenty of gain for almost every conceivable studio application. Each of the 473's all-discrete, Class-A, solid-state preamp channels also includes both high- and low-shelving filters, a front panel instrument DI jack, a two-way input-impedance selector and separate switches for mic/line input selection, polarity reversal, 48-volt phantom power and EQ bypass.

HANDSOME AND FRIENDLY

The 473's attractive front panel controls are thoughtfully laid out for efficient use. Four beefy, knurled aluminum knobs for each channel—one red and the others chrome-colored—provide control over preamp gain and EQ boost/cut. The red input-sensitivity knob provides 20 to 70 dB of preamp gain for mic signals or 0 to 50 dB of gain for line signals (depending on whether mic or line input was chosen for a channel) in 5dB steps. A continuously variable output gain potentiometer for each channel provides attenuation all the way down to minus infinity (silence). It's useful for attenuating the input signal below the 20 dB of minimum gain presented by the input-sensitivity control or for riding higher gain while tracking. The two remaining knobs for each channel are also continuously variable. They each provide up to 15dB boost/cut for their respective shelving filters and have 0dB detents.

A two-way switch directly underneath each of the boost/cut controls selects the corner frequency for the respective shelving EQ: either 3.2 or 12 kHz for the high shelf and either 60 or 220 Hz for the low shelf.

The input-impedance switch for each channel selects either 300 ohms or 1.2k ohms. As expected, I found that the latter setting provided mic signals with slightly



greater gain and depth and a brighter, more open sound.

Except for the previously mentioned instrument DI (¼-inch unbalanced phone) jack for each channel, all I/O are found on the 2U, rackmountable unit's rear panel. For each channel, there are three balanced XLR connectors for mic input, line input and line output, respectively; thankfully, these connectors all latch. An unbalanced, ¼-inch phone jack is also provided for each channel's line-level output.

The 473 connects to its external, table-top-style power supply via a 7-foot power cable fitted with latching 4-pin XLR connectors. The power supply has four output connectors and is capable of simultaneously powering one Model 473 and any two single-channel Vintech preamps. The power supply also features red status LEDs for the 24- and 48-volt power rails. A red LED on the 473's front panel also lights when juice is flowing. A detachable three-prong AC cord, measuring 7.5 feet long, serves the power supply.

HOW DOES IT SOUND?

I performed an A/B comparison of the Vintech 473 and my Millennia HV-3D on male vocals, recorded with an AKG TLII mic in omni mode and used an Apogee Rosetta A/D. The two pre's provided a very similar spectral balance: tight bottom, open mids and detailed but unhyped highs. The 473 produced a slightly saturated sound that lent a flattering sense of urgency to the track, while the HV-3D exhibited superior depth that gave the vocal more intimacy and realism.

The 473's attenuators were used to prevent clipping a MOTU HD192's inputs downstream. The tracks sounded wonderfully tight and punchy. Adding EQ boost above 12 kHz to each preamp channel (us-

ing the 473's shelving EQ) heightened the tracks' sizzle and snap.

I also used the 473's high- and low-shelving EQ to fatten up and sweeten previously recorded DI'd electric guitar tracks routed to the 473's line inputs. The results were a huge improvement over the original sounds. The 473's EQ sounded smooth and warm and was very responsive.

Next, I got very good results using the 473's instrument input to record DI'd electric bass guitar. The instrument input has a 100k-ohm impedance (which is quite low for DI duties) and was wired in parallel and active simultaneously with the 473's mic input. Although the resulting bass guitar track had less clarity than what I normally get using DI inputs on most other gear, the track's bottom end was quite broad and the 473's subtly saturated sound made the overall timbre admirably fat. When I used a passive Kramer Pioneer bass, the 473 was capable of supplying 2 or 3 dB more gain than what was needed to hit 0 dBFS on a Rosetta A/D calibrated to maximum sensitivity.

Recording my '62 Strat through a Roland Micro Cube amp and using a Royer R-122 ribbon mic and the 473 (EQ bypassed), the sound was perfect: smooth, round, focused and possessing just the right amount of crunchy detail for rock tracks without sounding glassy.

Overall, the Vintech 473 provided an outstanding 4-channel solution for tracking and mixing, providing great-sounding preamps and EQ, flexible I/O, intuitive controls layout and beautiful cosmetics in a moderately priced package.

Vintech Audio, 877/4-MICPRE, www.vintech-audio.com.

Mix contributing editor Michael Cooper is the owner of Michael Cooper Recording in beautiful Sisters, Ore.

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Snapshot Product Reviews

CAD EQUITEK E100² Condenser Microphone

After a too-long absence, CAD's popular Equitek studio condenser series is back. The first mic in the new Equitek Series is the e100², a supercardioid electret.

The e100² has a side-address body with a brass-plated stainless grille protecting the medium-diameter capsule. The front panel has switches for a -20dB pad, 80Hz LF roll-off and power. Like its predecessors, the mic uses internal batteries to provide more current than phantom power alone, and automatically recharges the batteries whenever phantom is applied. Fully charged, it can run six hours without phantom power—great for DAT recording or sampling in the field.

The mic retails at \$399, with shock-mount. The latter is elaborate, and putting the mic in/out is a chore due to the tight access to the locking screw and its fine threads. A heavy yoke cradles the mic body, and if the mic is tilted back more than 10 degrees, the yoke contacts the suspension ring, thus defeating the purpose of the shock-mount. Also, when in the mount, access to your cable's XLR unlock button is difficult. [Note: At press time, CAD was working on a solution for this—Ed.] However, the capsule's internal suspension is very effective, so using the mic's standard swivel mount is perfectly acceptable in nearly all applications. The swivel mount ships with the locking screw in backward (!); unless you insert it the other way, mic positioning is limited to 45 degrees rather than 180-degree rotation.

So with an upright shock-mount or with (reversed screw) swivel, I dove in. The mic's tight supercardioid pattern offers great isolation, but requires vocalists to stay mostly on-axis. (The off-axis response is consistent, but if you get too far off-center, the level drops.) The mic remains flat throughout most of its range (HF rises gently between 6k and 10k Hz)—just right on female vocals.



Male vocalists needed a bit of upper MF boost (between 4 and 6 kHz) for a bit more punch—my preference here is for CAD's M9 tube mic, which has a more aggressive sound on male

vocals. The proximity effect was slight: The mic sticks to its mostly linear character without LF muffling or undue boominess.

On toms, the mic's 148dB handling was an asset (as was the tight pattern) and the sound was smooth and round, but with a nice attack. On kicks, it sounded very RE-20 to me—you'll have to do EQ shaping on rock kicks, although it's just the thing for a woolly jazz sound. On overheads, response was natural and airy, with clean upper transients. Sax was nice—smooth and not edgy at all.

Once past a few shock-mount issues, the e100² is a versatile studio mic and its affordable price makes a good argument for buying two.

CAD Professional Microphones, 800/762-9266, www.cadmics.com.

—George Petersen

GROOVE TUBES THE BRICK Preamp/Direct Box

The Brick is a single-channel, all-tube DI/mic preamp that combines top performance with a low \$499 MSRP. Essentially Groove Tube's Ditto DI with a mic preamp, The Brick is housed in an all-steel cabinet with nearly all of the components manufactured by Groove Tubes. Besides the built-in 110/220 VAC power supply, there are three Groove Tubes (6205, 12AX7 and 12AU7) running in cascade Class-A mode for up to +30 dB of gain for the instrument input and +55 dB for the XLR mic input.

Its custom-wound I/O transformers are almost too big to fit in the cabinet. Controls include master gain level and switches for AC and phantom power (with LED indicators) and instrument ground lift.

I/Os include ¼-inch 3-megohm impedance instrument input and feed-thru jacks, a 600-ohm XLR mic input (great match for ribbon mics) and balanced 150-ohm line-level XLR out.

In the studio, recording direct guitar out of a pedal board, The Brick's output went directly to a line input on the studio's Neve 8058 console. With The Brick's gain knob at 3 o'clock, the 1073 module's line switch to the +10dB position, I got a 0dB fader position and full level to the Pro Tools|HD rig (-18dB ref.). The sound was excellent: clear, present with no noise and smooth highs. The Brick was out of reach in the studio, so if I didn't require local control, I could have bypassed the Neve and connected The Brick directly to the Digidesign 192 I/O, which I did when recording vocals and bass guitar.

I got great vocal sounds from a loud and slightly shrill rock singer. Even my cranky U87 sounded warm and fuzzy, but I had to wind the gain control nearly wide open to achieve a proper recording level. With 55 dB of gain, The Brick is fine for about 90 percent of recording tasks. If you're doing quiet Foley or ambient recordings, or using low-output mics for recording quiet sources, you may need additional gain—usually by way of a following compressor or the channel strip in your console. For a punchy sound from a Fender P-Bass with passive pickups, I made up gain by following the unit with an LA-2A.

Groove Tubes does it again: The Brick is another useful product that's simple to use, sounds great and is built to last.

Groove Tubes, 818/361-4500, www.groovetubes.com.

—Barry Rudolph



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WHARFEDALE DIAMOND PRO 8.2**Studio Monitors**

Wharfedale's Diamond Series consumer speakers have been around since 1981. A couple of years back, I tried a pair and found them perfectly acceptable as small studio monitors. Now, the new pro division of this 72-year-old British company ups the ante with the Diamond Pro Series, offered as passive or powered versions for studio near-field applications.

I checked out the 8.2 Pro, which combines a front-ported enclosure with 6.5-inch Kevlar woofer, 1-inch soft-dome



neodymium tweeter and 100 watts (60W LF, 40W HF) of onboard bi-amping. The gray-finish cabinet is 14.3x8.4x12.7 inches (HxWxD) and the shaped front baffle should serve to reduce diffraction effects. The monitors ship with removable grilles that should be stored with the packing materials. Response is spec'd at 45 to 24k Hz; max SPL at 1 meter is 108 dB.

The rear panel has a bass roll-off switch, volume pot, AC switch and IEC cable connection, and a large amplifier heat sink to keep thermals in check. I don't like variable pots—I'd prefer a switched gain control for matching the gain between the two sides. You could always turn them up to "10" and back off the gain beforehand, but these slightly overamped monitors put out plenty of SPLs when set at "3" and driven by a -10dB signal. Turning them up higher than this serves no purpose other than waking the dead.

I liked the balanced Neutrik Combo TRS/XLR and unbalanced RCA inputs—you never know what you'll find at a studio these days. Another nice touch is the mag shielding—it's less of an issue as more users turn to flat-panel displays, but there are still a lot of CRTs out there.

The speakers sounded fine out of the box and didn't require bass tweaking—a good thing, as the Bass Filter control was too extreme for acoustic tailoring. I found these to be comfortable and nonfatiguing,

providing a linear, consistent response that translated well. I perhaps wanted a bit more "air band" (15 kHz), but overall, the HF response is natural, the mids were right where they should be and the LF was a true picture of the bottom end. The stereo imaging was nice with a solid phantom center and uncolored off-axis sound. Best of all, they retail at \$399 pair—a bargain!

Wharfedale Pro, 508 850-3950, www.wharfedalepro.com.

—George Petersen

MINDPRINT DTC**Dual-Tube Channel**

MindPrint's latest unit is DTCTM, a high-performance, 2-channel line amp/preamp/DI/EQ/optocompressor/tube limiter in a 3U chassis. With its circular gain reduction and (switchable) I/O LED meters surrounding the illuminated window showing glowing tubes, the front panel is impressive. But behind the panel, everything is first-class, from the Haufe mic transformers to the 250-volt-driven 12AX7s. Connections include XLR mics, Neutrik Combo jacks on the balanced line ins, balanced TRS insert I/Os, ¼-inch DI inputs and balanced XLR/unbalanced ¼-inch line outs. The optional \$399 DI-Mod 24-bit 96kHz digital I/O card adds S/PDIF (optical and co-ax) and AES/EBU ports; alternatively, a S/PDIF and USB version is \$249.

The DTC takes the concept of DAW front end to a whole new level. Fed by everything from a Telefunken 251 to an SM57, the preamp has a wonderful



transparency with superb transients, tons of headroom and a response that's only -3 dB at 127kHz. Noise was almost nonexistent, even on low-output Royer ribbons in Blumlein stereo on guitar harmonics. Here, I could A/B between the onboard DAC and onboard units. One downside of the DI-Mod is that its controls (switches for 44.1/48/96kHz sampling and master/slave clocking) are inconvenient—on the back panel. However, the DTC DACs are first-rate. Comparing them to high-end units is

like comparing fine Cabernets, so at \$399, the DI-Mod option is a bargain.

The DIs performed well on basses and guitars with mag or piezo pickups, and tracking with a hint of EQ and compression offered a round, solid bass sound. DTC's tunable filters offer a steep -24dB/octave LF roll-off that cut rumble without destroying nearby frequencies; the HF is a gentler -12dB slope. The in/out buttons on the filters, compressors and EQ sometimes made a soft popping sound when used. It's less of a problem in studio than in live use, but noticeable nonetheless.

The 4-band EQ (shelving LF/HF; peak LMF/HMF) has four overlapping bands with ±15 dB of gain and variable Q on each. Shelf EQs rarely have a Q control, but it allows for more creative shaping. For example, you can insert a dip in adjacent frequencies while boosting those near the center point. Another difference that sets the DTC's apart is its parallel EQ bands, which sends full-bandwidth audio to each of the four bands. Later, those four are summed into a single signal. The result? Highly musical EQ with no harshness.

DTC's compressor is a deceptively simple design with ratio/threshold and release knobs and attack under program-dependent control. In compression or limiting mode, the action of this tube/optocoupler circuit was smooth—nearly inaudible except in extreme settings—and had no pumping artifacts on vocals, bass, drums or program material. Nice!

At \$2,199, DTC is not inexpensive, but

sum its parts, and you have a versatile box that's equally useful in tracking, mixing or mastering.

Mindprint (dist. by Music Marketing), 416/646-0900, www.mindprint.com.

—George Petersen

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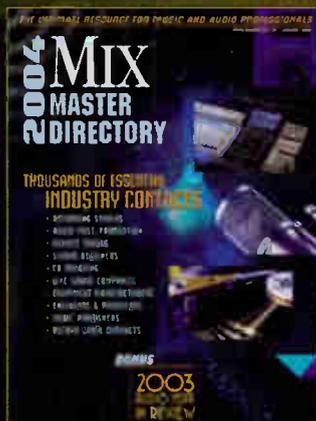


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ha's classic DX Series synths. Now Native Instruments sweetens the pot with *FM7 Sounds Volume 2*, a \$59 CD-ROM with 256 new presets that expand upon the FM7's rich palette of sounds, delivering fresh synths, pads, atmospheres, bells, effects, loops, basses and electric keyboard emulations.

Volume 2 is compatible with FM7 Version 1.1 or higher and with Mac OS X and OS 9 and Windows, and organizes patches into two 128-preset banks, with each further divided into four smaller banks for more flexible and leaner patch imports. Embodying the work of seven sound designers, the 256 presets are logically grouped for efficient use. Bank 1 is divided between synth, pad and atmospheric patches. The synth patches include several monophonic lead presets and a broad mix of modern digital timbres and analog-like sounds whose titles hark back to Juno and Oberheim synths. Several wonderfully lush and dreamy pads are also included in this bank, but atmospheres more suited to sci-fi soundtracks and videogame sound design dominate the pad offerings.

Roughly a third of the presets in bank 2 are devoted to loops fashioned from multi-stage envelopes that can readily be synced to MIDI clock. Many of the loops lean heavily in a techno or industrial direction. Also included in bank 2 are wind instrument emulations, some nice keyboards (including organ, clavinet, Rhodes and Wurlitzer), several good bell-tone programs, special effects patches (useful for sound design applications) and synth bass patches—some with thunderous low end.

Many of *Volume 2*'s presets have modulation routings. Setups include the usual modulations, such as aftertouch or mod-wheel routed to a vibrato effect, velocity patched to a filter, and so on. But more unusual routings—e.g., mod wheel assignment to harmonic content or a distortion operator—are also employed. Some of the documentation concerning modulation routing is downright cryptic. For example, moving the mod wheel on the Ray of Light preset will "Reduce Rays" (the level of echoing, apparently pitch-modulated notes), according to NI's documentation.

Electronica producers and sound designers will probably get the most use out of *FM7 Sounds Volume 2*. But the collection offers something for just about everyone and is reasonably priced.

Native Instruments, 866/556-6487,
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—Michael Cooper ■

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Radial JPC Stereo DI - suggested list \$199 US

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The Sound of Vacuum Tubes, Part 2

Testing Multiple Power Tubes With Amplifiers

After submitting last month's column on preamp tubes, I set a record by making it Web-ready within the week. While this alone was worth a pat on the back, one particular value-added link tempered my feeling of accomplishment—the original "Tubes vs. Transistors" article written by Russ Hamm way back in 1972. The paper—presented at the 43rd AES convention—is longer than just about any magazine article today. Hamm included circuits, graphs, waveforms and tables, all successfully correlating the data that best represents the perceived differences between tubes and transistors.

My favorite line appears just five paragraphs in. One engineer who admits that there might be some marginal difference in the sound says, "You just have to get used to the nice, clean sound of transistors. What you've been listening to on tubes is a lot of distortion." All this back in the day when analog tape was the only capture medium. In a word, prescient!

Each new technological improvement—transistors and op amps, ICs and then digital—heightens our awareness of the newly possible and what's been lost. The magical character of vintage gear, when it actually exists, is a complimentary distortion akin to the resonance of the "right" piece of wood on any acoustic instrument. Hard to imagine that some of today's "precious relics" were almost discarded as tired and inconsequential. I once saw Pultec equalizers on sale at a Canal Street surplus shop for \$95.

I often thought that had the Record Plant been able to stay open just a few more years, it might have successfully transitioned into the New York branch of the Rock and Roll Hall of Fame's Sonic Museum division. As employees, we often wished for a few new pieces of outboard gear, but every control room had a few essential pieces—Pultecs and LA-2 limiters—and everything in our outboard room is to die for now, from guitar amps to compressors, vintage mics and EQs.

WHAT IS A POWER TUBE?

We mostly rely on the 12A77 series of preamp tubes for voltage gain. All are dual-triodes (two independent three-element devices in one glass package). Power tubes are generally pentodes (a five-element device that can also be wired as a triode). And while they are called upon to amplify voltage, driving a "load" such as a loudspeaker requires the ability to maintain current without fatigue, which translates into power, the ability to do work.

I tested more than two dozen power tubes using three very different amplifiers, one of which was a Fender Pro Reverb. Of the listening tests, two tubes yielded consistent (and sometimes even astounding)

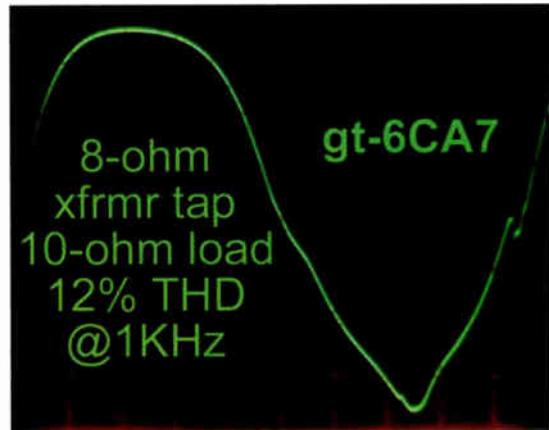


Figure 1a: The Groove Tubes 6CA7 (in the Soul-o-Single Class-A amplifier). With all 8-ohm tests, the drive level was adjusted for 10-percent THD, with this one exception. Increasing drive for an additional two percent yielded the glitch on the right side with this tube and an NOS Sylvania version, but not with an NOS GE version.

surprises: the EL-84 (in a GT adapter that makes it work in a 6L6 octal socket) and the KT-66. The EL-84 pair (safely protected by the adapter) allowed the amps to achieve a smooth overdrive at a much lower level. The KT-66 pair delivered a more solid bass tone with more headroom (and much louder) than whatever 6L6 tubes had been installed—adding up to three very different sounds right off the bat. Both Groove Tubes and Electro-Harmonix versions of the EL-84 were tested.

SPECS, CLASS AND BIAS

Groove Tubes provided one amplifier that was particularly well-suited to the task of testing such a wide range of output tubes. Its Soul-o-Single, a Class-A "super-Champ," sports an oversized output transformer and cathode bias resistor capable of supporting everything from the meek EL84/6BQ5 to the monster truck KT88/6550—all of the tubes in between, including the 6V6, 6L6, 6CA7/EL-34 and KT-66. Electro-Harmonix (EHX), Sovtek (Sov), Svetlana (Sve), Groove Tubes (GT) and new old stock (NOS) tubes were also tested.

The EL-84/6BQ5 is rated for 5.7 watts @ 10-percent distortion in Class-A mode, with 250 volts at the plate. A 6L6 is rated at 6.5W for the same plate voltage—hardly what you'd expect, the difference being that the 6L6 plate's design maximum is 350V, extending the power capabilities to 11.8W. The KT-66 is essentially an industrial-strength version of a 6L6, delivering about five times the power—25W in Class-A—with up to 500V at the plate. (According to a GE data book, circa 1973, the KT-66 cross-references to a 7581A.)

Note: The Soul-o-Single amp, used for both sonic au-

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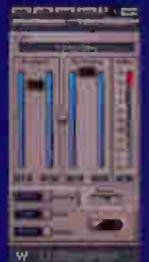
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ditions and the bench test, delivers 400V to the output transformer (399V at the plate), which is normally more than a 6V6 wants to see, but the self-biasing circuit safely optimizes the current.

Guitar amps squeeze many more watts out of tubes than what has been detailed here so far. The higher-powered amps are push-pull: a two-tube minimum, or multiple thereof, in some bias variation of Class-A/B mode. High plate voltages and

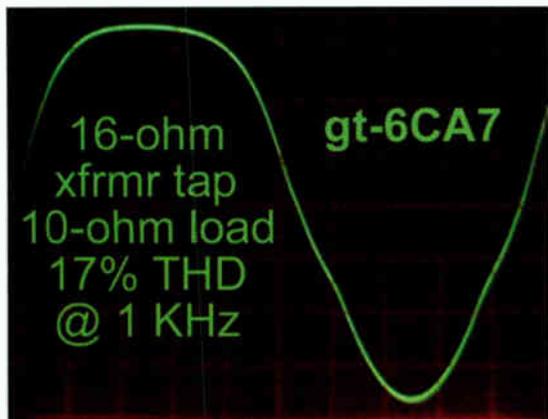


Figure 1b: The Groove Tubes 6CA7, same amp as Fig. 1a, but with the output impedance switch set to 16 ohms and the level adjusted for 17-percent THD

well-matched output transformer impedance (on the plate side) can combine to yield from three to six times more power than Class-A because each tube is “processing” a little more than half the wave.

GT also supplied the very unique “Dual 75,” a 2-channel (fixed bias), push-pull power amp that can be adjusted for a similar combination of tubes. It was delivered biased for an EL-34 pair in one channel and a 6L6 pair in the other channel. A footswitch can be used to audition either channel or the unit can be run in “stereo.” I schlepped all of this stuff to downtown Minneapolis last summer to demonstrate the sound of tubes to the audio students at the Institute of Production & Recording (www.iprschool.com). It was a blast!

Most of the time, the Soul-o-Single (with a built-in 12-inch speaker) was used for the sonic auditions as its self-biased Class-A amp did not require readjustment for each tube. Its output tranny has three impedance taps at four, eight and 16 ohms. Soul-o’s effects send was also used to drive the “dual-75” into a pair of Marshall cabs. In addition, a pair of studio monitors (either Yamaha NS-10s or a pair of Electro-Voice MS-802s) yielded some of the sweetest “clean” guitar sounds ever, with treble so delicate and effortless and a less “honky”

midrange than you’d never expect from NS-10s. Placed side-by-side, the warmth generated defied their small size.

BENCH PRESS (THE TESTS)

Starting with two NOS pairs of 6V6 tubes as reference, both were JAN “military-grade” types as manufactured by Tung-Sol in 1952 and ECG/Phillips in 1986—quite a spread, but all respectable. The initial low-level tests, via Soul-o’s 4-ohm taps, were used to determine each tube’s sensitivity referenced to the 6V6. (A table is included online at www.tangible-technology.com.) I then optimized Soul-o-Single’s gain structure for the lowest THD+Noise: just under 0.3 percent—about 29 dB down from the 10-percent distortion samples. The signal path couldn’t be more “direct”: an oscillator into the effects return, comprising one-half a 12AT7 feeding the master volume driving the output tube.

Each tube was then driven to 10-percent THD with the amp’s 8-ohm setting driving a 10-ohm load, and then using the 16-ohm setting to drive the same load. This yielded an assortment of snapshots that represent the typical range of Class-A soft overdrive characteristics. The different loads definitely shift the bias so that the 8-ohm tests mostly yielded “fat” waves on the positive swing and a flat-ish line on the negative swing (the EL-84 being the exception). With the amp set to its 16-ohm tap, the upper-wave excursion got phatter, and the flat line on the negative excursion disappeared. The 16-ohm tap driving the 10-ohm load was used to create the 17-percent distortion tests. These tests represent typical asymmetrical clipping if the amp was purposefully (but not excessively) overdriven. Something like this happens naturally to smooth out transients and hot notes.

Z MATCH

Keep in mind that a “universal” output transformer is a compromise for most of the tubes. One interesting exception: Both the 6CA7 and the EL34 seemed unfazed by the three output impedance options—there

were no significant level changes, whereas all of the other tubes “reacted” to the three load impedance matching options. In all cases, a speaker’s impedance on the transformer’s secondary is reflected back to the tubes on the primary side. Remember that the given impedance for a speaker is “nominal”—indicating the minimum impedance above the resonance point, but before the inductance rise. This is typically constant over a small bandwidth. At resonance (a low- to low-mid frequency for the woofer), a speaker’s impedance is much higher than its specified value.

About the oddest tube of the bunch was the GT-6CA7-GE. Newly manufactured on former GE equipment (in the U.S.), as is the GT-6L6-GE, it had an odd overdrive artifact, a bug that became obvious during the bench tests. Interestingly enough, an NOS GE 6L6 did not do this, but an NOS Sylvania version did, so it’s obviously not a new “bug,” but could very well be an amp/tube idiosyncrasy. This is a good excuse to introduce and explain the tests that generated the pictures. (See Figures 1a, 1b and 1c.)

Okay, so we can’t do audio samples in print, but the pictures should be worth

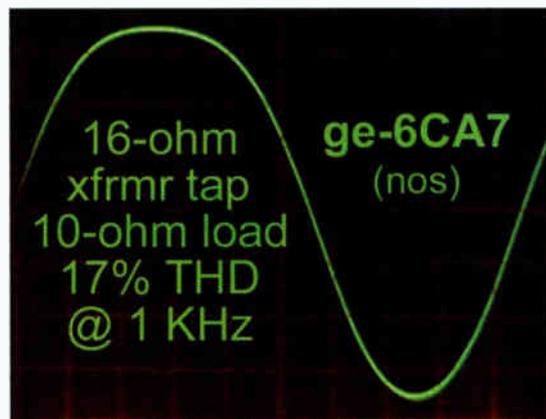


Figure 1c: NOS GE 6CA7, same conditions as in Fig. 1b

a few words. Even more than the online table of bench tests, the essence of all the pix is the asymmetrical wave distortion, which generally translates into more even (octave) harmonics than odd, though unlike the triode tests, the odd harmonics are more obvious this time around. ■

Eddie would like to thank Rick Stevenson at Electro-Harmonix and Aspen Pittman and Steve Good at Groove Tubes for supplying the tubes and amps for this article’s research; additional thanks to Doug Fearn, Charlie Fox and Russ Hamm. Get the full skinny online at www.tangible-technology.com and www.mixonline.com.



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PHOTO: KATRINA DIXON

The Donnas, more precious than gold (L-R): Torry Castellano, Maya Ford, Allison Robertson and Brett Anderson

THE DONNAS

PRODUCER BUTCH WALKER STEERS THE BAND DOWN A NEW ROAD

By David John Farinella

When The Donnas got set to record their sixth release, *Gold Medal*, the follow-up to their breakout Atlantic Records debut, *Spend the Night*, it seemed like all of the dominoes were falling in place. There was a collection of songs that would push the quartet beyond their Ramones-meet-AC/DC soundscape, and time was booked at a high-end Los Angeles studio, with the renowned Scott Litt producing the sessions. But that's when things got a little tricky.

"We took meetings with a bunch of people, picked one producer [Litt] and started pre-production with him and moved down to L.A. [from the Bay Area]," explains bassist Maya Ford, formerly known as Donna F. "But it didn't work out, so we ended up not working with him. We had a lot of meetings and he was really cool. We love R.E.M., and so everything he said, he sounded like he would be really great to work with, but then when it came down to it, our ideas didn't match. He was going for a different

sound than we were going for and he didn't get our references. We didn't understand each other."

The clock was ticking and the band had to find a producer quickly. Fortunately, Butch Walker, fresh from successful sessions with Avril Lavigne, was available to meet the band. "We had four or five people to pick from and we had meetings. We just liked Butch the best. He was just really nice and easy to talk to," Ford recalls. "We were really looking for someone who we'd be comfortable with who would be like our friend—who wouldn't be mean to us if we didn't understand them and wouldn't get their feelings hurt if we didn't like their idea. And he's young and cute and funny. We weren't looking for some crazy producer who was a visionary."

For Walker, who cops to being a lifer with the band, it was a good match. "I don't know much about [what happened with Litt]. I never really got into it too much with the girls, but, obviously, there was some sort of falling out and it just didn't work out. They had to kind of go into make-a-record mode real quick with somebody and they didn't want to go in blind. I think after I met with them, we all vibed on the kind of record they wanted. I knew what kind of growth record they wanted to make and I knew they were at that stage of their career where they needed to do it. We all liked the same records growing up and so we sat there

—CONTINUED ON PAGE 130



ERIC "ROSCOE" AMBEL'S URBAN ROCK CORRAL

THIS BROOKLYN COWBOY WEARS MANY HATS

By Jeff Forlenza

Eric Ambel is sitting on a comfy couch inside the basement digs of Cowboy Technical Services, an analog/digital recording studio in the Williamsburg section of Brooklyn. Chiefly known for its Italian ravioli factories and Peter Luger's steakhouse, Williamsburg is a short subway ride from downtown Manhattan. Ambel is juggling mixing sessions in his studio, live gigs in his club, CD releases for his record label, tracks from a band he is producing, his own songwriting demos and his e-mail—all from his laptop.

Besppectacled and wearing biking shoes, shorts and his Mac iBook, he doesn't look much like a hard-rocking, guitar-slinging cowboy from Wyoming. But one listen to his music—his guitar is a muscle car rumble, then it's a gut-



Tim Hatfield at the Neotek Elan

wrenching squeal, then it's an infectious rootsy riff—and you hear the man they call "Roscoe." Ambel first claimed major fame as The Blackhearts' guitarist on Joan Jett's hits "I Love Rock & Roll" and "Crimson and Clover." In the late '80s, his guitar powered New York roots rockers the Del Lords. Through much of the '90s, Ambel developed a reputation for his powerful guitar sound and for producing (and usually playing on) album projects by Nils Lofgren (*Crooked Line*, which featured the vocals, harmonica and guitar of Neil Young), Mojo Nixon (*Whereabouts Unknown*), The Bot-



PHOTOS: MELISSA CLARKE

terockets (*Brooklyn Side* and *24 Hours a Day*) and Mary Lee's *Corvette* (several albums). This past year, he released his own tough, raw album of blazing rock tunes, called *Knucklehead*, comprising tracks recorded in many different recording situations with a wide variety of musical friends and colleagues. More recently, he's been producing and playing with The Yayhoos, which features Ambel and former Georgia Satellites frontman Dan Baird (a frequent musical partner through the years) for an upcoming Bloodshot Records release.

Ambel is a testament to the complementary nature of wearing many hats in the music game: guitarist, singer/songwriter, producer, club owner, record label CEO, studio owner, bandleader for his band, Roscoe's Gang, and lead guitarist for Steve Earle's band, The Dukes. A determined D.I.Y. type, Ambel didn't let recording industry roadblocks get in the way of his music. When he grew tired of sharing the stage at clubs vying for the attention of A&R executives, he built his own club (Lakeside Lounge in Manhattan's East Village) that is committed to having one band per night. When fans couldn't get his out-of-print records, he started his own label (Lakeside Lounge Re-

cords) and distributed the CDs from his Website, www.ericambel.com.

Ambel set up Cowboy Technical Services with partners Tim Hatfield, Dan Pifer and the band Martin's Folly in January of 2000. From spending many hours in professional studios in L.A., Nashville and New York City, he learned what was essential to a good recording studio: "It's not the pretty receptionist or the catering," he says, "it's the gear and the vibe. A lot of times, we would pick a studio for its equipment list. When we got there, the box we wanted to use would have a DNU [do not use] sticker on it. We've opted to spend money on solid gear."

Ambel met up with engineer/partner Hatfield while they were doing a Del Lords session at New York's Media Sound, around 1986. Hatfield and Ambel formed a fast friendship based on fine music and hot barbecue. Hatfield has quite the impressive resumé, including work with famed producers Arif Mardin, Tom Dowd and Jack Douglas. Hatfield engineered many of Ambel's producing gigs during



Cowboy Technical Services' control room

the '90s. When Ambel decided to open a recording studio, Hatfield was an obvious choice to be his chief engineer and partner.

Ambel and Hatfield wanted a recording environment without a control room, in which the engineer is right in the room with the musicians. "We wanted to have a place where an artist would feel at home

—CONTINUED ON PAGE 133

DON McLEAN'S "AMERICAN PIE"

By Blair Jackson

Maybe you had to be there. But in the summer and fall of 1971, it seems that *everyone* was talking about Don McLean's Number One smash, "American Pie." Rarely has a song captured the imagination of both the pop mainstream and the hip underground to the degree that this song did. Even at more than eight-and-a-half minutes long, AM and FM radio couldn't get enough of it. Newspapers and magazines ran detailed lyric analyses of the song, which seemed to encompass the history and culture of rock 'n' roll, from the death of Buddy Holly, Ritchie Valens and the Big Bopper in February 1959 ("the day the music died" in the song) through Altamont at the tail end of the '60s, with glimpses along the way of sock hops, cruising, Bob Dylan, The Beatles, revolutionary politics, the Rolling Stones, the drug culture, Charles Manson and much more. It was a riveting and tuneful collage of images and metaphors that managed the neat trick of feeling incisive and contemporary at the same time it was hazy and nostalgic. Like the best rock poetry, it meant something different to everyone who heard it, and no doubt that is part of its lingering appeal. Or maybe you were annoyed by its ubiquity; it cuts both ways.

At the time of the song's release, McLean was a virtual unknown. A native of suburban New Rochelle, N.Y., half-an-hour north of Manhattan, he dropped out of Villanova University in 1963 to devote his time to playing music, and the mid-'60s found him haunting New York's folk clubs and eking out a living. In 1969, he hooked up with folk icon Pete Seeger and spent a considerable amount of time sailing New York's Hudson River on a sloop called the Clearwater (singing with Seeger at many stops along the way) as part of a campaign to clean up what was then a notoriously dirty waterway. Seeger's activism on this issue is widely credited with helping prod Congress to pass the Clean Water Act of 1972, so a tip of the hat to McLean for that, too.

After being rejected by many labels, McLean was signed to his first record deal by a small company called MediaArts. His debut album, *Tapestry*, produced by Jerry Corbitt of The Youngbloods, was released in 1970, but failed to create much of a stir. Nevertheless, United Artists agreed to put out his second album—which would be called *American Pie*—and paired McLean with producer/arranger Ed Freeman, who had previously helmed an album by folk singer Tom Rush and who also worked with Tim Hardin and Carly Simon around the time he hooked up with McLean. The sessions for *American Pie* took place in May and June of 1971 at New York's Record Plant studios on West 44th Street.

Record Plant staff engineer Tom Flye was brought in to record the sessions. A one-time drummer for the late-'60s cult band Lothar & The Hand People, Flye had left perform-



ing for a life in the studio and established himself quickly as a fine engineer. He did a considerable amount of post work on the *Woodstock* album, and had also done sessions with The Impressions, Curtis Mayfield, Pharoah Sanders and others by the time the McLean album rolled around. "The Record Plant was still relatively new and Ed Freeman really wanted to use the studio," Flye recalls. "And as Ed has described it, I was the strangest-looking engineer there, so he hired me.

"At that point, there were two studios. Studio A, which was downstairs on the ground floor—that's where 'American Pie' was done—was the biggest room, probably about 35x55 feet with maybe a 25-foot ceiling. It was a nice-sounding room. I believe we had just gotten our Spectra Sonics board; before that, we had Datamix boards, which were terrible. The Spectra Sonics was a really good-sounding board. It had maybe 32 inputs and it had a separate monitor section, but in those days, the monitor section couldn't be used during the mixdown; it's just the way they were wired. The monitor section was rotary faders. That board also had a pretty good EQ in it. Spectra Sonics made some really high-fidelity equipment."

The control room had Tannoy monitors and the standard outboard gear of that era: LA-2As, Pultecs, EMT reverbs, etc. The recorder was a 16-track Ampex MM-1000. "We also had the 1-inch Scullys, which we had both 8- and 12-track heads for," Flye says. "They were a little hissy, but basically pretty good." And though the studio didn't have a live echo chamber, Flye notes, "There was a 10-story staircase in the back of Studio A that, at night when the rest of the businesses in the building would close down, I used from time to time because it sounded really good. I think I did some cello parts in there for the record after *American Pie* [Don McLean, 1972]."

Flye credits producer Freeman with much of the arrangement work on *American Pie*: "Ed had been working with Don in a rehearsal situation before they came into

the studio, and I know Ed had definite ideas about how everything should be. He worked really well with musicians." In this case, McLean's "band" for the album comprised mostly New York session pros, including a number with jazz credentials such as pianists Warren Bernhardt and Paul Griffin, percussionist/vibraphonist Mike Mainieri and guitarist David Spinozza. Also appearing on the album were Bob Rothstein on bass, Ray Colcord on keys and Roy Markowitz on percussion and drums. Flye also played percussion on some tracks (including tambourine on "American Pie") and drums on one song, "The Grave." McLean played guitar and banjo.

The band was tracked completely live, including McLean's lead vocals, "because he always felt much more comfortable if he could play while he was singing," Flye says. "In fact, at one point I built this Plexiglas thing that kind of went between his chin and the guitar to get more isolation on each of those because I would compose his vocals. We'd let him sing it a few times and then take the best of them. Sometimes the guitar would be better than others, too, so that gave us some flexibility. I made it so he could still see the fretboard. It wasn't pretty but it helped quite a bit." The song

"American Pie" was cut on May 26, 1971. Flye remembers using a Neumann U87 on the vocal: "We had a lot of U87s at the Record Plant. It was a really good mic and

The first verse is just piano and voice, and you'd think that would be very simple, but actually there are eight edits just in that section. We wanted it to be as perfect as possible.

—Tom Flye

it was quite affordable at that time; they were only a few-hundred bucks apiece then." For the acoustic guitar, "I'm pretty sure I would have used two mics: a [AKG] 452 and a [Neumann] KM84." As for drums, "We didn't have a whole lot of tracks, so it isn't like we miked every lug of the tom-

tom. As I remember, I probably used five mics on the drum kit—bass drum, snare, hat and then two mics that I actually used to mike the tom-toms but I also got plenty of cymbals with those. I probably used U87s on the tom-toms and a KM84 on the snare." Piano was miked with a pair of U87s.

According to Flye, the tracking sessions—numerous run-throughs of the tune, with some additional work getting the intro down correctly—went smoothly enough that McLean was able to cut two other songs the same day as "American Pie." The hard work on that song came later: composing the lead vocal and some of the instrumental tracks, and editing on the 2-inch tape. "I remember doing quite a lot of editing," Flye says. "The first verse is just piano and voice, and you'd think that would be very simple, but actually there are eight edits just in that section. We wanted it to be as perfect as possible." Flye also recalls that, "Originally, Ed wanted it to start out in mono and then go to stereo, but that was kind of awkward. The board really wasn't set up to do that with any kind of elegance, so we dropped that idea."

Though Flye says he loved "American

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World Radio History

Pie" from the outset, "To be quite honest, when we were working on the album, 'Vincent' was my favorite. I thought that was the hit. It sounded really good and Ed did a marvelous string arrangement for it, so I felt that was the song. But the record company was really gung-ho about 'American Pie,' and they were right. I was happy when 'Vincent' also became a hit."

"American Pie" caused a sensation almost immediately upon its release, and the record label was then faced with a quandary: How can we put out an eight-and-a-half minute single? "We made several versions," Flye says, "but we never made a short version; that wasn't an option. At one point, I actually got it all on one side of a 45, mastered it in half-time, but the record company rejected it because in those days there were still jukeboxes, and the jukeboxes would lift off before the end of the song." In the end, it was decided to put half of the song on each side of the 45, with a fade-out at the end of side one and a fade-in beginning side two.

Even in that form, the single rocketed to Number One on January 15, 1972, and stayed for a month, before it was knocked from the top slot by Al Green's "Let's Stay Together." The album also hit the pinnacle for seven

weeks, and in March of '72, "Vincent" made it to Number 12 on the *Billboard* Hot 100.

Freeman, Flye and McLean collaborated again on the singer/songwriter's next album, but it did not prove to be commercially successful. McLean did land a few more hits on the charts in the early '80s—a version of Roy Orbison's "Crying," as well as his own "Since I Don't Have You" and "Castles in the Air." And the Roberta Flack hit "Killing Me Softly With His Song" was written (by Norman Gimbel and Charles Fox) about McLean; an interesting form of immortality. But "American Pie" is truly the gift that keeps on giving to McLean. It's appeared on literally dozens of "hits" albums and anthologies through the years, and Madonna even had a minor hit with the song in 2000. And let's not forget Weird Al's sublime *Star Wars* version, "The Saga Begins": "My, my, this here Anakin guy/ Maybe Vader sometime later but now he's just a small fry."

It is a widely circulated notion that McLean is somehow bitter that he is so associated with this one song from more than 30 years ago, but in a 1999 interview, he dismissed that: "Because of an off-hand funny comment I made backstage at a concert years ago, a story circulated that the

song has been a burden and even that I didn't sing it for a while. That's completely false. I am very proud of 'American Pie' and the many satellites that grow from it and revolve around it. For many years, I carried my songs around and now they carry me around. I have always sung 'American Pie' for my audience and would never think of disappointing them, since it is they who have given me a wonderful life and untold affection for almost 30 years." And in 2000 he noted, "I have never said a bad thing about the song. I was poor when I wrote it and it made me a millionaire overnight. Believe me, I'm not upset about this song." ■

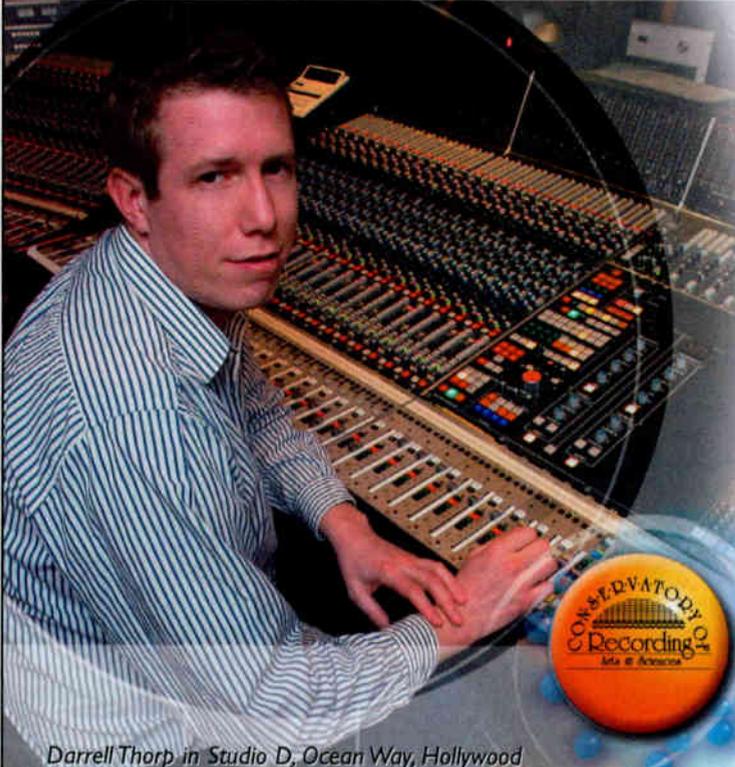
THE DONNAS

FROM PAGE 124

and mainly just talked about songs and bands that we like and what we wanted to achieve from some of those influences. I think that's what locked us in."

Once the match was set, singer Brett Anderson (Donna A.), guitarist Allison Robertson (Donna R.), drummer Torry Castellano (Donna C.), Ford and Walker

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got busy in pre-production. “We pretty much did it the way I like to do it, which is listening to the arrangements, changing a few of those things around and maybe discussing drum patterns and things like that,” Walker says. “The things that are the core of the song so that we don’t have to sit there and focus on the things that happen later in the session, like vocals. I tend to be pickier than most people about the melodies and harmonies and stuff like that; generally, most people would be about getting a kick drum sound. At the end of the day a kick drum sound is not going to

someplace else,” he reports. “A note really has to be bad for you to want to fix it. If you tune the vocals perfectly, especially with guitar bands, then your guitars sound out-of-tune. Guitars will resonate in a certain way, especially electric guitars with distortion, and they aren’t going to be in perfect pitch. A lot of records nowadays sound like someone tuned the vocals pitch perfect and then everything else kind of sounds a little out-of-tune. There is no such thing as Auto-Tune for guitars.”

Background vocals were recorded through a Telefunken 251 with the rest of

I tend to be pickier than most people about the melodies and harmonies and stuff like that; generally, most people would be about getting a kick drum sound. At the end of the day, a kick drum sound is not going to affect sales. Let’s hope not.

—Butch Walker

affect sales. Let’s hope not. There seems to be a lot of engineer/producers out there that would disagree with you on that. But I don’t come from that school.”

To get the sessions started, Walker, the band and engineer Paul David Hager went into Black in Back, a studio owned by American Hi-Fi bandmates Stacy Jones and Jamie Arentzen. (The same studio was once owned by former Hole guitarist Eric Erlandson, and it’s where R.E.M. recorded “Man on the Moon.”) “It’s a small studio with a great drum room, a pile of mic pre’s and a Pro Tools |HD rig,” Hager says. The team then moved to Conway Recording Studios, but kept all the sessions in Pro Tools to make sure things went quickly. “We were trying to do 14 songs in four weeks,” Hager explains.

Like so many contemporary projects, this one employed a number of plug-ins and an assortment of outboard gear. Hager explains, for instance, that Anderson’s vocal chain went from a Shure SM7 into a Chandler EMI 2-channel preamp into a GML EQ and then a vintage 1176. (When they moved to Conway, the chain changed with a 1081 mic preamp.) Hager notes that very little pitch correction was used. “Maybe for a note here or there, but she sang really well. We tried to get enough takes of her singing that if she sang something a little flat, we could find something

the chain the same as Anderson’s. The mic choice was crucial. “It kept the character of the voice different from the lead vocal,” Hager explains. “If you start using the same mic, sometimes you get a lot of the same frequencies poking out.”

Robertson’s guitars—an assortment of ’60s-era Gibson Les Pauls and SGs—were run through a couple of Marshall cabinets. One of the cabinets was miked with a Royer 121, a Shure SM57 and a Neumann U87, and the second was miked with the 121, a 251 and an SM57. “I would blend them,” Hager says. “Sometimes it would just be the Royer, sometimes it would be all of them, and we always tracked a room mic [an 87]. It just added some ambience, especially if there was a place where the drums stopped and it was just a guitar riff for a second. Then you could bring that up. Whether Chris [Lord-Alge, who mixed the album] used it or not, I don’t know. You never know with Chris.” Robertson used a pair of different amp heads—a vintage Marshall and a rare White model. At times, Hager adds, Robertson’s guitars went through a Fender Vibrolux: “We would run that through a Marshall cabinet. An amp running 4 ohms going into 16 ohms crunched it up a little more.”

The bass tracks provided by Ford were run through an Evil Twin DI into a Lang EQ and an 1176. “Once I got her takes down

and everything was where it should be, then I'd re-amp it later through an Ampeg SVT, just to give it something different from the DI. It was just another option," he says. The SVT was miked either with a FET 47 or a Sennheiser 421.

One factor that the team had to take into consideration when they went in to record the album was an injury that drummer Castellano suffered over the summer of 2003. She underwent surgery in the fall of that year and her recovery ran into the sessions, so the band tracked all of their parts before she laid down anything other than a temp track. Hager's miking technique for the drums included a pair of AKG C-12s overhead; a D-12 inside the kick drum, an NS-10 on the outside and a FET 47 further out from the kick; a 57 and 451 on top of the snare and a Sennheiser 441 underneath; and Neumann KM54s on the toms. Hager put an SM7 on the hi-hat and used a pair of 251s and a C-24 behind Castellano's head for room tones.

Hager also sings the praises of some other "toys" he used on The Donnas' sessions, such as a Shure Level Lock compressor that he purchased three years ago on eBay. "I could never get the damn thing to work and it became a pet project [for the engineers at Conway]. By the time we got to the last song, 'Gold Medal,' they got it to work," he says. He also used Crane Song's TDM Phoenix plug-in liberally throughout the recording. "It kind of does this tape emulation thing that's hard to explain. It definitely adds apparent loudness to things that tape would normally do, but it gives you control. On each channel, you can dial in the amount of it you want instead of using analog tape where you get that sound on all 24 tracks or whatever," he says. "This made the overhead mics a little clearer and gave the kick and snare a little more saturation. Basically, I would put all the guitars, drums and vocals through that before it got to Pro Tools."

For Walker, this was a fairly straight-ahead affair and he knew from the start that the bandmembers were not interested in remaking any of their previous albums. "Those were classic Donnas [records], and anybody that comes to this album saying, 'Man, Butch really destroyed and screwed up that band,' they're going to have to answer to the band on that one. It was all their decision to go into this, evolve musically the way they have with this record, which is slower tempos, big grooves, more interesting progressions and, God forbid, minor key songs," he says with a laugh. "There are a couple of ballads, but noth-

ing Bon Jovi-ish. It's all pretty cool, almost Beatles-like stuff. Like 'Revolver' [The Donnas' song, not The Beatles' album] and 'Is That All You've Got for Me' are songs that have a new sound. 'Gold Medal' sounds like *Revolver*-era Beatles, which is great. You know what else is great? These girls are smart, and if that's their influence, they'll call it out in a minute. They don't just look at The Ramones and AC/DC. They know what they are doing." ■

ERIC AMBEL

FROM PAGE 125

and relaxed," Hatfield, a native Texan, says, "so the creativity would flow. Not having a control room makes the communication easier and that enhances the performance of the musicians because everyone feels totally connected."

One end of the studio is devoted to the band and the other end is devoted to recording gear. (Iso booths are also available.) "When you think about it," Ambel offers, "you probably only spend about 15 percent of your time cutting drums. So why spend a lot of money building a little box for you to sit in all the time?"

The idea to start his own recording studio came when he was producing bands in other people's studios. "I was doing a lot of work producing other bands around Brooklyn, at Coyote Recording, which is owned by Mike and Al Caiati, the brothers of Del Lords bassist Manny Caiati," he recalls. "I did a lot of projects there, way back before Williamsburg had any sushi joints." In fact, Brooklyn has become home to many musicians and recording studios squeezed out of Manhattan's rent realities. Ambel has done much for the emerging Brooklyn music scene. Later, he worked at Brooklyn's 33½ studios: "33½ was a fantastic fluke room—a room that happened to sound good accidentally," he recalls. "It was very cool-looking, too. We got seduced by it and ended up paying to work there. We let the owner use our gear until we wised up and bought our own console and moved out."

The hand-built Neotek Elan 32-input, 24-bus console that formerly resided at Word Music in Nashville is now the centerpiece of Cowboy Technical Services' recording rig. "Since most everything we mix these days comes from DP [Digital Performer], Pro Tools or a combination of digital and analog," Hatfield explains, "we need the Elan to spread out the outputs and use our outboard gear. The Neotek helps us keep dimension in the sound."

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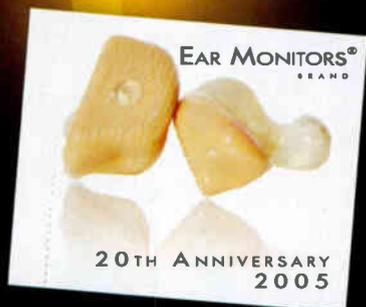
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There is a nice assortment of mic preamps and compressors racked at CTS, including Neve 1067, Telefunken V-72 and Avalon 737 units. Ambel especially fancies Crane Song mic preamps: "We've been getting really nice vocals using the Beyer M-500 hypercardioid ribbon mic through the Crane Song Flamingo [dual Class-A mic preamp] and a [UREI] 1176."

Because of his reputation as a roots rocker, I assumed Ambel would track everything on analog. Not true. Well, partially true: "I prefer to track analog at 15 ips to 2-inch for more bottom," he says. "But I always work in a hybrid fashion of capturing the track on analog and bumping it over to digital as soon we get a take."

Ambel is also a big advocate of MOTU Digital Performer. (CTS also has Pro Tools.) A Macintosh G4 dual-867 computer, working with Digital Performer Version 4.12 and the MOTU 424 24 I/O Core System, handles hard disk recording. "Then, with the portable MOTU FireWire hard drive," Ambel says, "I can take the track home and work on tweaking the song on my laptop. In fact, Matt Svobodny and I recorded the Steve Earle live album *Just an American Boy* on my 600-megabyte laptop with the MOTU portable FireWire rig."

Musicians, and especially guitarists, love the assortment of musical instruments at CTS: more than 30 rare and vintage guitars, a Hammond A-100 organ with Leslie 147 rotating speaker, a sweet Premier drum kit with a Ludwig marching kick drum and Pearl piccolo snare. You'll find the requisite selection of Fender tube amps, but you'll also find amps custom-tweaked for Ambel: "Blackie Pagano from Tubesville Thermonics here in New York does a fantastic job keeping my amps in top shape," Ambel says. "Blackie built me a special power amp out circuit for that fat output tube distortion I like."

Ambel reveals one of his tracking techniques for capturing a meaty, muscular guitar sound: "These days, I rely on more low-wattage amps, like the Fender Pro Junior and the Dr. Z MAZ 18 Jr. and the Dr. Z Z-28. They are very responsive Class-A guitar amps. I like to use the Royer 121 or my RCA Velocity Junior ribbon mics about 18 inches from speakers in closed-backed cabinets. If they sound too roomy, I'll put a gobo behind the microphone to deaden the back portion of the figure-8 pattern. I'm usually using a Telefunken V-72 for a preamp and a Manley ELOP compressor [then going to tape]."

Ambel credits much of his engineering skill to working with Del Lords engineer/producer Lou Whitney. In fact, Ambel frequently recorded and mixed his demos first on a Fostex X15 4-track and then on a Tascam 688 cassette 8-track. "The first record I made was in '77, out in Wyoming," he recalls. "So by the time I was in Joan Jett's band, I had already made quite a few records, including ones where we did every step of the process ourselves, which was a good education. By the time I was in the Del Lords, I was recording and mixing my own demos at home on my 4-track."

These days, Ambel leaves the tracking to Hatfield while he jams with the band, often adding guitar or backing vocals to the acts he produces and records at CTS. Similarly, the "no control room" design promotes the idea that the engineering process be as transparent as possible. Without the specter of "the man behind the glass," the band (including the producer) is more comfortable and more apt to create better music.

"It's all about the music, and that applies to our studio, as well," Ambel concludes. "I know we have done a great job when the guitarist or drummer listens to a playback and says that track sounds the way I played it." ■

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—FROM PAGE 20, MYSTERY OF AGING

of replacing obsolete hardware to get new features was itself obsolete. The time had come when all we really needed to update our aging DSP toy was new code, not a new toy.

But as this important benchmark was not profitable for manufacturers, it was, with surprising success, buried.

The manufacturers simply never bothered to point that out, never implemented it and managed to continue selling us entire units when we wanted new features for literally decades. And so it is we who are the ultimate Clowns.

It wasn't until personal computers became ubiquitous and audio software started showing up in the form of DAWs and plug-ins that we all woke up to the fact that updating digital gear is primarily a *software* issue, not hardware. Fool me one bit, shame on you. Fool me 16 bits, shame on me.

CAN YOU GET WHAT YOU WANT?

We all now live in the same tiny, Internet-connected global village, so any manufacturer anywhere can find out exactly what a customer wants. In fact, there is so much information in forums today that many manufacturers are finding out way *more* than they want. The really crappy companies even edit and censor their forums to hide valid complaints and concerns.

I categorically refuse to buy any product from any company that edits its forums to hide valid complaints and create the illusion of satisfied customers. You know exactly who they are, right?

In confronting one of the worst offenders—an industry leader—I was told it was necessary as competitors logged on and posted fake complaints and this could confuse potential buyers. Bullshit.

Anybody over the age of six can spot a troll or an asshole, and knows to disregard what they post.

If you just got your first computer for Christmas, here are the basic rules, based on the Olympic system: Read 100 posts, throw out the 10 most glowing praises, the 10 most flaming, damning condemnations and average the rest. As in life itself, the real truth lies not in the extremes but in between. Except for cars, boats, guns, subwoofers and tattoos, where the most extreme are the best.

HARD? SOFT?

Hardware is finally being relegated to its proper place on earth—the box your software runs in. Yes, we need A/Ds and D/As, but not many. As more of my equipment uses optical I/O, I am finding that I have next to no use for D/As. I do need a dozen good A/Ds to get

a miked drum kit recorded, but I don't need the racks I once used to talk to my analog outboard gear. The few pieces that aren't code running on the same host that runs my DAW are optically linked, and I only have four old magic analog boxes.

My last five product upgrades, feature-rich new versions of stuff I already have, were two-minute downloads from Yellow Tools, Ableton, Propellerhead, East-West and Native Instruments. Instant gratification, no more claims with Airborne for bent chassis or broken knobs.

Think about this: The last three times I read about cool features on the newest cell phones, I asked if mine could be updated instead of doing what I always used to do—buy the new one. Each time a free update got me there. Of course, now my phone is a ratty old thing with the paint scraped off, but it does all the cool stuff that this week's model does.

And this: I just had the transmission on one of my cars changed to move all the shift points higher, lock out downshifts in corners and speed up gear changes by 30 percent. Now when I push the little buttons on the wheel, stuff happens real fast. The entire job took three minutes. They loaded 4,000 lines of code. I never had to get out of the car.

AND THE LESSON IS?

It's time to face two facts.

1) Hardware is now a commodity. *Everything* is just another computer—your DAW, your reverb, your car.

2) Contrary to antiquated beliefs, software has intrinsic value. In fact, all the features and performance of modern stuff (including the new Schick disposable razor) are code. *Code*.

Whether running on dedicated hardware or downloaded onto a PC, the code is everything. So the way I see it, pay for the code you use and get really angry if they try to make you pay for it again a year later.

I will happily pay for more features that I would use, but paying for a slower, bloated version of what I already have with 20 bugs fixed, 25 bugs changed to 25 new ones and 18 new infestations waiting to be discovered is not at the top of my list.

Get online and see which companies treat their customers right as you are deciding what to buy. Every one I named above treated me fine, and many others do, as well. It's a real big little global village out there. Do your homework. ■

This morning I looked at last night's plummeting outside temperature (as a graph relayed to my desktop) and thought, "Damn, it's code out there." Yes, I wrote my own bio this month. Every bit of it. I know it's not great, probably a C++.



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World Radio History

L.A. GRAPEVINE

by Maureen Droney

Midas Records (www.midasrecords.net) in Canoga Park is a company with a plan, a major component of which is a full-service studio dedicated to nurturing Midas artists. Founded by Ron Clapper, a successful entrepreneur, businessman and game developer, Midas has a stated goal of creating long-term careers founded on a diverse marketing base. "A studio was part of the business plan," explains Midas VP of A&R Andrew Nast. "Ron dedicated a wing of his warehouse to it, and we built it from

tracking, live bands and piano. They also wanted a large control room. I used a 'cloud' on the ceiling, which hides a huge bass trap. In the corners, I tried something new: 605 insulation over pegboard, with Novawall [fabric] on top of that in a kind of pillar/plinth shape that worked particularly well for bass trapping. Bob Hodas tuned the room; when we shot it, it came out just about perfect."

The innovative speaker stands housing Midas' main Augspurger speakers were

PHOTO: MAUREEN DRONEY



Man with a plan: Midas VP of A&R Andrew Nast

the ground up. I called in Tony Clearwater, because I'd seen the work he'd done for The Matrix and for [Robert Margoueff's] Mi Casa Studios. He had a lot of ideas. He was also able to do the job in only 60 working days!"

The 800-square-foot live room and a 400-square-foot control room, with lots of wood and muted earth tones, look like they took a lot longer than that. "For this project, I did both the architectural work and the interior design," says Clearwater. "They wanted a big live room because they're expecting to do a lot of drum

also designed by Clearwater. Solid but unobtrusive, they're made of welded steel weighted with sand and look to be something that could catch on with other studios that don't use soffits for their large speakers.

A Euphonix CS2000 is the centerpiece of the control room. Paul Cox did the studio wiring, and Joe Taupier, manager of West L.A. Music/Hollywood, put together the bulk of the equipment package. "They had a short time frame and wanted to keep all their options open," relates Taupier.

—CONTINUED ON PAGE 142

NASHVILLE SKYLINE

by Rick Clark

When it comes to bluegrass and bluegrass-influenced country, there are few artists who have attained the high status that Ricky Skaggs has earned. During the last 30-odd years, Skaggs has not only enjoyed huge commercial success and won many awards for his work, but he has also done much to elevate the standards for acoustic roots music, with a commitment to audiophile-level releases largely produced out of his studio (Skaggs Place Studios) in Hendersonville, Tenn.

I hopped over there recently with producer Brian Ahern to check out the studio and hear some of their thoughts on the gear they use and their recording methodologies. Besides Skaggs, house engineers Lee Groitzsch and Brent King hung out and shared some ideas, too.

One of the facility's recent acquisitions was an Amek 9098i console, something Skaggs and his staff were clearly thrilled to have in the room. "I've always wanted a Class-A discrete console," says Skaggs. "We found this 56x2 console from Amek, which had been repossessed from a studio out in L.A. We love the way it sounds. It is so transparent."

Skaggs adds that the Amek features a very nuanced EQ that reaches into frequency realms that many consoles don't address. "I thought, 'Why would you ever want EQ that would go up to 20 kHz?' Why? But Rupert [Neve] says that you may not hear it, but it affects every bit of the sound spectrum from top to bottom. I really believe he is right," says Skaggs.

King adds, "Rupert's older consoles were so musical-sounding. It is the same kind of thing here and you have to be careful. You'll start putting on a little bit of EQ and start smiling because you hear it everywhere."

The folks at Skaggs Place are also big fans of the iZ Technology RADAR system. "We love RADAR and we've cut three Grammy-winning projects on ours," says Skaggs. "We've probably sold a bunch of RADARs to people—people want to know [how we record]. The basic tracks are done 16-track and then taken straight

NEW YORK METRO

by David Weiss

to RADAR, so that the integrity stays there and you don't lose anything from the tape sitting around or multiple plays on it or print-through. Also, we're still mixing to half-inch. Old habits die hard, and I still love the sound of analog."

It wasn't long before the four of us started down the path of geeked-out gear talk, and we discussed the studio's regular parade of audio shoot-outs. The box that seems to be at the top of the list this day was the Mercury M72s mic pre.

"There are few things that we have plugged in that were so good that we just wrote a check for it after we heard it," says King. "When we threw that up, we just went, 'Game over.' We shot that out with what we've been using on the rest of the record, which is the Fearn VT-2, which also sounds great." In fact, Skaggs pointed out that the VT-2 clearly was the fave for things such as bass and kick.

For Skaggs' vocal, the signal path is now running from a Telefunken U47 through the Mercury M72s into a Tube-Tech CL-1A compressor. "I call that U-47 my 'hero' mic because I've had it forever and it has been my main vocal mic for the last 10 years," says Skaggs. "I also have another 47 that

—CONTINUED ON PAGE 144

The sound of music has always been loud and clear in New York City, but the liveliest source of those sounds is constantly changing. One of the most consistent growth areas in town is small music houses: diversely talented operations equipped to handle the often voracious needs of advertising agencies, TV shows, indie and major films and more.

While the three music houses that *Mix* talked to, Ant Music (www.antmusicny.com), limeBeat (www.limebeat.com) and MetaTechnik (www.metatechnik.com) take very different creative approaches, one thing they agree on is that competition in their field is increasing. "It's just insane how many music houses have started up," says Ant Music founder Anthony Vanger, whose clients include MasterCard, Rolex, BMW and multiple TV and film scores. "There was a lot of big music houses out there—JSM, tomandandy, Sacred Noise—that had a monopoly on the work. Then

PHOTO: WENDE LEE



Randy Lee, limeBeat's founder

all of a sudden, [some of] the organizations went bust or their people went away and started their own company. So there's been a proliferation of music houses. The advertising houses have a lot to choose from, and I think that's great. Sometimes I wish they'd all vanish and disappear, but the reality is that the entry level to music houses is very low now: You just need a G5 and a couple of mics and plug-ins and you're a music house."

"There are so many people in this sector, but I haven't felt the sting of, 'Oh, any kid with a Pro Tools rig in his room can do it,'" adds Randy Lee, founder of limeBeat, whose customers have included ESPN, the NHL, TLC, Burton Snowboards and more. "Our competition on the higher end licenses a lot of songs, and on the lower end they go for a lot of stock, but still the music production houses like us are not going away soon—there's a ton of spots that need original music. Because the picture is not right with existing music or a stock song, you need that custom element."

The difference today is how to win the business. The time when a client would be wowed by a massive console is officially over, replaced by more streamlined operations that sell

—CONTINUED ON PAGE 146

Engineer Brent King (left) and Ricky Skaggs in front of the Amek at Skaggs Place Studios

PHOTO: RICK CLARK



MARCUSSEN MASTERING SPARKLES WITH POWDER

"Turbo-pop" band Powder (www.powdermusic.com) dropped by Marcussen Mastering in Hollywood, Calif., to wrap up their forthcoming Continental Records release with engineer Louie Teran. Teran worked on the custom-built analog console in Studio B, with DA/AD conversion from dB and Prism. The charismatic four-piece delivered the album as Pro Tools files, with some tracks recorded on two Roland VS-1880s.

"When I found out we had songs on the 1880, I made sure [guitarist] Phil-X brought the units in, as opposed to printing the mixes," Teran says. "I wanted to keep the quality as high as possible from those boxes. Also, it allowed us to make level and EQ adjustments to the mixes right in the 1880. It worked out very well, and it was nice being able to help my friends with their project."



Engineer Louie Teran (center) gave Powder's new album its final polish.

STUDIO SPOTLIGHT

ST. CLAIRE RECORDING SERVES UP SUPERIOR SOUND WITH SOUTHERN COMFORT

John Parks created the "ultimate classroom" for himself when he launched St. Claire Recording, a new one-room facility in Lexington, Ky. The 7,800-square-foot hideaway—with nearly 4,000 reserved for the studio—nestled on 14 acres of land features a tracking room with four iso booths and reportedly one of the largest control rooms ever built by Martin Pilchner of Toronto-based Pilchner & Schoustal: large enough to hold up to 10 musicians standing side-by-side. "If you're really under the gun, you don't want to be in a cramped environment," says Parks, a percussionist, budding engineer and Kentucky native who spent a brief time working in Nashville before returning home to open his own studio.

An 80-input SSL 9000J console (pictured) and Pro Tools|HD3 Accel take up some of that control room space, as does St. Claire's multiple racks of outboard gear, which include vintage pieces from API, Neve, UREI and Teletronix, as well as newer gadgets from Little Labs and Groove Tubes, among others. The studio's surround setup includes a Pilchner-Schoustal-designed Max Monitor System and pairs of ADAM S3A and Auratone monitors.

After spending the winter and early spring testing out the facility, Parks plans to attract a mix of national and regional acts. "There's a lot of talent in this part of the country; not just in Kentucky, but Indiana, Ohio, Missouri, Virginia—I wanted them to be able to stay close to home, in an area of the country that they're more akin to." And with on-site guest accommodations, he hopes to create a relaxed "bed and breakfast" atmosphere that's conducive to creativity. "We want to put Kentucky on the map," he says. "It's postcard-picture perfect here; there's quite a bit of southern hospitality, but it's not so backwoods. I see my mom baking cookies for our clients. We try to go above and beyond the call of duty wherever we can. Whether you're small beans or the big enchilada, you'll be our only focus for the duration of your project."



BEHIND THE GLASS

HIGH-TECH DREDNECK AT SUGAR HILL



Dan Workman (front row, left), John Griffin (back row, third from right) with the "Dreadneck nation"

Galveston, Texas-based jam band Dreadneck convened at Sugar Hill Studios (Houston) to record their full-length debut with producer/Sugar Hill president Dan Workman and engineer John Griffin. The group recorded in Studio A, home to a 44-input Neotek Elite.

GABRIEL WALLACH JOINS FUTURE DISC



Clockwise from bottom left: Reik guitarist/vocalist Julio Ramirez, co-producer Abelardo Vazquez, production coordinator Manuel Ruiz and Gabriel Wallach

Future Disc's (Hollywood) latest addition, mastering engineer Gabriel Wallach, dove into his new gig by putting the finishing touches on Reik's upcoming Sony release, which was produced by Kiko Cibrian and Abelardo Vazquez.

SOUTHERN CALIFORNIA

Producer Linda Perry and mix engineer Bernd Burgdorf dropped by Bernie Grundman's (Hollywood) place to master a Kelly Osbourne track for Sanctuary Records...Chalice Recording's (L.A.) overflowing studios included Latin Grammy winners Alejandro Sanz, with producer Lulo Perez and engineer Rafa Sardina, and Luis Miguel, with engineers Dave Reitzas, Benny Facone and Sardina. Congratulations to producer Robb Cavallo and engineer Doug McKean, who bravely tracked vocals for Paris Hilton's new solo album. Producer/songwriter Walter Afanasieff was in recording a Kenny G duet album with guests Burt Bacharach, Gladys Knight, Eric Bonnet, Chaka Khan, Daryl Hall and Richard Marx...Henson Studios (Hollywood) reports recent sessions with The Wallflowers and The Offspring, both in with Brendan O'Brien and engineer Nick Didia; Bon Jovi recorded with producer John Shanks and engineer Jeff Rothschild...Longwave tracked their forthcoming album with producer John Leckie and engineer Stephen Rhodes at Cello Studios (Hollywood), which recently installed an API Legacy Plus in its Western Studio 3. Other visitors include Motley Crüe with producer Bob Rock, the Red Hot Chili Peppers with Rick Rubin and guitarist Larry Carlton, recording a "terrifying rock 'n' roll record" with engineers Csaba Petocz and Joe Chicarelli.

MIDWEST

Ex-Smashing Pumpkin Billy Corgan wrapped up a long stint in Chicago Recording Company's Studio 5 to record and mix his solo debut. Bon Harris, Brian Leisegang and Matt Walker tracked; Alan Moulder mixed. Chris Shepard mixed an Elvis Costello concert in 5.1 for DVD release; Kanye West occupied Studio 4 to shoot a Boost Mobile commercial featuring Kanye and Ludacris; and Jeff Lane tracked vocals with Def Jam artist Syleena Johnson...Marimba composer Don Skoog tracked and mixed his new album, also featuring the Rosewood Trio, at Shantytville Recording Studio (Homewood, IL); Nick Eipers engineered...Mind Ignition (New Lebanon, OH) welcomed Rouser act Dry Branch Fire Squad; also, Bill McCarthy and Alex Lusht created a laugh track and recorded score for the Saucom film, *Black Wine*...Tahoe singer/songwriter Darin Talbot tracked and mixed songs for his fourth CD at Aberdeen Recording (Aberdeen, SD), home to "the only Neve 88R between the coasts." Bradshaw Lambert produced and chief engineer Tim Andersen engineered.

NORTHWEST

Guitarist Jeff Bigelow finished his debut solo album, *Big Trouble*, with Adam Rossi producing, engineering and mixing at ARA (Palo Alto, CA) and Trakworx (San Francisco)...Paul Stubblebine Mastering's (San Francisco) Michael Romanowski wrapped up projects for Green Sphere Records, Carl

Wheeler, Josh Fixx, Firecracker and Ghostride, produced by Enrique Gonzalez. Engineer Josh Greenham mastered albums for Babatunde Lea, local Garrin Benfield, The Falcon and Keith Varon...Nettleingham Audio (Seattle) got its share of black metal when engineer Kevin Nettleingham mastered several releases for Moribund Records and PDX band Engaged. They relaxed while mixing/mastering the first in a series of nature CDs for the Musical Sea and during a Carnegie Hall recording by Mary Anne Rees.

SOUTHEAST

Silent Sound Studios (Atlanta) hosted mix sessions for Mariah Carey and Ludacris (producer, The Neptunes; engineer, Phil Tan), tracks for 112 (producer, Mario Winans; engineer, Vernon Mungo) and mixes for Donell Jones (Fish & Chips produced; Tan engineered)...Urban Mystic finished mixing his album with Niko Marzouca at Circle House Studios (Miami).



Columbia, S.C., band Tokyo Joe finished basic tracks in Tree Sound's (Atlanta) Studio 11. Pictured L-R, back row: Engineer Chris Green, Steve Rhinehardt, Drew Parker, producer Don Dean Maracle and assistant Jonah Merrill. From left, front row: Dale Burgess and Greg Bickley

NORTHEAST

Elvis Costello & The Imposters recorded an exclusive set for Apple iTunes at Avatar (NYC) with Chris Shepard engineering. Robert Friedrich engineered a new John Pizzarelli release in 5.1 with producer Curt Frasca, and producer/engineer Jason Corsaro christened Avatar's new Studio G, mixing indie artist Sampsonic...The Three Irish Tenors and a full orchestra gathered at Bennett Studios (Englewood, NJ) for a pre-concert rehearsal. The studio also welcomed *The Billy Strayhorn Project*, a forthcoming documentary shot in HD video featuring Elvis Costello and the Diane Reeves Trio, among others, and recorded and mixed by owner/chief engineer Dae Bennett...Boy George and producer Rick Nowels visited the Cutting Room (NYC) with engineer Chris Griffin, and Spanish funk band The Funk on Me tracked and mixed their new record, which features Parliament Funkadelic's Fred Wesley. ■

Send your session news to hjohnson@primediabusiness.com. High-resolution photos encouraged!

"Pro Tools|HD with a Waves Diamond bundle was the recording system choice. They also have a Martinsound MultiMAX EX for 5.1 monitoring. Among other gear, they have Brent Averill mic preamps and an Apogee Big Ben studio clock. The mic package includes Blue Bottle and Blue Mouse microphones, Royer 122s, AKG 414s and Sennheiser MD-421s."

Midas' first ADA/WEA distributed release, *Believe in Angels...Believe in Me*, by teen singer Angel, was produced by The Wizardz of Oz. Angel is a former member of No Secrets, whose single, "That's What Girls Do," made them a Nickelodeon mainstay. In keeping with Midas' marketing vision, Angel spent the summer working her record with a mall tour, television appearances and VH-1's *Save the Music* tour.

Midas' second artist, Auggie, is part of the Jackson family clan: He's the 18-year-old son of Rebbie and nephew of Janet and Michael. Auggie's album is being produced and engineered by Nast, and recorded entirely at Midas Studios, with guest appearances by such veteran musicians as Larry Goldings, David Williams and Benjamin Wright.

Some of the most striking commercials you've seen—and heard—in the past few

PHOTO: MAUREEN DRONEY



Endless Noise founder/creative director Jeff Elmassian outside the company's new home

years were scored by Endless Noise (www.endlessnoise.com). Nike's "Freestyle," with its *Stomp*-like track composed from shoe squeaks and basketball bounces; Audi's "Progressions," with its mash-up of David Bowie's "Rebel Rebel" and "Never Get Old"; Nike Golf's cheerfully retro underscore to "Hackeysack," featuring Tiger Woods

juggling a golf ball; and Nike's "Before," depicting athletes warming up to the sounds of a tuning orchestra are all examples of the unique blend of original music and sound design that Endless Noise specializes in.

I stopped in for a visit with Jeff Elmassian, Endless Noise's founder/creative director, at the company's new home—a suite of



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offices and studios with a wraparound balcony overlooking Santa Monica's Third Street Promenade. Considering its body of award-winning work, and in spite of the fact that it houses three Pro Tools—outfitted studios and several production offices, the facility proved surprisingly intimate and deceptively nontechnical-looking.

Elmassian, who previously partnered in a successful and much larger commercial advertising sound company (also named Endless Noise), explains, "Through the '80s and '90s, commercials were all we did and we had a big facility," he says. "But my background was in films. Eventually, I decided to take a hiatus from commercials to work on films again. For that, I didn't need a lot of space and I started working at home out of my guesthouse."

When he returned to advertising work, one of Elmassian's very first projects was the Nike/Tiger Woods spot. Its success started a roll, causing him to re-launch Endless Noise—from the guesthouse. Elmassian was also determined to continue his film work.

"I wanted to keep myself balanced between the film and commercial world, and I wanted to keep a lower overhead," he says. "The leanness of the operation let us concentrate on building up a strong creative side to the reel, culminating in the Nike 'Freestyle' campaign, where the guys are juggling the basketballs. That project perpetuated more creative work, and we ended up with an A-list company that I was still operating out of my guesthouse."

The guesthouse vibe continues at the new digs. Decorated by S2 Interior Design, the Santa Monica facility houses 10 employees, including executive producer Celia Williams, composers Andy Rehfeldt and Chris Guardino, and sound designers Scott Friedman and Kevin Keller.

"In our original incarnation, we had a 5,000-square-foot space with four studios, a large recording room and a big warehouse," Elmassian notes. "All that to cater to what was a third of the work we're now producing here in half that space. Before, with the amount of tapes and all the people coming in and out, the production environment and infrastructure required was so much bigger. Now, we can do 80 percent of what we need on our own, in smaller studios, with less equipment. For orchestral sessions or for live drums, we have access to some of the best studios in the world, like Capitol, The Village or the Paramount Scoring Stage. We prefer to go to those places for both the technical advantages and for the vibe. And even with tight budgets, clients

appreciate that."

Today's work logistics, thanks to servers and FTP transmission, have also helped increase the company's reach. "Not that long ago," Elmassian says, "it was a lot more difficult to work with clients in New York, Chicago, Europe or Asia. It just took more time and expense to collaborate and make changes. Now, people understand that, almost anywhere, you're a phone call and a five-minute upload from getting your changes. That's opened a lot of creative doors for us."

Endless Noise's sound designers are musicians first; the company seeks out projects that require the seamless integration of sound effects and music. Currently in the works are projects for Dell Computers, Cheerios, Chevrolet, MasterCard, Lucky Charms and Claritin, among others. Also ongoing at the facility are updating and remixing for new versions of songs à la the David Bowie mash-up. And, of course, Elmassian continues working in film, with his recent musical contributions to animation featured in Warner Bros.' *Baby Looney Tunes Christmas*. "We're not a production line and I don't ever want to become one," he concludes. "Today, I think people are seeking out a place where they can render the creative kind of work that comes from personal involvement. That's something we definitely offer." ■

Got L.A. stories? E-mail MaureenDroney@aol.com.

NASHVILLE SKYLINE FROM PAGE 139

George [Jones], Tammy [Wynette] and Dolly [Parton] sang on.

"The M-72 brings the vocal up in your face in a mix. Not only that, when you're singing, you can distinguish every little nuance. A lot of mic pre's are just plain vanilla—they don't do anything but give you level," says Skaggs.

For acoustic guitars, Skaggs often likes to use Neumann KM66s. "The KM66 is the tube version of the KM86," he notes. "We just got some East German Gefell M-582s and we really love those; they sound really sweet. They have the most satiny top

PHOTO: JIM CLARK



Ricky Skaggs prefers Neumann mics for acoustic guitar.

for acoustic guitars." The acoustic guitar signal path usually employs a Neve 1073 mic pre and then a Manley Variable Mu limiter/compressor.

However, when Skaggs uses the big Gibson arch-top he calls Chunky Boy for driving rhythm tracks, he switches to a Neumann M250. "Chunky Boy can really move some air," Skaggs says with a laugh. "We like to use the M250 on him, but we have also used a C-37 on him and that has worked very well, too."

While the Sony C-37A is a favorite for mandolins, Skaggs loves the old RCA 44 ribbon mic for his 1920s Gibson F-5 mandolin. "That mic makes that particular mandolin sound like it has a big old nose," he enthuses. "It's a nasal sound that has so much attitude, and I love that!"

Skaggs also feels that ribbon mics, such as the RCA DX-77 and the Royers, work best with banjo: "Two ribbon mics are the best thing on banjos ever. It can handle the harshness that you normally get with banjos. I've got a bunch of really good DX-77s that have really good output. Most banjo players that we use dig in and play really hard, so they are going to give you all the level you need. When the signal hits that ribbon, that ribbon really loves what it gets and it smooths it out. It hears the top, but it is not that real ugly 12 kHz. The Royer is something that we just started using and we like. It is a little cleaner of a sound."

The proof is in the pudding. So, if you want to hear what Skaggs has been up to, check out his newest album, *Brand New Strings*. ■

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themselves stylistically, with anything from seamless diversity to indie street cred. "You need to position yourself in a way that allows you to operate on smaller budgets—it's a new business model," comments Georg Bissen, who co-founded MetaTechnik in 2001, along with Shahin Motia and Victoria Gross, servicing clients ranging from MTV, Jello and the Discover Card, to the New York Knicks and Madison Square Garden. "It used to be, 'Let's write music and we can make money with it.' Now you have to look at it as running a business: It's about a product and making the client happy. Then, of course, you have to stand out from the competition. I DJ, Vicky gets out and we're both in Balm, an electronic pop duo, and Shahin knows what's on the indie scene from his band, Ex Models. We all come from such different musical backgrounds that it helps us to fine-tune for the particular branding that we try to do, and we feel it's extremely important that the music enhances the picture and helps the product."

"What's different about Ant Music is just me—how I see things and hear things is different than anyone else," Vanger says. "It's like comparing different film

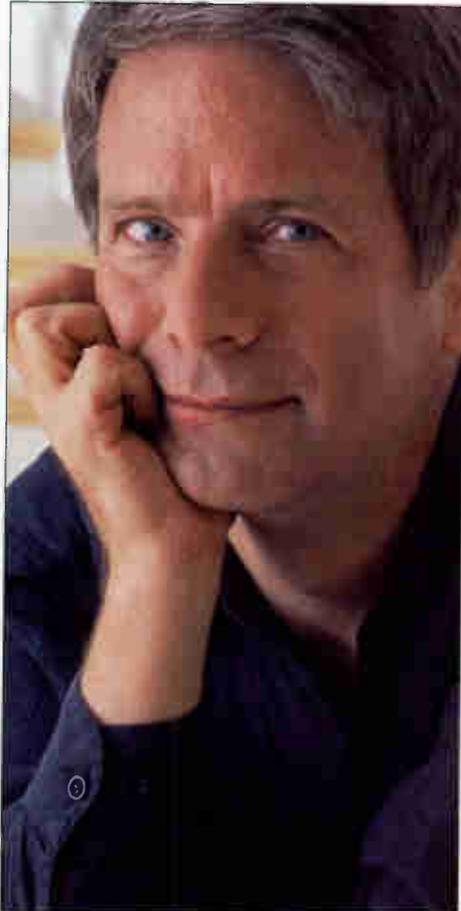


From left: MetaTechnik's Shahin Motia, Victoria Gross and Georg Bissen

composers: Give them each a scene and they'll approach it differently. Ant Music has a style and the style is mine—it tends to be more melodic and emotional. We are

quite good at telling the emotional story behind the visual."

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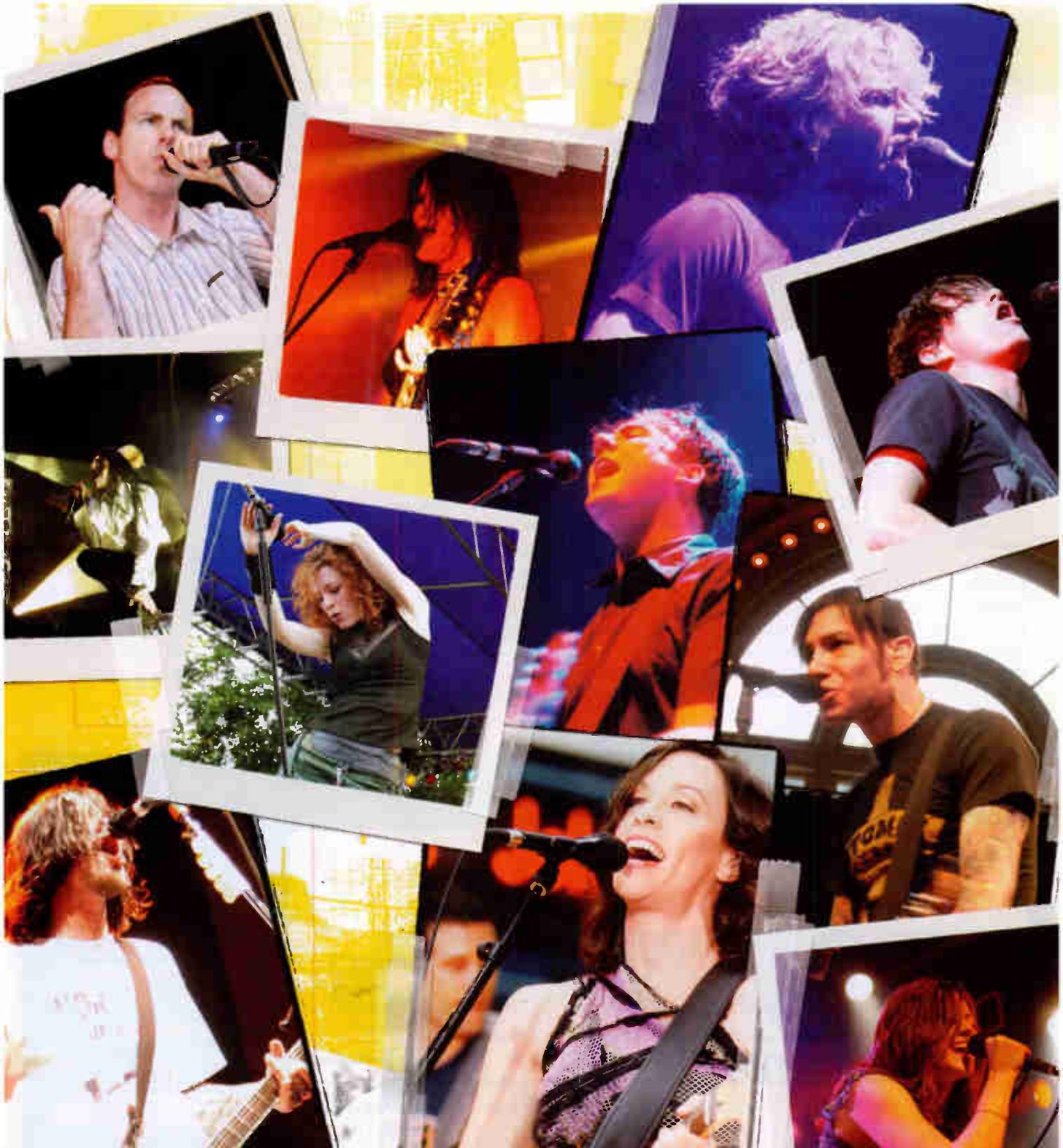
I send them out and have people listen to and make essential suggestions. They can tell me what they like and don't like and then I spot assemble a new sequence and cut it from wherever I am in the world, even on an airplane. In the studio, if somebody wants to hear something right away, I just make the changes, post it, and boom, it's done.

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Flatiron Building accommodates a room for Lee and composer/studio manager Tony Gracci, a live room and a mixing/post room for Mattias Murhagen. "In New York City, the rents are astronomical," notes Lee, "but I got a phenomenal deal on a great space due to the soft market after 9/11. Now you can get really fantastic gear and keep on the cutting edge for a fraction of the cost, so I put my money into a beautiful space with good acoustics where clients feel comfortable and everyone feels creative."

MetaTechnik employs a relatively minimalist setup that reflects the company's often minimalist sound design, with a philosophy of using its considerable talents to squeeze the maximum amount out of the devices. "If you do know your gear inside out," Bissen says, "exactly what it does and how it behaves, you can really get a lot of mileage out of it and make something sound like it was produced on a \$700,000 SSL. We've got a Mackie 32x8 console. For outboard, we have a Bellari RPR83 compressor/limiter, HHB Radius 50 mic pre's and the Neumann TLM 103s. That's how we record our trumpets, accordions, vocals—it's about mic placement and the right compression setting. That's knowing

your gear, getting your TLM to sound like a U87."

"We need a really good live room because we like to use live musicians," says Ant Music's Vanger of his tastefully appointed facility (which comes complete with a full-blown English tea service). "We also have a lot of nice outboard gear, including Manley preamps and LA-2A compressors. Besides that, we have a powerful computer network, which is very important to move information and sessions back and forth."

If you want to run a successful New York City music house, composing for commercials needs to be just one part of the puzzle. Ant Music also counts music supervision, film scoring, publishing and record production among its strengths. MetaTechnik is also expert with music and sound design for indie films and the Internet, while limeBeat handles its fair share of music supervision, songwriting and indie film score work.

Numerous other music houses in the city are also branching out. Bionic Media (www.bionic.tv) has equipped its three audio suites with the Digidesign ICON. Formerly known as Hingesonic, Hudson Soundlab ([.com\) has a sharp new downtown studio. Meanwhile, No Wonder Music \(\[www.wonderlandnyc.com\]\(http://www.wonderlandnyc.com\)\) is expanding its client base, thanks to the company's diverse skills in filmmaking and editing.](http://www.hudsonsoundlab</p>
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In a town where everyone has talent and can afford the necessary gear, everything comes back to business sense and a firm grasp of reality. "It's not easy to break into this industry," MetaTechnik's Bissen warns. "We think we have an edge—that's why we're in it. But if you don't think you can compete or your product isn't the best it can be, then wait a year or two and hone your skills."

Vanger has his own way of carrying out smart business in and around the island of Manhattan. "I like to compare the studio's business to a ship," he says. "When the ship is in port, that's when all the work happens: We have to back stuff up, look at new gear and plug-ins, find new composers. You get your ship in order, then—boom!—the storm happens. When the projects come, that's when the fun begins. I mean, making the music—how hard is that?" ■

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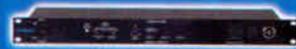
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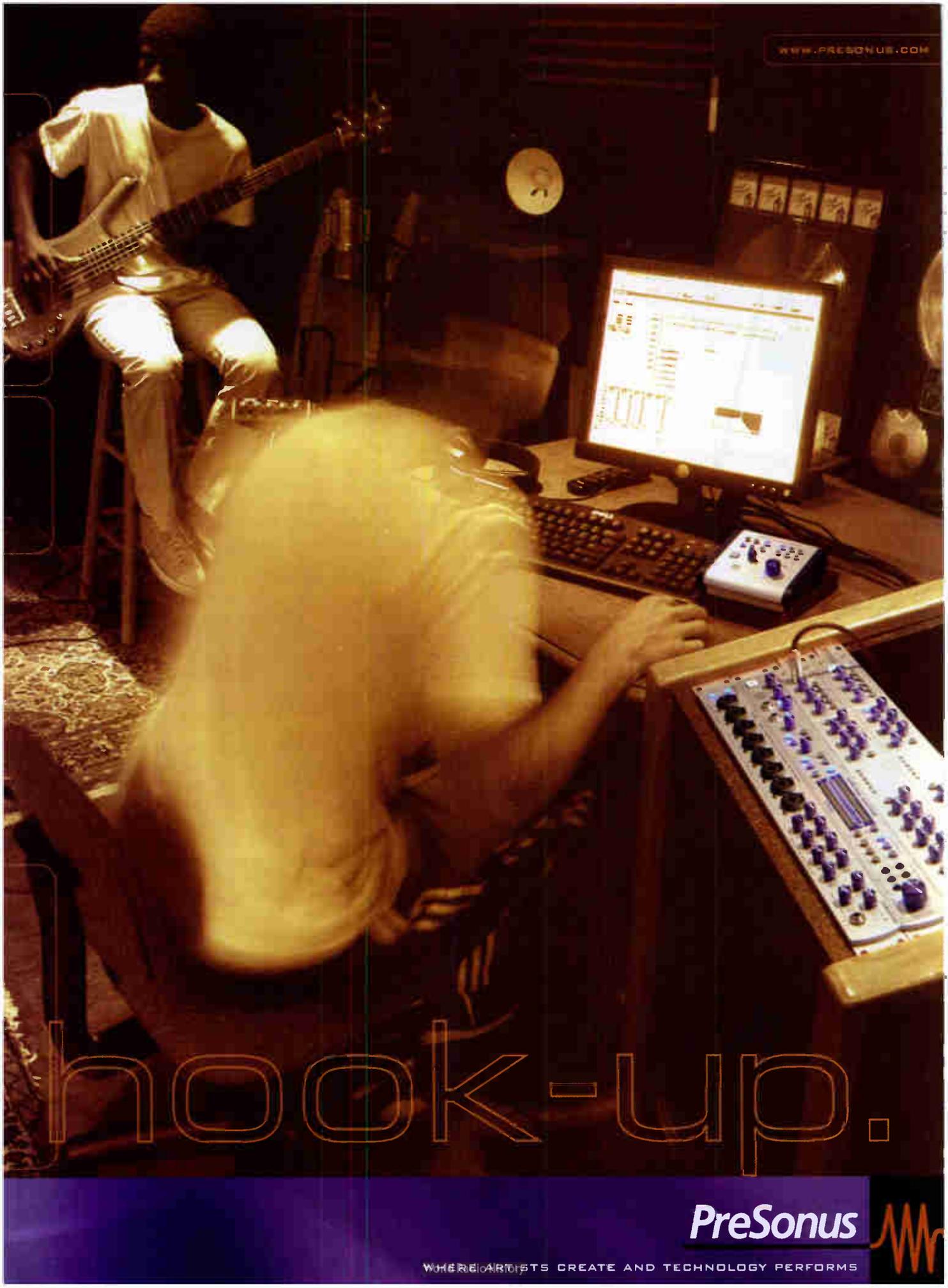
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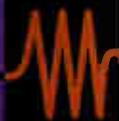
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—FROM PAGE 24, JUST AROUND THE CORNER

three control surfaces with rotary encoders, sliders, a touchpad, a joystick and a whole bunch of buttons; an impressive array of inputs and outputs; and a 61-note piano keyboard. Available in configurations ranging from a single 1.4GHz AMD Opteron CPU to dual 2.0GHz processors, and with other options such as 250GB hard drive, up to 8 GB of RAM, an ADAT interface, a DVD burner and more, this sucker can handle as many as 100 plug-ins at a time and produce up to 500-voice polyphony. Windows XP is built into the system, with a custom simplified music-oriented user interface laid on top of the OS. Because the hardware is all-modular and the sound engines are all software-based, the system is, theoretically, upgradable without limits. It ships with some 19 soft synths and nearly as many effects modules, as well as Traktion, the low-cost multitrack software that's now part of Mackie's product line, and Karsyn, a plug-in organizing program described as being similar to Steinberg's V-Stack but with more options and channels. If that's not enough, adding your own host software and your favorite VST or DirectX plug-ins is as easy as loading them into any old computer. It's not exactly cheap—prices start at \$5,500 and climb fast—but for someone who needs a lot of power and a really comprehensive hardware interface, and who moves around a lot, NeKo could make a great deal of sense. And compared to the original Fairlight, it's a steal.

Speaking of plug-ins, a new set for Pro Tools called UltraFX, from the Vermont company SoundToys (which used to be called Wave Mechanics until its owners decided there were too many companies out there with "Wave" in their names), have an interesting twist: They share a feature called the Rhythm Pattern Editor, which lets you set up complex cyclical patterns up to 32 bars long to control processing parameters. A pattern can use any reasonable time signature and division of the beat, and can assign different levels to individual beats. Patterns can free-run or be locked to MIDI Beat Clock. Best of all, they can be stored in a library where the other modules in the group can get access to them. So you can have your resonant filter do a 9/8 jig, your delay line play "Take Five" and your phaser work out on a 14-bar shuffle, and then switch them around. The set also includes Crystallizer, a "granular echo synthesizer" that is "inspired" by a well-known preset on the old Eventide H3000, a device that many of the company's engineers helped develop. In the months to come, expect new flanging, panning and "disturbingly abusive fidelity reduction" modules.

In the area of surround mixing, many of the larger companies were showing new concepts and products, but some of the most intriguing were at the small booth of Immersive Media Research (IMR), a software company that grew largely out of work done at the University of California San Diego. IMR offers a suite of tools for surround work, starting with a software mixer designed to "lower the barriers to experimenting in surround." The basic mixer program, which sells for less than \$300, uses ReWire to hook up to a host application, allows real-time control via MIDI and USB, and comes with a library (which you can add to) of complex spatial paths and loops and algorithm-based setups.

Then there's the Immersive Designer software, which uses a graphic interface for time and vector control over volume and position, as well as a host of integrated DSP functions including reverb, Doppler Shift and air absorption to let you spatialize a mono or stereo signal in a zillion different ways. The motion information can be saved separately from the audio files so that a move can be applied to other audio tracks. The company's favorite demo was taking a simple subway train sample and manipulating it to make it sound like it's coming at you from five different directions simultaneously.

Finally, the company's Immersive Encoder takes any group of up to 18 sound files (even if they're in different formats) and combines them into a single multichannel file in most common formats, as well as a very impressive binaural format for true surround monitoring on headphones. Interestingly, the company claims that this mix can be successfully encoded as an MP3 file, but I didn't get a chance to check it out. A Pro version of the encoder includes DTS encoding, and the company hopes to license other proprietary codecs in the future.

One aspect of AES that many attendees from the studio world sometimes miss is new developments behind the scenes of the audio manufacturers and designers whose gear they use. Despite the fact that these developers' booths tend to be quiet and not have a lot of flashing lights, they deserve attention as their products will determine how the gear we will use in the not-so-near future will look and feel. One example of this was a booth in a corner of the show floor that didn't have throbbing monitors, just a couple of posters and a British-accented engineer describing his company's work. The engineer was Michael Page, and he works at the Oxford, UK, research labs of Sony. His topic of discussion was the proposed AES-X140 standard, which Sony developed originally under the name of

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"Super Multichannel Audio Connection," or (of course) "SuperMAC." When it is officially adopted by AES, which may be a done deal by the time you read this, it will become known as "High-Resolution Multichannel Audio Interconnection," whose acronym is unfortunately far less attractive.

What's amazing about AES-X140 is that it crams a huge amount of audio data onto Cat-5 Ethernet cable. No longer will we need expensive MAD1, fragile fiber or clunky TDIF cable to interconnect our various digital hardware devices. We will now be able to use cheap and flexible cable you can buy at Staples and have runs up to 100 meters, with predictable latencies of less than 80 microseconds. How much data? How about 24 channels of DSD or 96kHz 24-bit PCM, or 48 channels of 48kHz, 24-bit PCM? That's in addition to a 5Mbit/second data channel, which can be used for timecode, remote control, TCP/IP, metadata or about 160 MIDI streams.

Also out of plain sight are those companies that make the chips that go into the gear we use. What they like to show at AES are how they can make life easier, better and cheaper for their customers—the manufacturers themselves. Among these is Analog Devices, a major player in the audio

industry from Norwood, Mass. (which, as anyone who has seen a car commercial on Boston TV knows, is pronounced "NAAH-wud"), whose SHARC Audio ICs have for some time been at the core of products from Mackie, Tascam, Studer, Harrison and many other pro audio makers, as well as consumer and car audio manufacturers. Besides announcing the latest line of more powerful chips, the company revealed a slick new software development tool called VisualAudio, which uses a graphic object-oriented interface to create code for its processors. The software should help speed up development time for companies using the chips through all four phases of the process: design, code generation, tuning and testing. It includes a large library of audio function modules, a customizable user interface to optimize control and testing functions, and support for a broad range of codecs. Users can write their own modules using C or assembly language and save the modules and sub-systems they develop for use in their next generation of products.

Along the same lines, but with one critical difference, is a new company called Anadigm, with headquarters in Cheshire, England, and Tempe, Ariz. "The idea for the company came out of Motorola," co-

founder and CTO Ian Macbeth told me. "They stopped doing programmable chips, so we took it over." Anadigm is selling field-programmable chip sets that operate in the analog domain and has created an extensive set of development tools for the chips. "The silicon is software-configurable, with the modules defined by the code," explains Macbeth, "so you can build your own circuits and control interfaces and keep everything in the analog domain, avoiding the need for all those converters." The whole development kit, including the software, sells for a mere \$199. "The goal is to bring down the cost of DSP design for manufacturers of smaller systems. We make our money selling them the chips." Initially, the company will focus on speaker systems, guitar effects and synthesizers, and will include a library of pre-packaged code for filters, crossovers, oscillators, and dynamic and time-based effects. But Anadigm is also looking to the auto sound, architectural acoustics and home theater markets, and further down the road, it hopes to cross over into areas beyond audio.

So thanks San Francisco and thanks AES. What say we do it again in two years? ■

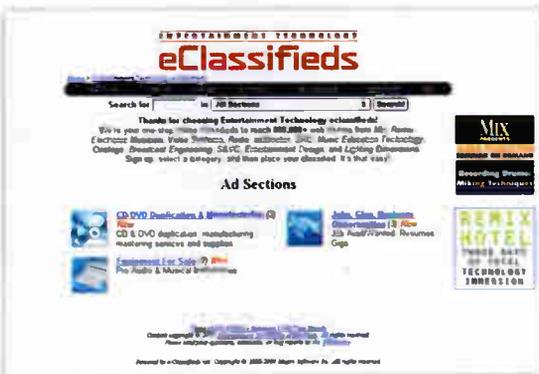
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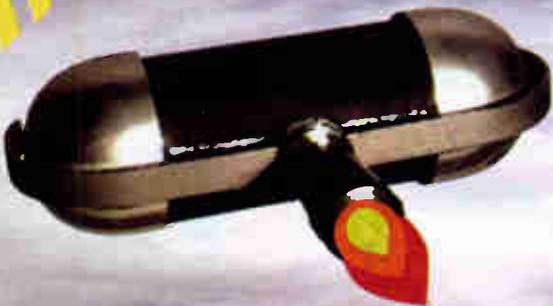
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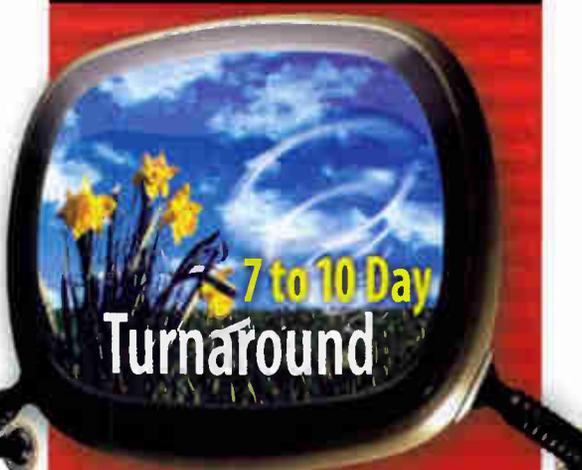


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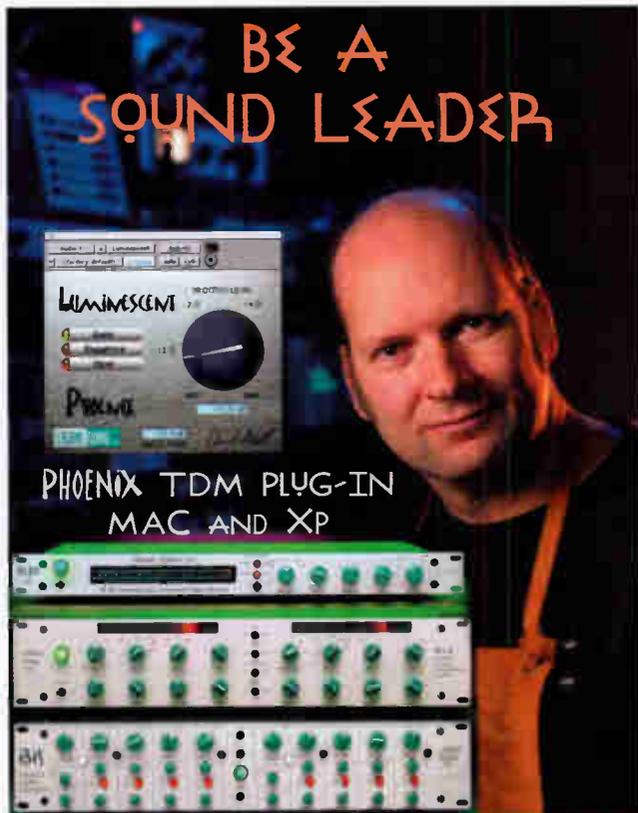
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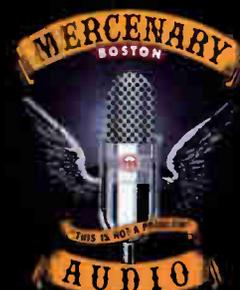
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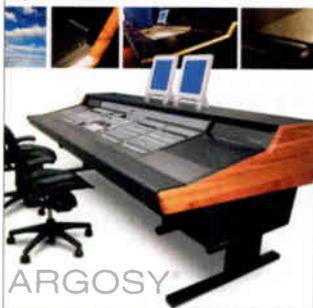
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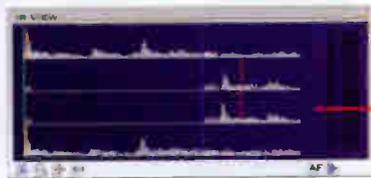
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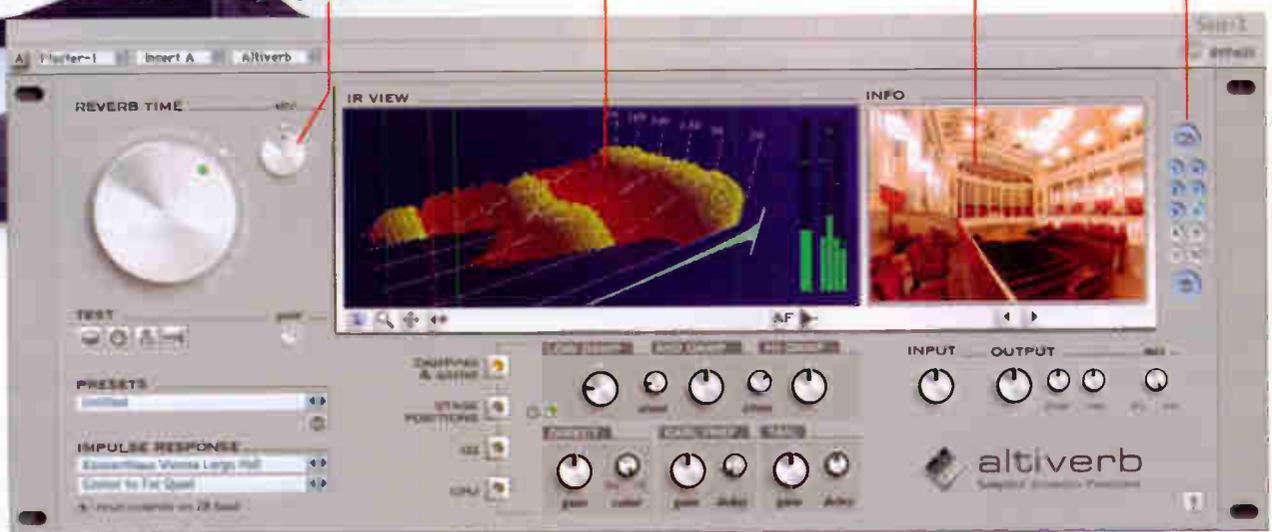


The size parameter shifts the frequency behavior of a room while adjusting reverb times.

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

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

Snapshots let you automate complete preset changes.



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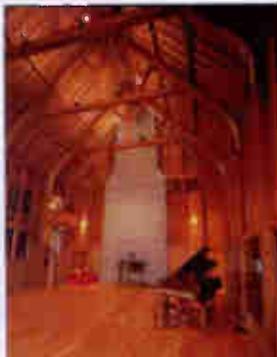
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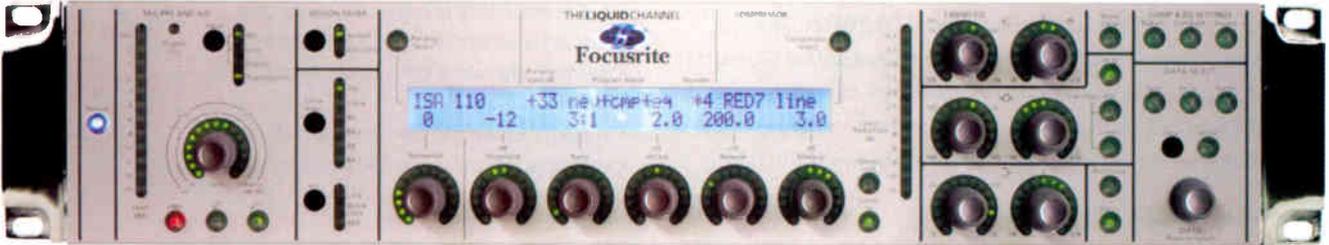
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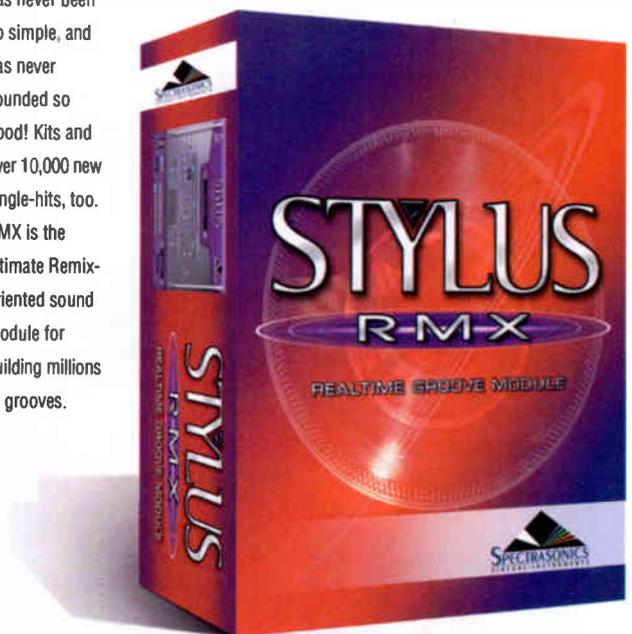
ABSYNTH was used extensively, together with Digital Performer, on the Matrix Reloaded soundtrack by electronica mastermind and Juno Reactor founder Ben Watkins. And now, this award-winning synthesizer hits the scene for the third time armed with a host of new and unique features. ABSYNTH 3 brings dozens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



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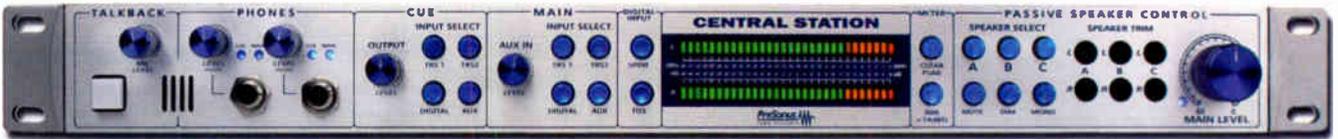
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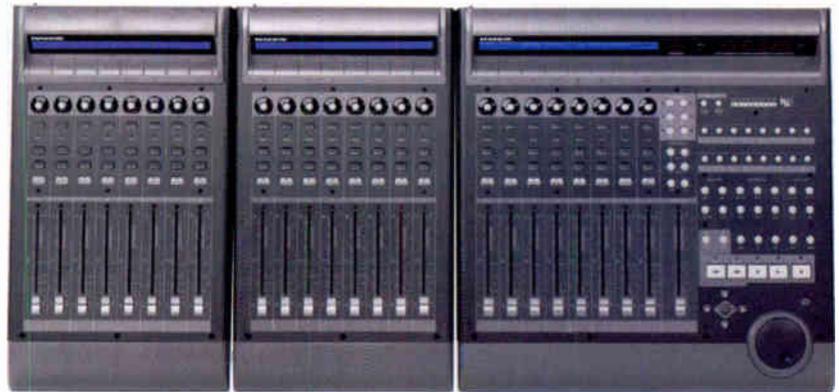
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clearly and minimize ear fatigue. In addition, the Central Station features a complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process.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



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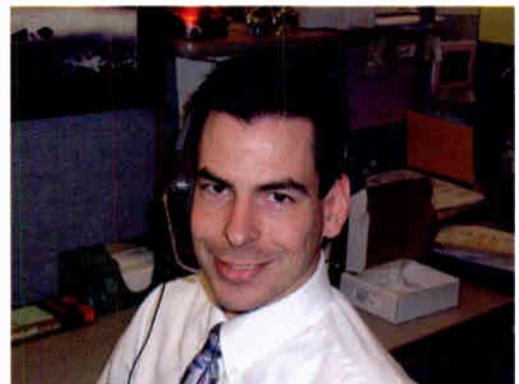
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Apple GarageBand

Finding Pro Functions in a Consumer App

If you purchased an Apple computer recently, you received the iLife bundle, which includes GarageBand. On the surface, GarageBand looks like a dumbed-down, plug-and-play loop sequencer that's easy enough for non-musicians to grok—and it is. But lurking behind the scenes for the producer engineer or studio-savvy musician are features that make GarageBand a useful sketchpad for the artist on the go. And anyone stuck on a desert island with just a (Mac) laptop will be ready for the Muse when she visits.

FREWARE FUNCTIONALITY

Demo-wise, GarageBand is great for getting song ideas down quickly, trying out alternate versions of a song by re-ordering sections and for simple remixing. It includes a nice selection of great-sounding Apple Loops—just the thing to get those creative juices flowing. Apple Loops can handle moderate tempo changes without compromising pitch, so GarageBand also comes in handy for experimenting with a song's tempo.

Although the program is missing functions you'd find in a professional digital audio sequencer, GarageBand lets you record and play audio and MIDI tracks and move the data around easily. In fact, you can record mono or stereo audio tracks directly into the program, without an external audio interface. Granted, recording direct to the computer isn't the most elegant way to work. But if inspiration strikes and you don't have a microphone handy, you can even use your computer's built-in mic to get the idea down. (When you stop laughing, you'll want to check it out: Think early Guided by Voices.)

GarageBand records .AIFF files and places them in a project-based folder. The tracks you record won't automatically have the tempo flexibility of pre-packaged Apple Loops, but you can create your own Apple Loops using Loop Utility—a free download from www.apple.com. (Loop Utility is also part of Apple Soundtrack, in case you already have that program.) Loop Utility can also translate Acid loops into Apple Loops, while keeping much of the original loop's functionality.

RECORDING 101

The setup procedure to record into GarageBand using your computer's audio input is simple. Begin by going into System Preferences and choosing Line In for the audio line-in port. (While you're there, make sure that the input level is turned up.) Then go into the GarageBand preferences and choose Built-In Audio for Audio Input and Audio Output.

Now you can plug your instrument into your computer and hear it in your headphones.

Next, create a new audio track: Select the Real Instrument tab and pick the instrument you want to record. For example, under Guitar, there are several Style options to choose from. These are for monitoring and playback purposes only and you won't be locked into any of them: Your tracks will be recorded dry, which lets you fine-tune the sound later. Each Style offers a preset group of effects deemed stylistically appropriate, which is helpful when you're trying to get an idea down quickly. Now, hit Record and start playing.

To access basic effects, double-click on your track's instrument icon to get the Track Info pop-up window. The built-in effects chain includes simple but useful gating, compression, EQ, echo and reverb effects, as well as two optional effects (one of which is Amp Simulation). At any point, you can customize your sound by changing the effects levels and performing whatever edits the built-in plug-ins allow.

Here's where the pros can really have some fun: Two optional spaces support AudioUnits plug-ins, offering access to whatever AU effects you can get your hands on, including freeware and shareware. With decent dynamics and reverb plug-ins, you'd be surprised at the quality of mixes you can get from this program.

MIDI ON THE MOVE

Speaking of AudioUnits plug-ins, GarageBand can also host AU instrument



GarageBand can host ReWire-capable applications. In this example, synth parts are added from Arturia Storm 3 to a GarageBand song.

plug-ins. Running the drum synth Bang (from the Cycling '74 Mode bundle) through GarageBand's built-in effects, I created some killer parts that I stored for use at a later date. Heard on their own, you wouldn't be able to tell they were created in GarageBand; they sounded fine.

In addition, you don't need an external MIDI keyboard controller to record MIDI tracks into GarageBand. The freeware application MidiKeys (www.versiontracker.com/dyn/moreinfo/macosx/16702) lets you play notes from your ASCII keyboard or mouse.

Once your demo sounds the way you want, you can import the GarageBand file into Apple Logic Pro 7 or Logic Express 7 and work on it at a higher level. Or, if you just want to share your tune with your bandmates, you can create an MP3 file from your GarageBand session or export it to iTunes.

GarageBand also supports ReWire as a host, allowing audio streaming from other ReWire-capable apps (such as Propellerhead Reason, Ableton Live and Arturia Storm) into the program. This not only lets you use the wealth of synths and samplers in those third-party programs, but it lets you stream their audio directly into iTunes using GarageBand's iTunes Export function—not bad for a freeware sequencer. ■

Laura Pallanck is a freelance sound designer based in Northern California.

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