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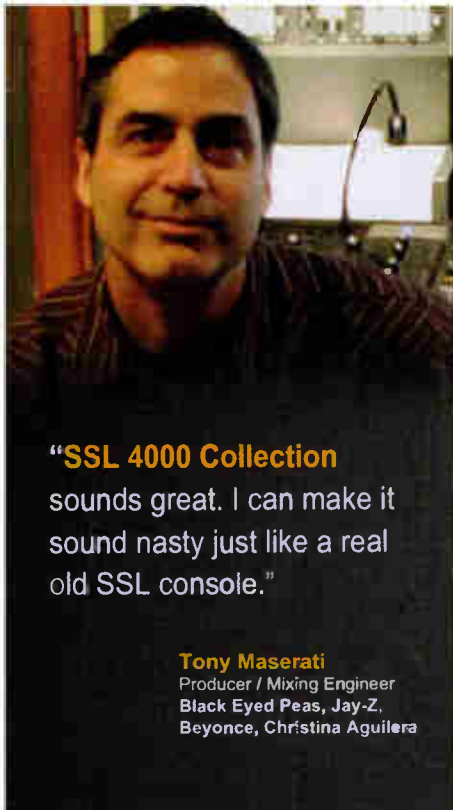
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World Radio History



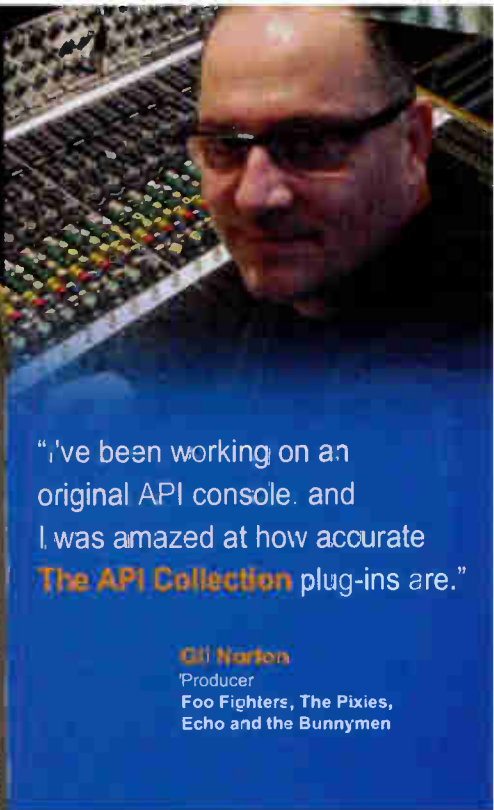
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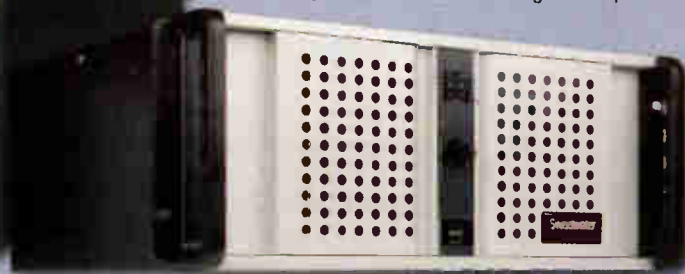
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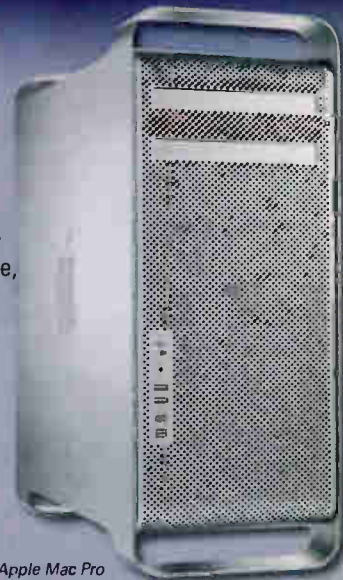


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World Radio History

MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

APRIL 2008, VOLUME 32, NUMBER 5



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On the Cover: Wildfire Post, an independent film mix facility in L.A., recently installed an SSL C300HD digital console in one of its four mix rooms. The former Wilshire Stages was recently purchased by veteran mixers Leslie Shatz and Chris David. Photo: Ed Colver. Inset: Pasphotography.



HD Is Here!

The time has arrived, where the number of high-definition sets in living rooms meets the number of programs being broadcast in HD. Now with all the content available on the picture side and the format firmly entrenched across the country, what's going on with audio?

28 New York's Met In HD

The Metropolitan Opera is broadcasting its first-rate productions in HD and surround on PBS; plus, its *Metropolitan Opera: Live in HD* Series presents eight productions in select movie theaters worldwide.

32 The HD Transition: A Systems Approach

With broadcasters, networks and content producers gearing up for next year's DTV changeover, now's the time to look at the production chain as a single unit, combining speed, flexibility and secure file handling/access.

38 Justin Timberlake: Live in Your Living Room

We get the high-tech story behind the broadcast of Justin Timberlake's *FutureSex/LoveShow* concert at Madison Square Garden, where HBO recreated the concert experience for viewers at home, in high-definition and Dolby surround.

42 The 50th Annual Grammy Awards

Mix had an all-access pass to this year's Grammy Awards. For an exclusive look at the production, check out the photos and interviews in this issue and at mixonline.com/grammys.

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54 Solid-State Mic Preamps

Engineers in all walks of production benefit from having high-quality outboard preamps in their toolboxes. Check out what's available in solid-state models—versatile transistor-based units that offer DAW-friendly features.

64 Live Sound System Controllers

System controllers—also known as drive processors—can help save time, effort and space by combining a rack's worth of functionality into a single unit.

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

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The Art of Analog



UA Founder M.T. "Bill" Putnam

Universal Audio: Making Music Sound Better Since 1957

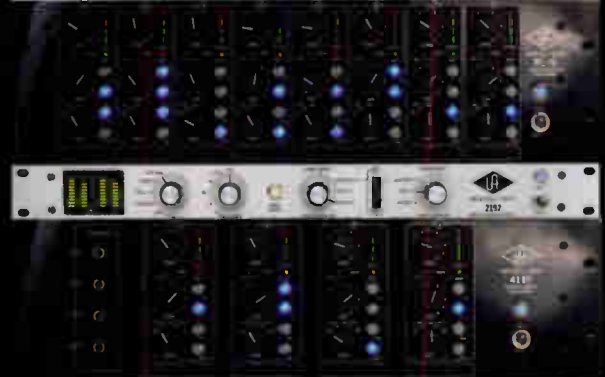
- 1945: Milton T. "Bill" Putnam established Universal Recording in Chicago, where he installed a prototype "610" console.
- 1947: The first million-selling record, "Peg O' My Heart" by The Harmonicats appeared on Bill's Vitacoustic ("Living Sound") label.
- 1948 - 56: Bill engineered and/or produced Bing Crosby, Frank Sinatra, Nat King Cole and countless others while pioneering innovations such as the control room, vocal booth, console, sends /returns, echo, artificial reverberation ... even stereo recording and half-speed mastering.
- 1957: Bill founded United Recording, and later United Western Studios on Sunset Boulevard in Hollywood, which are now the world-famous Ocean Way and Cello.
- 1957: Bill founded Universal Audio, whose legendary products such as the 1176LN, LA-2A and LA-3A became synonymous with sound quality and hit records.
- 1983: Bill retired and sold UA (now UREI) to Harman International. His original products became prized collectors items for almost two decades.
- 1999: Universal Audio was revived by two of Bill's sons, Bill, Jr., and Jim Putnam continue their father's legacy with hand-assembled reissues based on Bill, Sr.'s, drawings, vintage components and design secrets from his personal diaries.
- 2000: Bill, Sr., was awarded a posthumous Technical Achievement Grammy as the "Father of Modern Recording."
- Today: UA continues the Putnam legacy of "making music sound better." Its world-class hardware and software is designed with passion in Scotts Valley, California, according to the company motto: Analog Ears, Digital Minds.

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A Guy We All Kind of Knew...

This is the part of the magazine where I'm supposed to comment on the longest-running overnight sensation in technology: HDTV. Or provide a rally cry to the stragglers who have delayed their digital conversion and won't be ready for February 2009. Or wonder out loud what it means that major manufacturers have pulled out of NAB. We're a technology magazine, and it's our sound-for-picture issue.

Instead, I keep thinking about a guy I met who worked in sound-for-picture. A regular guy with considerable talent and an artist's ear. The kind of guy we all know: calm and compassionate, funny and warm, sincere and light, curious and committed. A guy who seems to have career and life in balance. A guy who has found perspective. I'm talking about J. Paul Huntsman.

Paul passed away on February 21 at the age of 55, three years after discovering a brain tumor. I knew he had been sick and had run into him on the Warner Bros. lot less than a year ago, but the news still shocked me. Others surely knew him better, but I did consider him a friend. We bonded over the course of a year back in 1997-'98, during the making of *The Thin Red Line*, which he supervised and I wrote about.

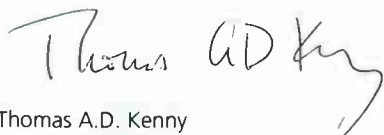
I was somewhat obsessed with Terrence Malick's return to filmmaking at the time. I tracked Paul down a full nine months before the story was due, and he indulged my endless questions and gave freely of his thoughts and impressions. We talked weekly. Sometimes he would rave about a 45-minute DAT that "Salty" Brincat had sent from Guadalcanal of the rain forest waking up at dawn. Or he would relate the many, many talks he'd had with Malick about birds, the single note or "call" that Malick might want. He talked about recording authentic WWII guns and made it sound both practical and poetic. And he always talked about his crew.

Other times we'd talk about literature. Paul was an avid reader and turned me on to Cormac McCarthy and Wallace Stegner, two of my favorites to this day. I scoured Bay Area bookshops and finally found a first-edition *Thin Red Line* to send him once the movie was out. I imagined Paul hearing the book as he read it.

Paul would have been tickled that a McCarthy book made it to Best Picture and won, three days after his death. He would also have appreciated the spare Skip Lievsay/Carter Burwell soundtrack, and called it "appropriate to the Plains." He was an avid supporter of digital technology (he loved his Fairlight!) and file interchange, and he worked for all sound editors as a member of the Board of Governors for the Academy since 2003.

Paul taught me that we bring our everyday experience to our work, that they can't—and shouldn't—be separated. Paul *heard* good writing. And he heard the world just as a matter of course. He loved to listen to Idaho when he was out fly fishing and could describe what a fast-moving creek and the snap of a line sounded like. Then he brought all that to his tracks.

So as I walk around NAB and marvel at the technology that drives our world, I'll remember that it's people who drive technology. The poetry in J. Paul Huntsman's tracks was a reflection of the way he approached life. He had balance, he had perspective, and he had heart.



Thomas A.D. Kenny
Editorial Director

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Letters to Mix



GET IN SYNC!

I've just finished reading Paul Lehrman's article in the February 2008 issue ("Insider Audio: Late for the Future"), and he is right on.

I produce TV commercials and was involved in presentations when HD was just coming out. One presentation was by the Sarnoff Committee; as I recall, it was at the 1996 or 1997 NAB show. I raised this sync issue at that time and was told that sync would *not* be a problem because all material would be coded similarly to SMPTE timecode, so the audio would track with the video. I guess it never happened. Besides, with non-discrete frames in some of the video, encoding it can take almost a half-second before you have the next discrete frame suitable for a lockup reference—even if an intercoding between audio and video was used.

I have been on my "soapbox" about this issue for the past 10 years, but it seems that it has only recently been getting some attention. Lehrman hit it perfectly when he noted that every element in the distribution chain helps to create sync problems, and when you try and trace a *specific* problem it's never really possible to get to any specific source; many times, each part of the chain compounds the problem—it can be very cumulative.

It seems like groups such as NAB, SMPTE, AES, etc., are all attempting to find a solution, but it is really difficult because of all of the sources of the problem, each [of which] managed/monitored (with some luck) by different independent organizations.

A big issue is that out-of-sync [audio and video] really can jeopardize the believability of the message—a serious problem in commercial advertising and political advertising, as well as dramatic program presentations and newscasts.

Hopefully, someone will be able to figure out a way to imitate nature and lock up mouth

movement with vocal cords. Maybe if a few program producers or advertisers refuse to pay distributors for a product that is received out of sync, there will be a concerted effort to fix this problem.

Alan Lapides

HISTORY LESSONS

Mix continues to receive letters about "30 People Who Shaped Sound" in the October 2007 issue, which profiled producers, engineers and musicians who significantly influenced the pro audio industry or consistently stood out among their peers during Mix's first 30 years of publication (1977-2007), as chosen by the Mix editors.

In general, I agree with your choices. However, I think there are at least two glaring omissions: Les Paul and Tom Dowd.

Paul B. Robbins Ph.D.

I have a ton of respect for the names on this list and no doubt it was difficult to narrow it down to just 30 people. But without the influence of The Beatles and their pioneering spirit, there are people on your list who might have followed other career paths. And The Beatles would not have reached the heights they achieved without people like Geoff Emerick, George Martin, et al.

Ron Howard

Sales engineer, Cloud Systems Inc.

You left off Brian Wilson, who forever changed the way the recording studio was used with his *Pet Sounds* and *SMiLE* albums, and the single "Good Vibrations." And [although] the list is certainly one of people who shaped sound, I would argue that a few on that list shaped sound for the worse.

Dale Boylen

TALKBACK

The January editions of the MixLine e-newsletter asked readers who work in game audio production after beginning their careers in music and post-production to tell us why they made the switch, as well as name the title of the first videogame they worked on. Here are two more responses that we received.

My first game title was *Winter Olympic Challenge* for PC and Sega Genesis in 1988, followed soon after by *Test Drive II*. I was trying to break into film and TV scoring at the time, but having a tough time because of all the

established players already in the field. It was clear that the game world had a lot of growth potential, and the machines would be continuously improving. Plus, a background in both computers and music was a big plus.

Now, I think games are definitely the place to be because we're still writing the rules, still advancing the art of it as the capabilities of the machines improve each generation.

Alistair Hirst

OMNI Interactive Audio

I started playing and doing sound in the clubs of New York City when I was 16. I moved on to doing tour productions and did sound for Air Supply, Princess Pang, Trixter and Joe Lynn Turner, to name a few. In the late '80s, I started concentrating on studio work, which brought me into game audio.

My first major title was a multi-award-winner called *Awesome Animated Monster Maker*. I went on to do numerous kid games, including CD remakes of board classics *Operation*, *Chutes and Ladders*, and a couple of *Tonka Trucks* titles, as well as *Arthur*, *Barney* and other stuff.

When I started doing sound design and music for games, we were still figuring out what file types were smallest and how to get audio to play on a CD on underpowered Macs and PCs. All of our file-compression applications were handwritten in-house by former Apple Computer employees because there wasn't anything out yet! Stereo was out of the question, and at 8-bit audio the "fizzies" on every sample became the biggest challenge, using radical EQ settings (thank you, Waves!) and audio compression to squeeze every ounce of quality from the hours of hard work. It was exciting, interesting and frustrating at the same time.

The game world has grown way beyond what any of us ever imagined. Now game audio people are pulling in big bucks, getting royalties and staging huge concert events. Where it goes from here will be interesting.

Gene Porfido



We'd like to hear from anyone who has worked in Nashville. Tell us about your most memorable Nashville session! And if you've worked in Nashville for several years, tell us about how the scene has changed. E-mail us at mixeditorial@mixonline.com.

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THE AUDIO GOODS FROM GDC 2008

The 2008 Game Developer's Conference was at the Moscone Center for the second year in a row, drawing record crowds in excess of 18,000 people. This year was packed, and all the bugs from last year's layout were ironed out. For instance, the exhibit floor in 2007 was split, but this year everyone was in the same room downstairs in the North Hall, making it easy to get around the exhibits. Eye candy abounds at GDC; there is never a shortage of dazzling visual imagery to wrap your brain around. Of course, games are only 50-percent visual (although you'd never guess by the paucity of audio exhibitors at this show) and there were some interesting aural exhibits around the floor, as well.

Audiokinetic showed its upcoming **Wwise 2008.2** re-release, which features a motion-creation tool that allows the game production team to adjust such properties as volume, pitch or LPF to fine-tune the motion effect. Any motion generated using **Wwise Motion** can be automatically created and customized for all platforms, including Windows, PlayStation3, Xbox 360 and Wii.

Other middleware companies were also on hand, with the folks from **FMOD** bringing a new version. The latest upgrade, Version 4.12, brings a lot of great new features to the table, including an interactive music engine, the ability to change the output driver at runtime, and PlayStation3 support for DTS output, oscillators and spectrum analysis.

CRI Middleware's newest employee, industry vet Thomas Miley, gave demos of **CRI Audio's** software synthesizer that supports multiple platforms. It enables the exact same sound to be reproduced on all next-gen platforms and allows in excess of 100 sounds (voices) to be played back simultaneously on the PS3.

THX showed off its slick-looking, phase-correct desktop 2.1 speaker system and Neural-THX surround technology that allows game developers to encode 5.1 content and then decode the original 5.1 mix through a Neural-THX Surround-enabled playback device.

Content providers **Killer Tracks** and **Megatrax** showed off vast collec-



tions of music that would seem to cater to any style, tempo or mood a game might call for. Both their Websites offer an easy-to-use browse and audition format, allowing you to check out their extensive catalogs.

Annosoft showed an impressive lip-sync tool that came in text-based, textless or real-time versions. It worked uncannily in a number of languages. It promises easy integration into any C++ application and gives the production team the ability to tune their application at any time for recognition speed and accuracy and application footprint.

Of course, nightlife is part of any conference or convention, and GDC was no different. The **GANG Awards** took place on Thursday, February 21, while **Tommy Tallarico's Video Games Live!** played to a sold-out crowd on Friday night at the Nob Hill Masonic Center. The **Mix** crew attended the Associated Production Music dinner at **Annabelle's**, where a large group of game composers, developers and press enjoyed the company of friends and **Bob Rice's** hospitality.

Visit www.mixonline.com/ms/gdc08 for additional GDC 2008 coverage.

TOWNHOUSE STUDIOS TO CLOSE

EQUIPMENT WILL BE SOLD AT AUCTION

By the time you read this, the **Townhouse Studios** (West London) will have closed. At press time, parent company **Sanctuary Group** announced that the facility would cease operations at the end of March 2008.

The **Sam Toyashima**-designed **Townhouse** was one of the top music studios in London from the time it was established by **Richard Branson** in 1979. The facility was home to artists including **Queen**, **Bob Dylan**, **Blur**, **Oasis**, **Elton John**, **Placebo** and many others. The first commercial studio in London to offer an SSL console, **The Townhouse** also figured in the careers of dozens of recording industry luminaries, such as **Hugh Padgham**, **Mick Glossop**, **Tony Platt** and **Nick Launay**. The **Townhouse** changed hands twice: It was sold to the **EMI Group** by **Virgin Records** in '92; the **Sanctuary Group** bought the facility from **EMI** in 2002.

Studio gear will be auctioned off by pro audio company **mjQ** (www.mjq.co.uk) in May. Sales will be conducted online and at the studio, and will probably include the facility's SSL consoles, as well as the **Pro Tools** systems, vintage tube mics and outboard, etc. A catalog will be posted on **mjQ's** site in April.

In a **Music Week** article celebrating **The Townhouse's** silver anniversary four years ago, producer **Robin Millar** said, "There are only a handful of truly great studios in the world. Those studios have turned out not just the great albums, but also the great engineers and producers. **Townhouse** is one of them, and one of the very few facilities we would honestly recommend to our own clients."

—**Barbara Schultz**



Andy Rose worked on an **Oasis DVD** in **Townhouse Studio 1** in 2001.

IN LOVING MEMORY

J. PAUL HUNTSMAN, 1953-2008

J. Paul Huntsman, a supervising sound editor who worked on films including *The Thin Red Line*, *The Illusionist* and *Stargate*, among others, died at his home on February 21 from complications resulting from a brain tumor.

Born in Idaho Falls, Idaho, Huntsman graduated from the University of Utah and later spent two years in Morocco with the Peace Corps. His first credited film in Hollywood was *Loving Couples* in 1980, followed by Michael Mann's *Thief* a year later. His final credit was *The Illusionist* in 2006. Huntsman worked for many years as a supervising sound editor at Todd-AO before moving over to Warner Bros., where he maintained a room until his passing.

Huntsman, an avid outdoorsman, represented the Sound Editorial Branch on the Board of Governors of the Academy of Motion Pictures Arts & Sciences. The family asks that donations be made in his name to the Brain Tumor Society (www.brain tumorsociety.org).



ALLEN STRANGE, 1943-2008

Composer/performer Allen Strange passed away on February 20. Considered a leading authority on analog electronic music, his *Electronic Music: Systems, Techniques and Controls* is still in demand as a comprehensive work on analog music synthesis.

In the late 1960s, Strange and his wife, Patricia, founded BIOME, a live electronic music performance, and in 1976 the Electric Weasel Ensemble with synth designer Don Buchla. He received two grants from the San Jose State University Foundation (1969 and 1974) for research into electronic music, and in 1970 became professor of music and director of the electronic music studios at the university, retiring from that position in 2002.



TANGERINE OPENS

New mastering facility Tangerine Mastering (www.tangerinemastering.com) hosted a welcome event in late January. The Weehawken, N.J.-based facility is co-owned by industry veterans Gene Holder and Roger Johansen (pictured), with Andreas K. Meyer (formerly of Sony Mastering) serving as lead mastering engineer.



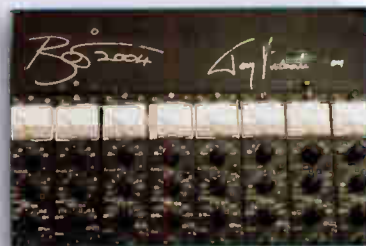
Guests at the gathering soaked up the headroom of the buzzing warren in which Tangerine is located, a creative commune with 19-foot ceilings that is also home to the Neve room HarariVille, Bar/None Records, college radio promotion company The Syndicate and many others. The crowd and networking were great, but the real treat was the John Storky-designed mastering studio, equipped with a sometimes startling equipment list that contains what Johansen describes as the "the best of analog and the best of digital." For anyone who hasn't yet been to Abbey Road, the highlight was seeing (and touching, with permission!) the console's EMI Mastering Chain, containing a TG 12412, 12413 and 12414.

—David Weiss

HELIOS' NEW HOME



Producer/mixer Clemens Schleiwiess opened his new studio, The Private Room (www.the-private-room.com), in Munich, Germany. The facility is built around a vintage 32-channel Helios console from the Hansa Studio in Berlin, where David Bowie recorded such albums as *Heroes*, *Low* and *Lodger*. Producer Tony Visconti and Bowie both signed the console when the intensive refurbishment was finished. The studio also houses a vintage Neve BCM-10 sidecar console, Studer A800 and A820 tape machines, and such vintage goodies as Telefunken Ela-M 250 and 251 mics. Monitoring is via Lipinski L-707.



Go beyond the printed page and log on to www.mixonline.com to get extra photos, text and sounds on these select articles—plus much more online:



LISTEN: "Field Test": Ableton Live 7

Heard in our sketch, along with a couple of beats played by imported REX files, are three of the instruments included in the Live 7 Suite.

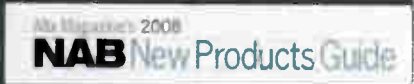
LISTEN: "Field Test": Sony PCM-D50

Barry Rudolph demonstrates this recorder with two clips of guitarist Dean Parks recorded with the mics set to the widest, and then the narrowest, position.



PLAY: NAB 2008

Mix brings you blogs, photos, video and much more—straight from the NAB showfloor. Also check out the "New Products Guide" for hot products debuting at the show.



PLAY: 2008 Grammy Awards in HD

Our special tribute site to 50 years of Grammy Awards includes videos of the production team, photos taken backstage and in the broadcast truck, and much more!



TEC SCHOLARSHIP WINNERS ANNOUNCED

The Mix Foundation for Excellence in Audio announced the recipients of its 2007 TEC Awards Scholarship Grants.

Carson Ritz is in his third year studying Audio Production at Webster University in St. Louis. His first foray into the audio world began as a kindergartener, when he recorded raps into a 2-track recorder, and he hasn't stopped since! With a GPA of 3.89, Ritz has excelled at his studies while completing a large-scale recording/producing project for a local St. Louis artist, handling the audio responsibilities for a local video company and other extracurricular activities. His dream? To become a successful music producer, but as long as he can work in audio for the rest of his life he'll be satisfied.



Carson Ritz

Golda McCormack is a student in the Clive Davis Department of Recorded Music in the Tisch School of the Arts at New York University. She is pursuing her degree in Recorded Music with an emphasis on audio engineering and music production. When McCormack isn't working on studio projects, she keeps herself busy as the co-president of the new Clive Davis Department student-run record label, 194 Recordings. Her long-term goal is to be able to work with musicians who are interested in making a difference by creating music that will educate and inspire people throughout the world.



Golda McCormack

Applications for the 2008 TEC Awards Scholarship Grant are currently being accepted. The scholarship grant(s) is offered to students currently enrolled in audio education programs. For more information, go to mixfoundation.org/hearing.html or call Karen Dunn at 925/939-6149.

DON'T MISS THE 13TH ANNUAL MIX L.A. OPEN

The 13th Annual Mix L.A. Open, sponsored by Guitar Center Professional, is quickly filling up. The May 12 event has confirmed sponsors including Absolute Music, Acme Audio, Harman Pro/JBL Professional, The Pass Studios, Record Plant, Shure and Sound Design Corporation. The Best Ball tournament promises more contests, more prizes and more fun than ever. A limited number of playing spots and sponsorships are still available. Visit mixfoundation.org/la_open/la_open.html for information or call Karen Dunn, tournament director, at 925/939-6149.

NOTES FROM THE NET

AFA Music Group's ArtistForArtist digital music label Website is now live at www.afamusic.com, providing users with music downloads, ringtones, merch and memberships to its social network. The company joins an ever-growing community of music online, with recent reportings from the RIAA showing that worldwide sales of downloaded singles grew from \$138 million in 2004 to \$580 million in 2006.



Taxi Doll, one of the many artists you'll find at afamusic.com

INTRODUCING A NEW MUSIC LIBRARY THAT'S NOT MUSIC. Sure, every cut in MODULES tells a story,¹ conveys an emotion and even features builds and climaxes. But you won't be hearing any of these tracks while on hold or on the dance floor.²

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MUSIC HAD A ONE-NIGHT STAND WITH SOUND DESIGN. AND THE CONDOM BROKE.

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1. Especially when trying to get into your pants.
2. Unless the DJ says otherwise, you're in 3/4 time.
3. From "MT Moments: We're still not talking to us."
4. "I've done our main character's 'Gotta Eat' scene 6 times the night."
5. Followed by the sound of the bullet entering your pants.

6. We are not aware of that device. And just get just byge.
7. Sound editing software.
8. "I've got some tools." But the former don't make sense, so I never knew I should use them. From accounting.
9. I've... never... really... can... but probably not in Esperanto. Or French.
10. "Supplies of... can... but... and... in the history... A... in... in... because that's... some... (yikes)"



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Wildfire Post-Production Studios

By Tom Kenny

Leslie Shatz and Chris David can admit now that when they first floated the idea of buying Wilshire Stages two years ago, the industry response was less than encouraging. It was more like, "Are you nuts? Buying a facility in L.A.? In today's cut-costs, consolidate-now economy?"

They listened to the skeptics. They did due diligence on the post-production market. And in early 2007 they purchased the four-mix-stage analog facility, renamed it Wildfire Post-Production Studios and set about updating the cosmetics and the technology backbone.

"It was a leap of faith," Shatz recalls during a break on the mix of Jeffrey Nachmanoff's *Traitor*. "But we had good timing on the price, and thankfully the writers' strike didn't seem to affect the types of projects we do. But we feel like we're in a market that has properly adjusted, with room for an independent facility and the freedom that brings a filmmaker."

To be fair, Shatz and David brought a lot of those filmmakers with them. Between the two of them, they have a combined 60 years of experience in film sound, most of it as re-recording mixers. Shatz logged many years in the San Francisco Bay Area, going back to *Apocalypse Now*, *Rumble Fish*, *Ghost* and *Dracula*, among many others. David, who has run a recording studio in Bristol, England, as a side job for 30 years, counts *Legends of the Fall* (for which he received an Academy Award nomination), *Clueless*, *Donnie Darko*, *Alexander* and many others among his films. They've worked on big-budget and quirky, comedy and action. They are owner/operators, and that might just prove to be their biggest advantage.

"We both had done a fair amount of work on these stages in their previous existence," says David, who has assumed the role of president and runs the business and technology ends of the operation. (Shatz is technically the senior VP and handles sales, marketing and "vibe.") "They needed some updating, but we both saw the possibilities. One of the first things we did was take the Series Twelve out of the C Stage and put in an SSL C300HD [pictured on this month's cover]. We know that it's going against the

mainstream here in town, but it's a straight-up digital console with great sound, and it's a workstation control surface. We work very much in both worlds, especially Leslie."

Shatz, an Academy Award-nominated sound designer and mixer, constantly moves back and forth from console to control, typically honing the dialog in Pro Tools, mixing music on the board and employing a combo of the two on effects. He bounces from an upstairs 5.1 sound design room, to premixing on the SSL, to finalizing on the Harrisons in the A or B stage. The first week, he did not like the SSL.

"I hated it!" he says with a laugh. "And now I love it! I just did the final for *Gomorra* on it. We just had to get up and running. It's very simple once you embrace the Master section. You can control such a large number of channels when you're one-man mixing, and having the automated Pro Tools software is just great. I'm using the Waves C4 for noise reduction and compression, their de-esser, [and] the Roger Nichols Uniquel-izer is great for notches. I feel completely confident when I trim parameters and work the dialog."

The other major facility improvement, in addition to the more hang-friendly cosmetics of the common areas, was the addition of digital intermediate on the B stage through a partnership with Hollywood Intermediate. The scan-effect-color grading process, used on films big and small, typically takes place at the same time as the final mix. Producers who are not on a lot can end up spending a lot of down time driving from sound to picture and back again.

"We put Barco DP90P 2k projectors in the A and B stages," David explains. "We originally thought of converting our ADR room to DI, but then we came up with the idea of making a dual-purpose mix room out of B. We now have one of the largest DI rooms in town, and in 15 minutes we

can switch from sound to picture and the producer can walk back and forth without leaving the building."

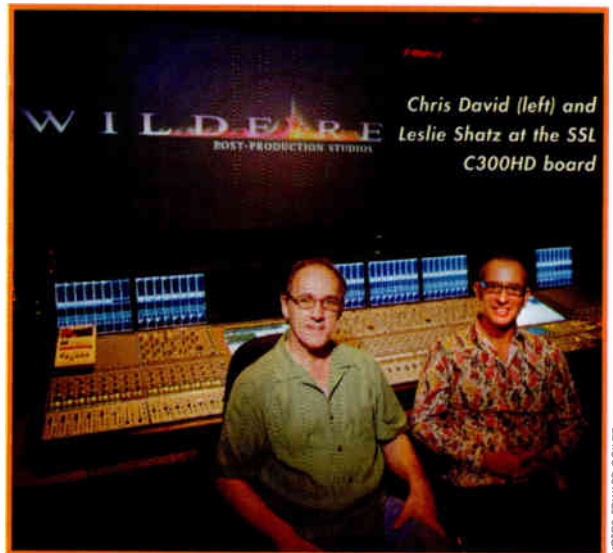
It's a good thing they didn't take down the ADR room, as mixer Eric Thompson "has been going gangbusters," Shatz says. "*Rambo* was really the first film to take advantage of all the rooms. We did the sound design, the editorial, the DI, premix, ADR, final mix. All of the rooms working. And Sylvester spent a lot of time just hanging at the facility. So it was comfortable, and the vibe was right."

Shatz and David have put together a team that includes Thompson, business manager Dan Medina and director of business development Diana Blake. The final piece of the puzzle will be to one day replace the analog Harrisons in A and B, but Shatz and David are taking "baby steps," as Shatz says, and for now there seems to be a few filmmakers who still love that warmth.

So today they can breathe a little easier. They've had a year of steady work, punctuated by a few high-profile projects (*I'm Not There*, *John Rambo*, *Juno*), and they're booked through 2008 with a slate that includes the highly anticipated *Harvey Milk* film by Gus Van Sant.

"As a mixer, I like the variety," Shatz says. "And as an owner, I like that we have all five rooms working. We're looking forward to a good year." ■

Tom Kenny is Mix's editorial director.



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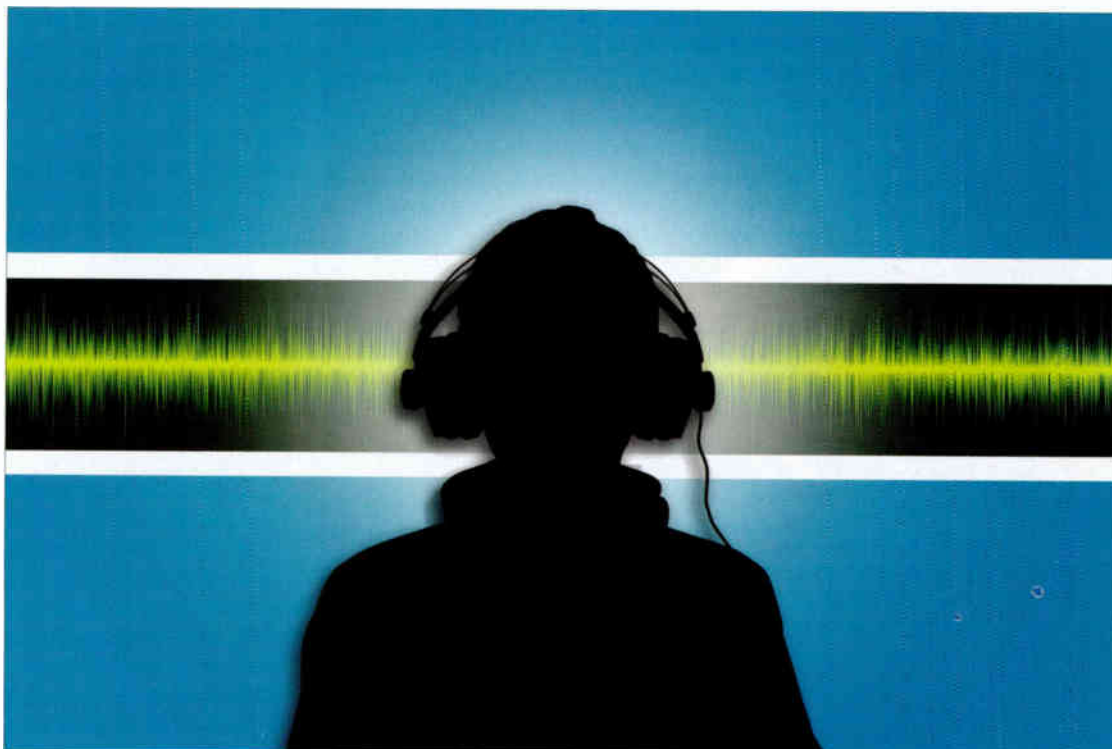
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The Emperor's New Sampling Rate

Are CDs Actually Good Enough?


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The arguments about sampling rates and word lengths in digital audio are long over with, aren't they? I mean, no less a personage than James A. "Andy" Moorer—former director of Stanford's CCRMA, co-founder of Sonic Solutions, recipient of a Lifetime Achievement Award from the AES and now senior scientist at Adobe—wrote the following in an unpublished (but oft-quoted) paper a dozen years ago: "Let us start with observations that are largely beyond question. These observations are not a subject of debate, but they beg further discussion: *Ninety-six-kHz audio universally sounds better than 48- or 44.1kHz audio*" (his emphasis). The great unwashed consumer base hasn't caught on to this because we're still waiting for that new medium to come along that will prove it to them and begin a long overdue renaissance in high-end audio, right?

Well, SACD and DVD-A have been on the scene for some time, but haven't made much of a splash in the consumer market. Direct Stream Digital (DSD) is being used quite a bit as a recording format in high-end classical and jazz circles; Telarc's doing everything in DSD these days. However, the problems of editing, processing and mixing recordings in DSD have never been solved well enough for the format to be adopted by the pop music world. Yet no matter how good they sound at the mastering level,

the truth remains: The vast majority of DSD recordings are still delivered to the public on ordinary CDs.

According to a remarkable new study, however, the failure of new audio formats—at least the ones that claim superiority thanks to higher sample rates—to succeed commercially may in reality be meaningless. The study basically says that (with apologies to Firesign Theatre) everything you, I, Moorer and everyone else know about how much better high-sample-rate audio sounds is wrong.

The study was published in this past September's *Journal of the Audio Engineering Society* under the title "Audibility of a CD-Standard A/D/A Loop Inserted Into High-Resolution Audio Playback." The study blew me away for a number of reasons. One is that it was almost identical to a study I proposed some years ago at the school where I was teaching, but it never got past the proposal stage. Second, the two authors of the study, David Moran and Brad Meyer, happen to be people whom I've known for several decades (we were all part of the crew covering audio and other technologies at *The Boston Phoenix* when I was starting out as a writer), but I had little idea what they were up to these days.

The main reason it knocked the wind out of me was its conclusions. It was designed to show whether real people, with good ears, can hear any differences between "high-

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resolution" audio and the 44.1kHz/16-bit CD standard. And the answer Moran and Meyer came up with, after hundreds of trials with dozens of subjects using four different top-tier systems playing a wide variety of music, is, "No, they can't."

THE TRIAL

The experiment was wonderfully simple: The authors set up a double-blind comparison system in which one position played high-end SACDs and DVD-As through state-of-the-art preamps, power amps and speakers. At the other position, the output from the SACD player was first passed through the AD/DA converters of an HHB CD recorder and then through the same signal chain. The levels of the two sides were matched to within 0.1 dB, with the amplifier doing the matching in series with the CD recorder so no one could claim that it degraded the SACD signal. The test subjects used an "A/B/X" comparator to switch the signals, meaning that in some of the tests, when the subjects hit the Change button they didn't know if the signal actually changed.

There were 60 subjects, almost all of whom were people who know how to listen to recorded music: recording professionals,

nonprofessional audiophiles and college students in a well-regarded recording program. In all, there were 554 trials during a period of a year. The experiment was done on four different systems, all employing high-end components and all in very quiet rooms designed for listening in both private homes and pro facilities. All subjects were given brief hearing tests to determine their response to signals above 15 kHz. That data, as well as the subject's gender and professional experience, was tabulated with the results.

MAY I HAVE THE ENVELOPE, PLEASE?

The number of times out of 554 that the listeners correctly identified which system was which was 276, or 49.82 percent—exactly the same thing that would have happened if they had based their responses on flipping a coin. Audiophiles and working engineers did slightly better, or 52.7-percent correct, while those who could hear above 15 kHz actually did worse, or 45.3 percent. Women, who were involved in less than 10 percent of the trials, did relatively poorly, getting just 37.5-percent right.

So how did the audio community respond to this? Meyer tells me that he got a

lot of "thank you" and "it's about time" responses. He also says that the article passed through the *Journal's* rigorous review process without any argument. But some loud screams were heard from various members in the audio-tweak community, and a number of heated and sometimes nasty flame wars erupted on several audio forums within hours of the article's release—many of them started by people who hadn't bothered to read it first.

Most of the objections were based on the fact that the authors didn't include in their paper the list of equipment and recordings that they used. Meyer explains that part of that reason was to keep the article from getting too long. But anyone familiar with the type of debate that often occurs in tweak circles knows that had the authors been specific about the components, they would have immediately been attacked on the basis that their equipment was, *of course*, inferior to what they *should* have used, and so, *of course* no one would hear any difference.

In fact, Meyer and Moran posted all the information about the signal chains and the source material within a couple of weeks of the article's publication on the Website of the Boston Audio Society, a venerable

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37-year-old, independent non-profit organization, in which both authors have long been active. The equipment list included amplifiers from high-end manufacturers like Adcom, Carver, Sim Audio and Stage Accompany, and speakers from Snell and Bag End, as well as the oft-worshipped Quad ESL-989 electrostatics, which are supposed to have usable response up to 23 kHz—which is, of course, above the Nyquist frequency of the HHB recorder's converters. The subjects listened to discs that covered a wide range of material and included classical instrumental, choral, jazz,

rock and pop, from audiophile labels like Mobile Fidelity, Telarc and Chesky.

So the objectors really didn't have much to object to. But if you think about it, the exact equipment list is largely irrelevant. If you assume the equipment, the listening environment and the listeners' critical faculties are all at least good, then what's most amazing about their findings is that the results were always the same, no matter what equipment they used or who was listening to it or what they were listening to. Not one listener, under any circumstances, could consistently distinguish between high-reso-

lution audio that was passed through the 44.1kHz/16-bit CD "bottleneck" and audio that wasn't.

Does this mean that someone else couldn't do a similar experiment and end up with different results? Not at all—and Meyer and Moran are urging others to do just that. After all, this is what the scientific method is all about: If your experiment comes up with a certain result, then by publishing it you are inviting the rest of the world to copy (or expand on) what you've done and to see if their results agree or disagree with yours. I would love to see this experiment duplicated often, and I would be delighted to see someone come up with different results.

WHAT'S GOIN' ON?

But wait a minute—haven't we all heard the superiority of high-sample-rate audio? Leaving the tweak-heads aside, there are a huge number of people in this field for whom I have real respect—Moorer among them—who have experienced high-sample-rate audio to sound more "spacious" or "detailed" or "enveloping." You might even be one of them.

As it happens, I'm not, which is not to say I think everyone else is full of beans; I've just never experienced it in an environment that I feel was controlled enough for me to be comfortable making that kind of judgment. It's not that I'm lazy: As Meyer and Moran realized, setting up a test that could really be considered objective is not trivial. Even if I were the sole subject of the test, I'd still want lots of time, multiple music sources, incontrovertibly great equipment, an excellent level-matching system and a very quiet (and consistent) room.

I have had one experience that came close to this, but the result was inconclusive. At the press roll-out a dozen years ago of DSD at Sony's studios in New York, a group of audio writers got a demonstration of how the new system compared with a 20-bit PCM digital stream, as well as with a direct analog feed from a live band in the studio. I could hear some differences. Yet how to describe them—or whether I would hear them again in another time and place—I couldn't tell you. I did, however, mention a preference at the session for the way instrument decays sounded in PCM, to which David Smith (R.I.P.) replied, "We've heard that from others. In fact, you'd be very flattered if you knew who else said that same thing." What the significance of that was, I guess I'll never know, but it didn't seem to get in the way of DSD ending up with plenty of fans among the recording community.

But *something* is causing people to say

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they are hearing differences. If a double-blind test can't confirm those differences, then what's going on? For one possible reason, let's go back to Moorer's paper that I quoted earlier (called "New Audio Formats: A Time of Change and a Time of Opportunity," which can be found on his Website, www.jamminpower.com). Later in the paper, Moorer noted that humans can distinguish time delays—when they involve the difference between their two ears—of 15 ms or less. Do the math, and you can see that while the sampling interval at 48 kHz is longer than 15 μ s, the sampling interval at 96 kHz is shorter. Therefore, he says, we prefer higher sampling rates because "probably [my emphasis] some kind of time-domain resolution between the left- and right-ear signals is more accurately preserved at 96 kHz." It's an interesting starting point for a discussion, but to my knowledge it's never gotten past that point—as a theory, it has never been expanded upon or tested. And judging from the results of Meyer and Moran's experiment, it doesn't seem to be a factor.

Some folks think it's all simply wishful thinking on everybody's part: The system costs more and has better specs; therefore, we make ourselves believe it sounds better. There's something to that reasoning. Humans are a notoriously imperfect lot and tend to see and hear what we want to hear. Another very plausible reason is something that the authors discovered in their research. Despite the fact that no one could hear the difference in playback systems, they reported that "virtually all of the SACD and DVD-A recordings sounded better than most CDs—sometimes much better." As it wasn't the technology itself that was responsible for this, what was? The authors' conclusion is because they are simply engineered better. Because high-end recordings are a niche market, "Engineers and producers are being given the freedom to produce recordings that sound as good as they can make them, without having to compress or equalize the signal to suit lesser systems and casual listening conditions. These recordings seem to have been made with great care and manifest affection by engineers trying to please themselves and their peers."

WAIT, THERE'S MORE!

But there's one more reason worth examining, among whose proponents is Ethan Winer—a musician, engineer, studio owner, manufacturer and iconoclast who's been in the recording business for some 40 years—who is definitely of the "show-me"

school of audio theory and is an outspoken critic of "subjectivism"—that school of thought that encourages people to discuss the performance of audio components and systems using vaguely definable and often irrelevant adjectives instead of hard data. Winer's company, RealTraps, manufactures modestly priced acoustic treatment products for studios, so it's not surprising that he contends that anomalies caused by the listening space and our place in it far outweigh any possible subtleties we might be picking up when we change sample rates.

In an article on his Website (www.ethanwiner.com), Winer points out that in a typical room, moving one's head or listening position as little as four inches can result in huge changes in the frequency-response curves one is hearing. What could be a 10dB dip in one spot at one frequency could be a 6dB boost a couple of inches away. These wide variations are caused primarily by comb-filtering effects from the speakers and from the various reflections bouncing around the room, which are present no matter how well the room is acoustically treated. Winer blames this phenomenon for most of the unquantifiable differences people report hearing when they are testing high-end gear.

He writes, "I am convinced that comb filtering is at the root of people reporting a change in the sound of cables and electronics, even when no significant change is likely. If someone listens to their system using one pair of cables, then gets up and switches cables and sits down again, the frequency response heard is sure to be very different because it's impossible to sit down again in exactly the same place. So the sound really did change, but probably not because the cables sound different!"

The test subjects in the Meyer/Moran experiment didn't get up and move around, and so the fact that they couldn't discern any differences in the two signal paths fits nicely into Winer's theory. In fact, his response when I sent him the article was, "Nothing in here surprises me."

Am I sure that Winer is right? No, although I think he's onto something, the way I think Moorer's thoughts about microscopic phase differences may be important in some way we haven't yet figured out. But I am delighted to read Meyer and Moran's paper for two reasons: It confirms something I've long suspected and it throws down the gauntlet for further research to be done. ■

Paul D. Lehrman doesn't have much frequency response above 10 kHz, but considers himself more aware than ever.



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New York's Met In HD

BY GARY ESKOW

Coloratura performances might not have changed much since Mozart's time, but the opera experience itself is certainly going through a profound sea change. Technological advances have allowed operas to be broadcast on PBS and other outlets in high def and surround, and this season the Metropolitan Opera is also showing eight of its productions live in theaters across the world in HD. It's the latest and boldest step in what has been a long evolution for opera on television.

For more than 25 years, Jay David Saks has been involved in the tech end of the Met's broadcasts, first as engineer, then audio producer. Once an aspiring conductor, Saks got involved in producing classical and Broadway cast albums (and has earned nine Grammy Awards in the process) while working with the Met on the side; when the company's musical director, James Levine, became dissatisfied with the quality of the Met's famous Saturday radio

Opera Hits A High Note With High-Tech Broadcasts

broadcasts, he brought in Saks to handle music production. Untrained as an engineer, Saks developed his technique as a mixer under fire. "I decided that I wanted to mix live myself rather than work with an engineer at the board," he says. "At that time, there was no post-production at all." Saks mixes from a permanent control room at the Met with a large window that provides a clear view of the entire stage. "This is extremely useful for opera, where singers constantly move about the stage.

"I used to mix a lot of my recordings back in the 1980s; and even today, when I'm working in post with Ken Hahn at Sync Sound, I function as a co-mixer," he adds. The Met records dress rehearsals and the live broadcasts of all its HD transmissions, and repurposes material culled from these performances for later television replay on PBS and DVD release.

"We do post-production on all of the HD shows, and the audio work is executed at Sync Sound, my home away from home

for the last 20 or 25 years," Saks says. "The original HD shows themselves are live. Whatever happens—missed notes, mix or video mistakes, warts and all—that's how it goes out. When we're working in post, though, we have options. If the soprano missed a high C but nailed it in rehearsal, we'll insert the good take to fix the spot."

At the most recent AES show, Saks and several Met engineers looked for a digital console to replace their aging Studer board. "Recall was never that critical to our process



PHOTO: KEN HOWARD/METROPOLITAN OPERA

Sync Sound's Ken Hahn (right) and the Met's Jay David Saks

Met Opera general manager Peter Gelb (right) looks on in the control room





A scene from Gounod's *Roméo et Juliette*, one of many Metropolitan Opera performances broadcast in HD

when we were simply broadcasting live on Saturdays. These days, we have multiple productions alternating at the same time. We're constantly juggling; sometimes we'll rehearse a show two weeks before its production. And as time goes on, our productions have gotten more and more complicated. They require more microphones and other resources—including reverb—and we find ourselves writing down dozens of notes, drowning in millions of tape strips telling us where the trims, EQ and reverb settings are."

Wait, did Saks just say that the Met uses reverb in its broadcasts? What would Mozart say? "Here's the thing: For all those years before I got here," Saks replies, "the broadcasts sounded dry and constricted because the house—while a comfortable listening environment when you're sitting there experiencing a production—yields a dry recorded sound. I use fairly close-miking, along with more distant miking, and without reverb the sound is simply not right and surprisingly doesn't sound the way it actually does live. From the beginning, I started using reverb, even though we only had a spring chamber in the early days!

"After the first season or two, we got a

digital reverb," he continues. "We're currently using a Lexicon 480L. I try to make reverb sound like it isn't artificial. I also use compression, filtering and EQ—anything to re-create in someone's mind the sense that they're experiencing an excellent live performance. The irony is, to do that I have to use these processing tools!

"There's a big difference between recording an opera and an orchestral concert. When one records an orchestra in a concert hall, you're able to pretty much place microphones wherever you need to. But opera is a visual art, so I don't have the freedom to hang a tree or place microphones on stands where they'd be in full view of audiences both in the opera house and in HD. As a result, all of my miking is either too close to the orchestra or too far away from them, and usually not in ideal locations. Same goes for the singers. If I were making a recording of an opera, I'd mike completely differently."

Surround sound has had no impact on the Met's live radio broadcasts. "We're still working in stereo," Saks says. "However, for HD transmissions I can't handle both stereo and 5.1 simultaneously, and the Met doesn't want someone else doing a separate

surround mix. Our live stereo mix signal is fed to a truck sitting out on Amsterdam Avenue. The guys in the truck use Dolby to up-convert to a 5.1 stream. Prior to our first HD transmission last season, I went down to Dolby with samples of Met stereo broadcast recordings, and we very carefully set the parameters that would work best. We then went over to Digital Cinema, Sync Sound's cinema studio, to verify the quality of the signal. Ken Hunold, a Dolby employee, sits in the truck on Amsterdam and checks the up-conversion in real time. Ken brings the converter box, and our production mixer, Tom Holmes, sits with him. In preparation of the post work to come, we use David Hewitt's multitrack truck. David records everything to Pro Tools."

Once the elements of a show—including intermission interviews, PBS fund pitches and other ancillary material, in addition to the multitrack—have been assembled, Saks moves over to Sync Sound. "I start out editing with John Bowen fixing music and performance errors and making inserts. We might spend just a day on a show, or could go up to three on this part of the process. Then I move over to another room to work

with Ken. Over the years, the Met's productions have become more complicated, and I'll know that there are spots that need additional work. Ken and I often work for three or four days together.

"Once the stereo mix is completed, we'll make a real discrete 5.1 mix, not an up-converted one, mostly for DVD release, PBS broadcast and archival purposes. On occasion though, we will just up-convert the stereo version. The technical complexity of the production's recording is a factor. We always ask ourselves if a 5.1 mix built from the stems and tracks will really yield a product superior to an up-conversion. If we're convinced that it's worth the time, we'll go ahead and make the 5.1 ourselves. As far as the theatrical broadcasts, I have to say that we've gotten great response to the up-conversion, even from audio pros."

Delays are an unavoidable part of the live-transmission process. The task of minimizing any disjunction between the audio and video streams falls to Mark Schubin, who holds the title of engineer in charge, Media Department at the Met.

"There are several issues to consider," says Schubin. "The first is not transmission-

related; it's based on the way theaters are constructed. Every loudspeaker you see in a theater carries surround material; the left, center and right speakers are all behind the screen. In a theater, the audience hears the bulk of the surround sound coming from in front of them. In the home, the majority of the surround information comes from speakers in the rear. Jay has to construct his 5.1 post mixes keeping this distinction in mind.

"Time delays are interesting from two standpoints. First is absolute time delay itself. We distribute our surround sound via AC3 encoding. AC3 has a significant delay on the order of six television frames for the encoder and one more for the decoder. That would be an absolute nightmare were it not for the fact that video encoding and decoding takes even longer! We can dial in the specific delay we want for the audio, and to make sure that everyone gets it right we do extensive lip syncing prior to a show so that the theaters can adjust the audio and video streams. For two hours we send out signals.

"The second issue is a bit trickier. It involves the way human beings establish an audio perspective. The speed of sound is

roughly 1,100 feet per second. At that rate, 37 feet is one television frame in the U.S., more or less. If a singer is standing 37 feet back from the lip of the stage, where Jay has established his microphones, the singer's sound will, therefore, be one frame late. In a theater, someone might be sitting 37 feet from the screen as well, adding another frame of delay.

"This isn't necessarily a problem, though—at least not yet. In television, a lot depends on what the director is doing. If he or she is showing a wide shot, no sweat—the audience expects the sound to be delayed. If a close up is being presented, however, there can be a problem: I'm seeing a big face and my brain says that it should be accompanied by immediate sound. We get the occasional complaint that lip sync has changed during the transmission of a show. That hasn't happened; there's really just been the introduction of an acoustic perception issue. There's not much we can do, though, and by and large the audiences have been happy with the link we've created between the audio and video that we deliver." ■

Gary Eskow is a Mix contributing writer.



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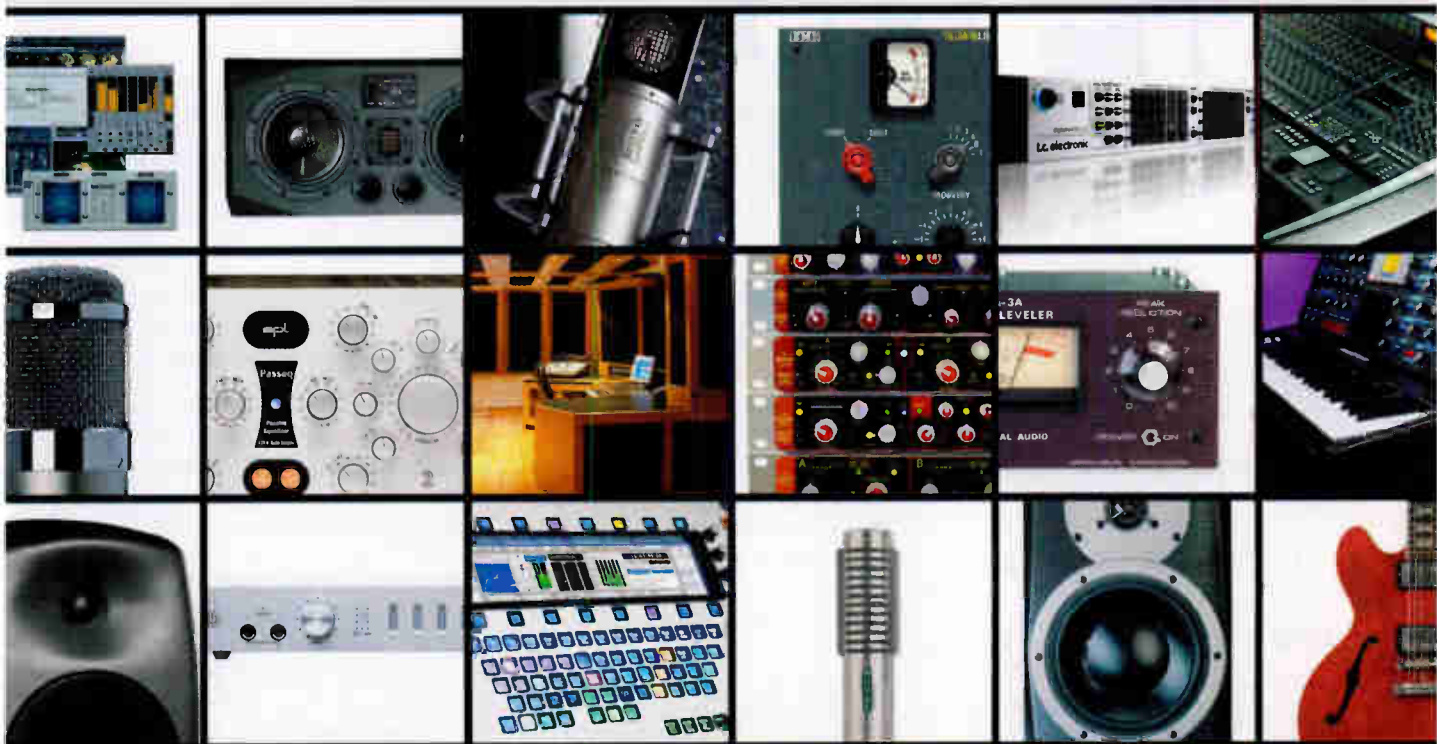
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MAKING The HD TRANSITION

With the Coming
DTV Changeover,
Facilities Take a
Systems Approach
To Upgrades

It's a safe bet that every broadcaster, network and facility manager across America has February 17 circled in red on their 2009 calendars. And as that D-Day approaches for the mandated analog-to-digital television transition, there's a lot of retrofitting, rebuilding and renovation going on. That part is hardly news to folks in the industry—the confusion that kicks in that day among average Joe/Jill consumers will be the real scary part, but that's another story.

In addition to offering the improved resolution, channel selection and full-on surround capabilities that DTV provides to end-users, the upcoming changeover gives broadcasters and content producers a good excuse to upgrade their facilities. The key here is not simply a transmitter revamp, but examining every aspect of the production/transmission chain. And this extends not only to cameras, monitors, switchers and mixers, but also to the system's entire backbone—routers, servers, storage, archives, hubs, communications, acoustics, lighting, floor plans, etc.

We spoke to integrators from three facilities in the process of their HD/DTV upgrade. All embrace the bump to higher-resolution

HD programming, but they also see this as a chance to provide more ergonomic workflows with the added benefit of greater reliability and faster production. These facilities—the Trinity Broadcast Network, World Wrestling Entertainment and WGBH Boston—serve highly divergent audiences, but all share a common zeal for production excellence. Analog or digital, some things never change.

TRINITY BROADCASTING NETWORK

Based in Southern California, TV Magic is a broadcast and A/V systems integrator and engineering company founded nearly two decades ago. TV Magic has completed some 200 projects during that time, ranging from the CBS Studio Center production truck to a full HD production infrastructure for the Crystal Cathedral Ministries' *Hour of Power* program.

Featured on more than 5,000 television stations, 33 satellites, the Internet and thousands of cable systems, the Trinity Broadcasting Network (TBN) is the world's largest Christian TV network. Two years ago, TBN asked TV Magic to design a flexible, automated master control system supporting five DTV channels, and install that system across 32 of the network's affiliate stations throughout the United States. Having completed that, TV Magic is now implementing a full redesign of TBN's facility operations center in Tustin, Calif. That complex has five studios and does audio sweetening and post-production, but "the audio control is about 20 years old—all analog—and limited as to what it can do," says TV Magic design engineer Craig Claytor.

Main control room at WWE TV Production; photo at right shows one of WWE TV's new HD-equipped production trucks.

PHOTOS: © 2008 WORLD WRESTLING ENTERTAINMENT, INC.





Audio control at TBN's Costa Mesa facility

PHOTO: BRAD OLANDER

"We designed a new state-of-the-art facility for TBN in Costa Mesa [near Tustin] that's all HD," he continues. "It also has a huge live audience facility that's also all-HD, with an SSL C200 in it. They've pretty much standardized on that mixer and put them into their facilities in New York and Dallas. So essentially we're doing the same thing in Tustin, bringing that facility up to date."

Still under construction, the Tustin facility is slated to be completed in early summer 2008 and is expected to mirror many of the approaches that were successful in other TBN installs. The acoustician is Carl Yancha (who also did the Costa Mesa facility), and surround monitoring is via Klein & Hummel.

With a variety of programming and project needs, one of TBN's considerations was versatility. "We're using the SSL's Stage Boxes in the studios as a fiber interface into the mainframe so they can put two Stage Boxes into each of the studios, with 48 mics from each—up to 96 mic feeds total, plus about 40 returns and GPI for control," Claytor explains. "They're mounted in roll-around cases so they can easily be moved from studio to studio. For redundancy, there's copper wiring as a backup, as well as a smaller Yamaha DM2000 mixer, in a second control room, which is used for simultaneous shows in two different studios or to serve as a backup."

Both rooms are fed from a router. "We use a lot of MADI interfacing to feed the AES/EBU back and forth within the facility. MADI is nice, handling 64 channels on a single cable. In a large, stretched-out facility where the cable conduits are already mostly full, MADI

allows us to do things we couldn't do otherwise," says Claytor. In terms of longer-distance file exchanges, "We also have a DigiDelivery system for moving Pro Tools files from facility to facility. With studios in New York, Atlanta, Nashville, Dallas, Costa Mesa and Tustin, there will be a lot of file transfers."

With TV Magic's proven track record, there are always nuances and lessons to be learned. "One thing that's been an issue in all facilities is maintaining lip-sync with the video," Claytor continues. "Whenever you process the video or route it to a different machine, you stand a chance of losing sync. Multiple delays often occur in video equipment, so it's absolutely necessary to have an audio delay line with each piece of video gear, every time we up- or down-convert. It's less of a problem with embedded audio, especially when the metadata is there, as well."

There are other less-obvious, but still important aspects to maintaining A/V synchronization. "All the video monitors in the audio studios have to be HD-capable," Claytor warns. "When viewing an analog monitor that's been down-converted, you could be seeing a lip-sync issue that's not really there, with two or three frames of delay. A lot of thought needs to be put into that process."

WORLD WRESTLING ENTERTAINMENT

For nearly a quarter-century, World Wrestling Entertainment (WWE) has attracted a tremendous, global audience. WWE's flagship television programs include *Monday Night RAW* on the USA Network and *SmackDown* on UPN—both top-rated shows.

The company recently began a \$20-million transition to HD, including two new state-of-the-art production trucks and HD file-based workflow and systems upgrades to its WWE TV Production facilities at its headquarters in Stamford, Conn. As part of the transition, WWE signed a \$12-million deal for a Thomson server-based HD production and distribution workflow that includes services from Thomson, along with a Nesbit Systems media asset-management (MAM) system.

"It's been a huge upgrade over the past year," says director of audio post-production Chris Argento, a 13-year veteran at WWE. "We've secured a Grass Valley K2 server, and our NLE (non-linear editing) has gone to the Grass Valley Aurora systems. These are complemented by Final Cut Pro. When we moved to HD, we put in the K2 server, which I believe is one of the largest in the world."

WWE's HD digital production system will have 16 HD ingest channels and a minimum capacity of 2,000 usable hours of HD with 15,000 hours of online disk base proxy storage. The system is designed to support 200 named users and 50 simultaneous users, 20 full-resolution viewing seats and 36 full-featured multistream NLEs.

Unfortunately, with a constantly busy schedule, there simply isn't time to shut down during renovations—certainly a problem shared by other facilities. "The HD video has been an enormous upgrade, especially considering the throughput we're keeping up with every week from our two new trucks in the field," Argento adds.

But with all the attention to HD picture,

the audio side hasn't been ignored. "In terms of audio, we're moving OMF files from the Auroras and the Final Cut Pros. Right now, we're working with proxy video in SD, but we'll be moving to HD once we upgrade our Fairlight systems to the Crystal Core technology. Currently, we're working on the QDC machines, which have been rock-solid for years, but Fairlight's Crystal Core has embedded Picture Track, with full HD video right on the audio timeline."

Most of the audio flow at the WWE TV Production complex involves audio post-

sweetening and sound editing for shows, and sound design for what seems to be an unending string of promos and spot campaigns. "We're working on Fairlights and mixing on Euphonix System 5s—in fact, our third System 5 comes online in a couple weeks. They're great desks—the speed factor is awesome and the automation is phenomenal. It's not a desk-top, mixing-in-the-box setup, but it's worked out pretty well," says Argento. "In terms of archiving effects, with Fairlight's AudioBase it's been incredibly easy to keep track of everything. We also have an mSoft server, which

keeps all our generic effects libraries—Sound Ideas, DigiFfx and such. We do a lot of last-minute promos right before airing, and it's easy to find what we need in a hurry."

In terms of the transition to surround sound, Argento is more concerned about making it happen correctly rather than quickly. "We're delivering in stereo now, but we've been building up our crowd libraries in 5.1, from hanging surround mics in the arenas. No crowd sounds quite like a wrestling crowd!"

"In the next six to eight months," he adds, "I'm looking to take the program to full 5.1, but now we're still doing stereo. We don't have a set timetable or schedule for moving to full 5.1 production. Digital TV does not require 5.1, although it enables you to do that. We want to make sure that when we go to 5.1, it's good and isn't just gratuitous so we can say we have six channels. And we're going to be less static than most other people have done. We're not simply going to throw ambience into the rear channels; ours will be dynamic. When we do things here, we really do it. We like to do things big."

WGBH BOSTON

Having offered systems integration, design and consultancy services to top-drawer clients such as Viacom, *Saturday Night Live*, CNBC, CNN and Fox News over the past two decades, New Jersey-based The Systems Group was an excellent choice to handle design of the all-new WGBH Foundation production and post operations.

Completed this past October, the WGBH project included at least six rooms equipped for HD surround mixing and sound for HD picture. With two audio control rooms in the radio area and two audio post rooms, two audio production control rooms for TV and 30 to 40 Avid systems, it's hardly your typical public broadcasting facility, according to TSG's VP of engineering and technology, Scott Griffin, who leads TSG's engineering and consulting team.


"What they call 'FM One' is a full-scale, large recording studio," notes Griffin. "It's based on an SSL C200 digital console. The rooms are all acoustically designed by Janson Design Group and the surround audio throughout the plant is all Dolby-E-encoded. Uncompressed audio between Avid-and-Avid and Avid-to-Pro Tools is handled as OMF files. In the radio environment, files are sent to Broadcast Electronics' AudioVAULT, with trading of WAV and BWF files between the two sides of the building, as well."

As in any large facility, efficient file exchange is critical. "We migrated them to a large Grass Valley K2 play-to-air server and

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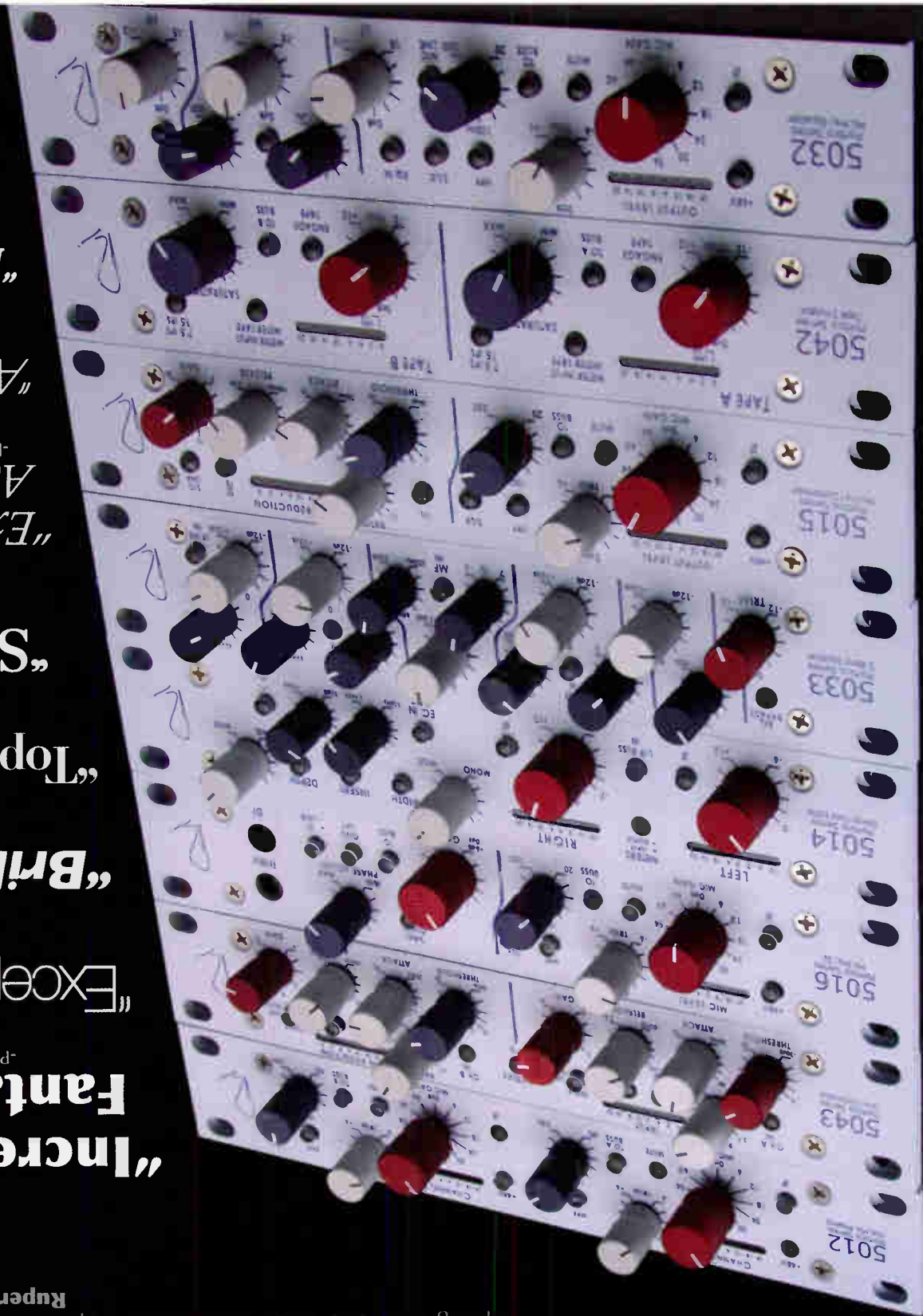
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they have some legacy Grass Valley units used for play-to-production," Griffin says. "Using universal interface modules, they are actually moving video files from the individual Avid suites into the recording/production server. There are also a number of Avid Unity servers that different workgroups use, and several stand-alone systems, where files are simply sneaker-netted. We made sure that every Avid workstation had a network connection to a SAN or to the production servers for FTP'ing files from the north post-production building across fiber connections to the south production building, which has the TV Air and Radio Air rooms."

Yet even with major upgrades, there are still small snags that can crop up and wreak havoc with the audio. "Even in some of the newer DTV stations, the surround environment in master control is iffy. Time and time again, my guys are amazed that master switcher manufacturers aren't putting more control options into their monitoring sections, so you could actually hear what's coming out and what's coming off-air," Griffin warns.

"I want to see what it sounds like in surround or in stereo, or how it sounds in



PHOTO: ANDY WASHNIK

Radio control room A at WGBH Boston has an SSL C200 console.

mono," he continues. "All public broadcasters have a wealth of surround and HD programming, and there are many master control rooms that aren't equipped to monitor problems like phase cancellation or indicate when channels aren't where they're supposed to be. Even if there's something as simple as a phase flop, there's no way to tell."

Another issue that needs more attention is "the interface between the automation systems and the traffic systems, and how things are handled in the surround environment," Griffin adds. "This includes the whole inter-

play of the BFX standard and how it would handle switching between a 2.0 source on one program segment and a surround source on the next. Right now, we're a year away from everybody having DTV; will that set-top box be switching correctly to match the format of the program coming in? The BFX standard is in development right now, and a lot of the automation and traffic vendors are developing on it, but the fruits of those labors are yet to be fully realized." ■

George Petersen is Mix's executive editor.



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Justin Timberlake

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Re-Creating a Concert in the Round in High-Def Surround

Kevin Antunes, Timberlake's longtime musical director

BY JANICE BROWN

Last year, Justin Timberlake worked out a diverse repertoire to perform along with the densely layered songs on his latest album, *FutureSex/LoveSounds*, live on tour. With longtime collaborator and musical director Kevin Antunes, Timberlake developed a "theater-in-the-round" live production that immersed his arena audiences in *FutureSex*-style surround sound. In September, HBO brought this concert into living rooms, broadcasting Timberlake's August 16 New York City Madison Square Garden show in high-definition and Dolby Surround.

Timberlake and Antunes developed the *FutureSex/LoveShow* as a surround sound experience from the start. "When I first met with Justin to write this concert, he knew he wanted to do a theater-in-the-round

show, one that brings the whole crowd together as if they were coming into his living room," Antunes describes. "At that point, we decided to set up the arena with four designated speaker outputs and subs, and design the show—with Andy Meyer at front of house—to be mixed in surround sound."

Antunes programmed the show in MOTU Digital Performer, incorporating sounds from the album multitracks for output to samplers onstage, and developing surround sound design elements inspired by the stage setup and the show's strong visual content. The speaker arrays were hung out over the four corners of the stage and acted as the surrounds for Antunes' sound design. "Right from the top of the concert, at the start of the song 'Fu-

tureSex/LoveSound,' you hear the words 'future,' 'sex,' 'love' and 'sound,' which I'd cut up and assigned each to speakers one through four, and then set to alternate between the different speakers," Antunes explains. "I put stutter and echo effects on each word, and programmed the SMPTE code with our lighting designer, so as it would hit each speaker the crowd would be lit up in that area."

Throughout the show, Antunes' surround sound design accented the integrated video and lighting design, and often served to segue between songs to keep the show's nightclub pace. "At the end of one song, there was this whole twisted, Salvador Dali-style grandfather clock ticking at the song's tempo and then slowing down," he explains. "Then, a kind of stopwatch



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ticking counterclockwise around the arena, one speaker at a time, and then the grandfather clock hitting each discrete speaker with the lights by section again."

In pre-tour rehearsals, Timberlake, Antunes and Meyer worked out the most effective spread for all of the show's audio stimulants, starting with Timberlake and his 11-piece band and backup singers. Meyer mixed on a Digidesign VENUE with 96 inputs; a minimum of 86 inputs were going at any given time. "During rehearsals and later in soundcheck, Justin would sit with me, and because it was a recallable console he'd actually move the faders to show me what he was feeling," says Meyer. "Obviously, he has the best understanding of the music, but he also really gets how it represents in the P.A. He'd turn up a drum loop and turn down the snare because he thought it felt better, and it did. He knows what he hears and what he wants, and he's always right when he makes changes."

Sealing the deal for an HBO special at the outset of the tour, Timberlake saw the opportunity to create a unique experience for HDTV and DVD, pulling at-home viewers into the show by immersing them in the rush and roar of the crowd, with the dynamic sights and sounds in high definition. "The people at HBO believed in Justin's ability and his musical vision for this 'in-the-round' live mix that we could re-create in 5.1 surround in the studio," Antunes notes. "HBO and the director, Marty Callner, were totally behind him all the way. When Marty saw what Andy was doing at FOH and when they found out we were getting Jay Vicari onboard, they had no doubts about it."

It was an HBO concert reunion for Timberlake, Antunes and Vicari, as well as Callner and producer Randall Gladstein, who'd all worked together on the 2000 HBO broadcast of *NSYNC at MSG. An independent audio engineer who mixes the musical performances on *Saturday Night Live*, and that of many a 5.1 awards-show broadcast with the XM Productions/Effanel Music team, Vicari tracked the FutureSex/LoveShow on August 16 from Effanel's ICON-equipped L7 truck outside the venue. With 102 tracks traveling via fiber to dual Pro Tools HD6 rigs inside the truck, Vicari and co-pilot Joel Singer got a live stereo mix going on the ICON D-Control.

To suit the arena setup and capture the audience and room in a way that would translate in the 5.1 television mix, Vicari notes, "We miked the whole arena to capture that 'in-the-round' feeling. We set up audience mics at far-front, far-rear and two sets in



XM/Effanel Studios' chief engineer, Rob Macomber

the middle, halfway back from the stage."

While the production moved to the Canadian leg of the tour, Vicari brought the tracks back to XM Productions/Effanel Music's Studio A at Jazz at Lincoln Center (New York City), and began assembling the 5.1 mix. After a few days, Timberlake, Antunes and Meyer flew back down between shows to work with Vicari and co-mixer/editor Rob Macomber, chief engineer at XM/Effanel Studios.

As with the live sound design, Timberlake was extremely hands-on in the 5.1 mixing process. "By the time I inherited this project, everybody had a real good idea of what they wanted to do," says Vicari. "We were going full-on 5.1, so I set up and pre-built everything on the console so that we could make anyone's 5.1 ideas happen in a split-second." They mixed off of a 48-channel D-Control on a Pro Tools HD6 Accel system, and monitored on five ADAM S4A monitors with four Sub10 subwoofers. A stereo mix was simultaneously created with 5.1 monitoring through the Waves M360 Surround Mixdown.

The in-the-round arena show, with all of its swirling effects and sound design, translated successfully to 5.1 surround, though the process to get it there was far from seamless. In total, this session spanned seven days, three of which Vicari and Macomber spent solo. "We did this as one long-form session that was automated from beginning to end," says Macomber. "When Justin, Kevin and

Andy got here, we started at the beginning and worked our way to the end over just a few days."

Having Timberlake, Meyer and Antunes in the studio eliminated a lot of guesswork. Macomber notes, "A lot of the mixing, in terms of balances on particular songs, were really driven by Justin because he knows what he wants to hear and at what levels. Also, with the complexity of this session and the time limitations, it was invaluable to have Andy Meyer there telling us what he'd been doing and using on the VENUE. In a lot of cases, we were able to get the exact same sounds using the same processors." They used Meyer's settings in Line 6 Amp Farm on Timberlake's vocal on "Sexy Back," for example, and his settings in Trillium Labs' TL EveryPhase on his vocal for "FutureSex/LoveSound."

The ultimate success of the 5.1 mix for HBO hinged on how close the team could get to re-creating the "FutureSex/LoveShow" experience for a living-room audience. "Our goal was not to produce a pristine mix," Vicari points out. "And though the parts were there through Kevin's arrangements, we weren't trying to emulate the record, either. We were taking a whole other step in trying to visualize the experience of being in that arena and then go with our gut in re-creating that feeling for a 5.1 surround setting."

For the most part, Antunes' sound-design elements transferred swimmingly. "The intro had sounds sweeping through the entire interior of the arena, and it did exactly the same thing in the mix for television," says Vicari. "We were able to utilize those 'surround' elements similarly throughout the entire show mix."

Timberlake insisted that the team take a fresh approach on every song and, in general, try all kinds of unconventional panning and placement. Vicari expresses, "There is an overall sound-design continuity to this show, but after that there are no rules—different elements come out in different places at different times. Justin was the main proponent of us doing things so differently." Macomber recalls, "On 'FutureSex/LoveSound,' Justin sat here and flew his vocal all around the room. This particular live show setup, and the visuals, really opened the door for all kinds of creativity."

With bandmembers playing both live instruments and sampled sounds, there were so many elements to spread out across the surround field, not to mention all of the surround-oriented live show effects. Take the synth section alone, says Macomber: "There were three large keyboard rigs, each of which held several synths that each gen-

erated five, six different sounds per song, which allowed different placement for each sound." As creative as the 5.1 mix got, however, Vicari kept a foundation locked down to match the camera's focal point; Timberlake's vocal, bass and kick drum anchored the mix pretty consistently in the center channel.

Timberlake wanted the 5.1 surround mix to include as much crowd noise as possible, which presented the session's biggest challenge. "Getting our audience mics and all the panning aligned in the right location in the room was very difficult since our audience mics were picking up the whole room sound," says Vicari. "I would do passes of just audience, trying to keep it consistent as Justin moved out on the arm of the stage into the audience. I gave him the most amount of audience without his vocal sounding like it was drifting off, and he'd still want more."

Meyer adds, "We had to time-align the audience mics with the actual mix so that when we added audience, it didn't wash the mix out—it actually added greater definition to what was going on in the Garden. In those audience mics, you're hearing the P.A.

and the crowd and the room, which, with the right placement, makes you feel just like you're standing in the arena."

Macomber configured the mixes for delivery to HBO. "We delivered 5.1 and stereo prints—24-bit, 48k WAV files of continuous show," he notes. "The show wasn't edited down in any way, so there was really no conforming to do on our end. We mixed off of a reference standard-definition video and printed everything down to the session, and delivered them time-stamped audio files." At Timberlake's request, aside from broadcast compression, the audio was untouched after it left JALC Studios. "There was absolutely no audio sweetening or mastering done to the files," says Macomber. "Justin was really particular about this, and the HBO producer was adamant about adhering to his wishes."



Front-of-house engineer Andy Meyer at the Digidesign VENUE board

According to Antunes, following the HBO broadcast there were accolades all-around. "We all got e-mail from one of the big VPs over at HBO telling us that this was one of the best mixes they've ever heard for any of their music specials—ever." ■

Janice Brown is a freelance writer based in New York City.

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THE 50TH ANNUAL

Grammy® Awards



A TV audio dream team. Front, from left: Randy Ezratty, VP XM Productions; Maureen Droney, executive director, P&E Wing of Recording Academy; Eric Schilling, music mixer; Leslie Ann Jones, Recording Academy, house sound supervisor; Ron Reaves, front-of-house engineer. Rear, from left: Glenn Lorbecki, P&E Wing co-chair; John Cossette, executive producer; John Harris, music mixer; Hank Neuberger, audio supervisor; Rickey Minor, musical director; and Phil Ramone, broadcast supervisor.

PHOTO COURTESY OF THE RECORDING ACADEMY/BY ALEXANDER WYMAN/WIREIMAGE.COM

BY TOM KENNY

Each year, the audio team for the annual Grammy® Awards telecast looks to top itself, to introduce at least one new wrinkle to improve the viewer's audio experience. When high-def picture raised its head at the turn of the century, 5.1 sound came with it. When dual stages became the norm and the number of acts reached more than 20, tag-team music mixing was introduced. When the time crunch became nearly unmanageable, a mirror to the XM Productions/Effanel L7 truck environment was built on-site and Digidesign D-Command consoles Genelec monitor systems were installed.

This year, for the first time at the Grammys and the first time on any show of this size/magnitude, only a 5.1 signal was sent from the Staples Center (L.A.) to the satellite and down to CBS New York, where the down-conversion to stereo was handled automatically. An identical Dolby chain was built on-site, but only for monitoring. There was no separate "stereo mix."

"We looked ahead to February 2009, when they turn off the analog transmission lines in this country," explains Hank Neuberger, audio supervisor for the telecast. "We see it coming, where stations will only be passing 5.1 channels of audio around. It just makes sense, and our friends at Dolby have made it possible to do with confidence."

The core Grammy audio crew has been intact for a number of years now and has won Emmys and TEC Awards. The music mix was once again handled by John Harris (his 16th Grammy Award show) and Eric Schilling (his fourth) in the XM Productions/Effanel L7 truck, operated by lead engineer Joel Singer. Phil Ramone sat in the main NEP Supershooter and served as executive audio producer ("I have a button that says 'more bass, less bass,'" he jokes), while Ron Reaves again mixed front of house and Michael Abbott wrangled all audio systems and personnel as audio coordinator. For *Mix's* tribute to the 50th anniversary—including production videos—visit mixonline.com/grammys. ■




Joel Singer, lead engineer of XM Studios, left, with music mixers John Harris and Eric Schilling

PHOTO COURTESY OF FILEC



Clockwise, from above left: Michael Abbott, audio coordinator; David Bellamy of Soundtronics, RF coordinator; Ron Reaves, FOH; and Klaus Landsberg of KFL Audio, audience mics



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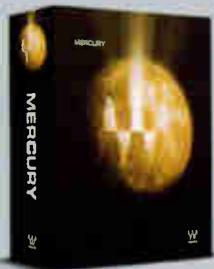
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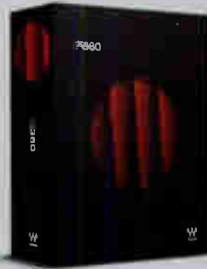
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Steve Osborne

Happy Mondays Lead to Good Times

Steve Osborne got into the audio business just in time to be “old school.” He came up through the ranks—all the way from tea boy to house engineer—at Trident Studios (London) in the '80s. As an engineer at Trident, he had the opportunity to work with some of the hottest producers in the business, including Flood, who brought Osborne over to Ireland to help record U2's *Pop* (1997). He cut all of Paul Oakenfold's productions to analog tape for four years, including the Happy Mondays' seminal *Pills 'n' Thrills and Bellyaches*, which he co-produced. By the time analog tape was on its way out, Osborne was ready to become a producer in his own right: one of a new breed that would blend not only analog with digital technologies, but also real instruments with synthesizers in a way that supported a *band* sound.

In his production work, Osborne truly lets the music be his guide. His breakthrough was arguably via the band Starsailor, whose processed vocals are layered with electric rock/pop instruments. Osborne has also produced all of KT Tunstall's albums, bending her singer/songwriter sound to suit her vision and her latest crop of songs. And it was Osborne's rhythmic, guitar-heavy production of New Order's 2001 comeback album, *Get Ready*, that convinced guitarist Keith Strickland of The B-52s that Osborne must produce

Funplex, the new wave pioneers' first studio album in 16 years. Osborne says that *Funplex* is a “B-52s album, but for now. It's a bit more raw, and I think we're a bit more up-to-date with the beats.” It makes for a striking combination—an album that is undeniably The B-52s, but somehow even more danceable and almost punk; woven through it

are many of the sounds and techniques Osborne has cultivated during more than 20 years in the studio.

Did you start out in the business as a musician?

The first thing I played was trombone, when I was about 6. Then I got a guitar and spent a lot of time playing that when I was 12. Then piano, then drums. My main



instrument was trombone, but I got distracted by other things. We also had an old reel-to-reel tape recorder. I had a bedroom full of instruments, and I used to mess around all the time on different instruments.

Later, I got to be friends with some people at the local university who had a [Tascam] Portastudio—the original kind of cassette one. I borrowed that and learned how to use it, and started recording bands at the university. Then I had a friend who had an 8-track and we had a little demo studio, and we would put stuff on 8-track. That was when I was 19 or 20.

A few years later, I actually moved to London and had one of those lucky breaks. I met a friend of a friend who was going to get a job as a tea boy at Trident Studios, and then he decided he didn't want to do it. So I managed to get myself an interview at Trident, which was actually managed at the time by Ros Earls, who is my manager now. She gave me a three-day trial as a tea boy.

How did you do?

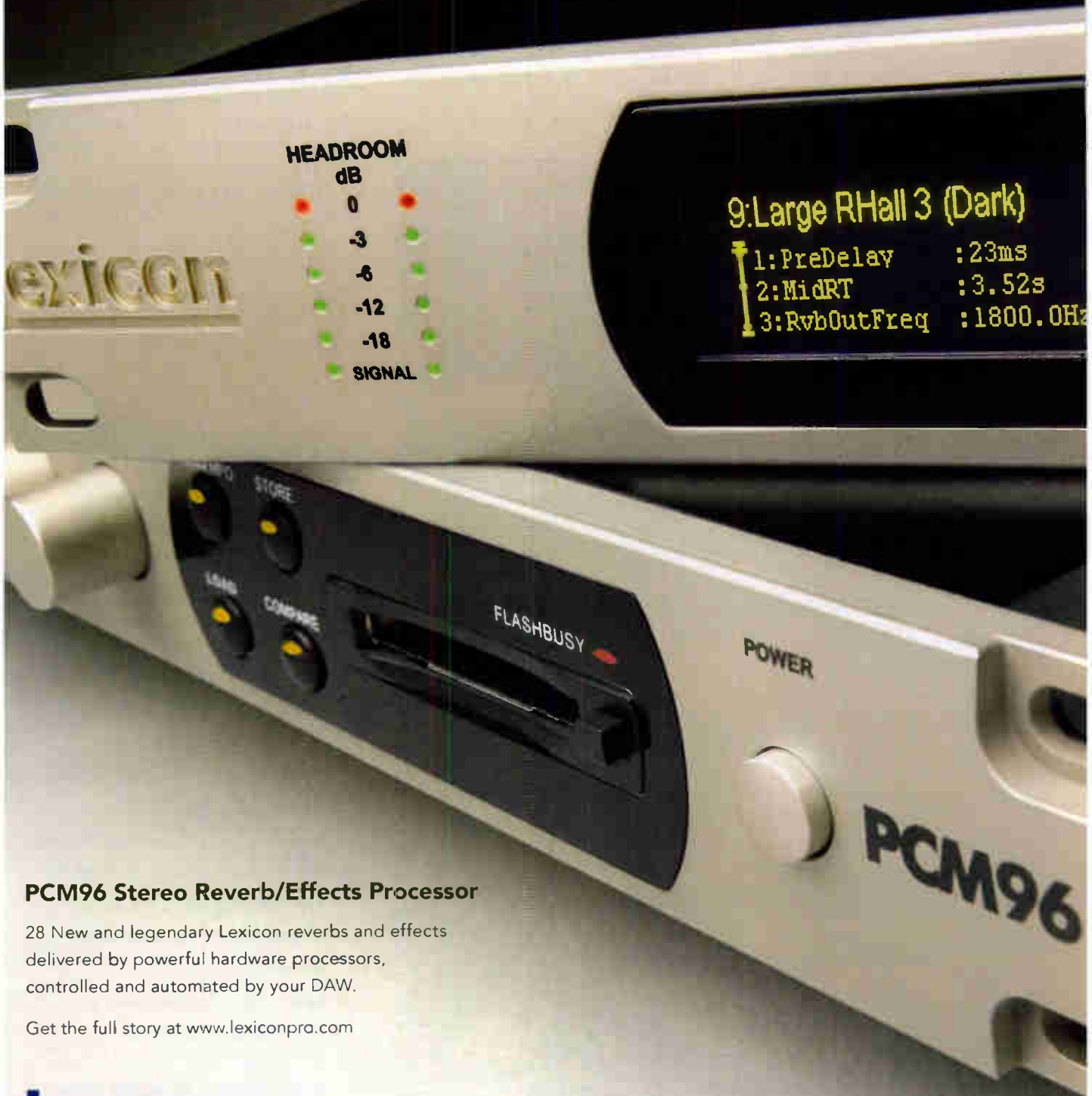
[Laughs] I made a lot of tea, and I always made sure there were biscuits, and I always made pots of tea rather than cups of tea. I was keen, very keen. Then I worked my way up to tape op.

Did you then go out freelance to get engineering jobs or did you stay on staff at Trident?

Trident Studios actually got sold, and the people who owned Trident when I joined kept another studio in Victoria. They sold the Soho Studios, where I was a tape op, but when they took me on in Victoria, they took me on



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as a house engineer because all the people who had been engineers in Soho left; they went freelance.

How did you get involved with Oakenfold?
I was in-house engineer at Trident for a while, and then a production team came in to do some remixes. I did a remix for them, and they asked me to be their engineer. I worked with them for about a year doing remixes, and through doing that I bumped into Paul Oakenfold, who was looking for an engineer to work with. The whole house [music] thing was just starting to kick off, and he was one of the pioneers in the

scene. I think the first thing we did together was a remix of a cover of "Love to Love You," the Donna Summer song. When that worked, we began a partnership.

What made that partnership successful?
What was great about that partnership was that Paul was out there [in the clubs]. He knew what was happening on the dance floor. We could do mixes, and he would take a copy that night and go out and play it; get people's reaction to it. I wasn't out there clubbing; I was always working in the studio. My expertise was doing the music programming and engineering, and Paul

would give it direction in terms of the club culture and what was going on.

I've read that because of drug problems, working with Happy Mondays might not have been so "happy." What was it really like working with them?

Loads of people say, "It must have been a nightmare doing Pills 'n' Thrills," but actually we didn't have any trouble doing that album. We said, "This is how it's going to work. We're going to start at 12 and finish at 12 every day," and that's how it worked. They were very keen to do it.

It wasn't anything like the stories you hear about the Yes Please album they did with Tina Weymouth; that was a completely different atmosphere from what we had. The bad stories happened after Pills 'n' Thrills, when the press were on their backs and

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Steve Osborne



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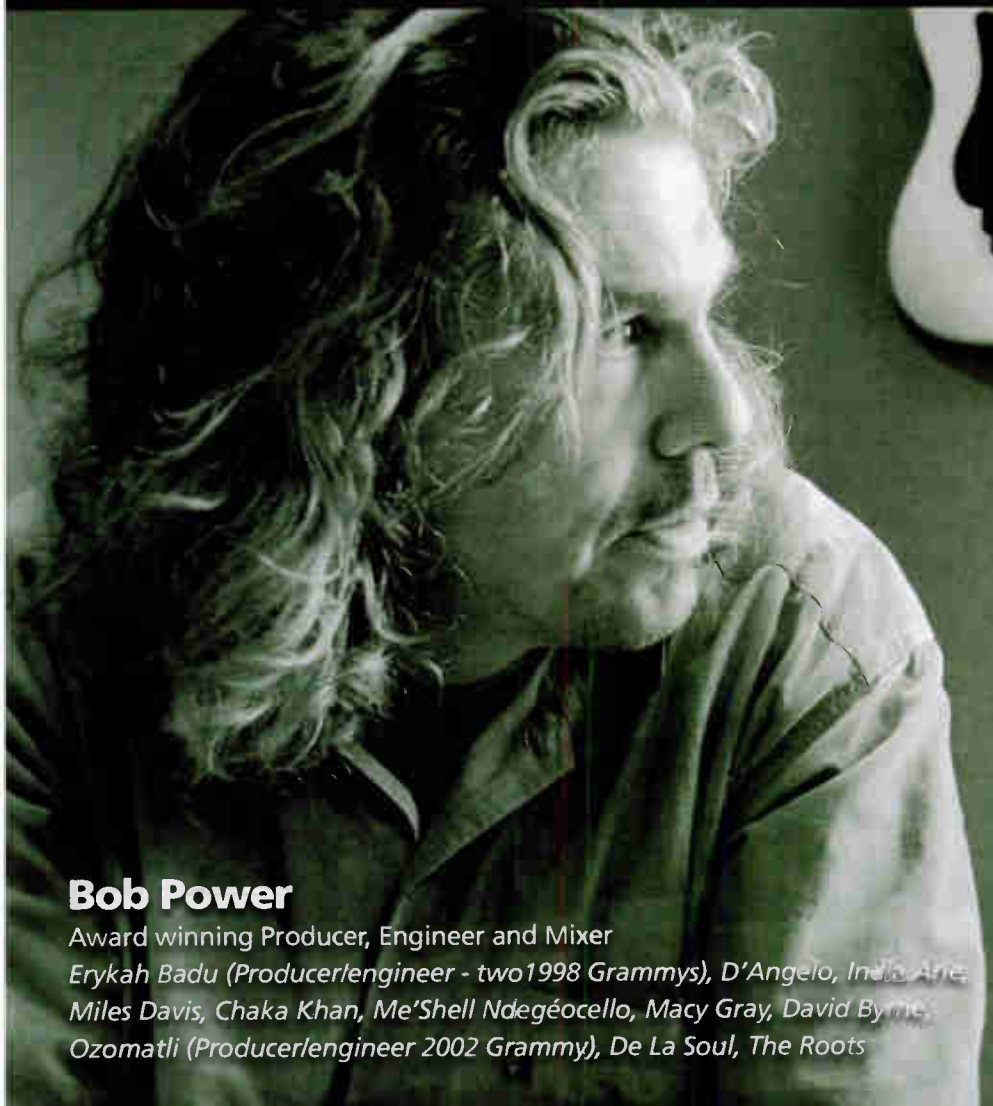
P=Producer, M=Mixer, E=Engineer

Note: Other producers, engineers and mixers also contributed to some of these releases.

- Headswim:** *Despite Yourself* (1997), P/M
- U2:** *Pop* (1997), P/E/M
- Placebo:** *Without You I'm Nothing* (1998), P
- The London Suede:** *Head Music* (1999), P/M
- New Order:** *Get Ready* (2001), P/M
- Starsailor:** *Love Is Here* (2002), P/M
- The Leaves:** *Breathe* (2002) P
- Doves:** *The Last Broadcast* (2002), P
- Peter Gabriel:** *Up* (2002), P/E/
Programming
- KT Tunstall:** *Eye to the Telescope* (2005), P;
Drastic Fantastic (2007), P
- The B-52s:** *Funplex* (2008), P

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SOFTWARE

things weren't going well. When we were doing *Pills 'n' Thrills*, we'd already had a hit with "Step On." The vibe was really up; everyone was happy. I would tell [lead singer] Shaun [Ryder] to come in by 5 or 6, and he'd come in by 9 or 10, but you'd know that. You'd know how to deal with him. We'd say, "We're going to cut vocals every day," and he'd say he's not feeling up to it. But we'd say, "We'll just do a bit every day," and we did.

Why did you work on that album at Capitol in L.A. when you were all from England?

The idea was they wanted to get away from everybody—from dealers and friends. When we did "Step On," we had a fantastic vibe. That is still one of the favorite sessions I've ever done, but you always had gangs of people coming down, and to make a whole album like that would have been difficult.

What made you decide to break out on your own as a producer?

I'd worked with Paul [Oakenfold] for a few years, doing club stuff and a lot of remixes. But my background—much as I enjoy doing club stuff—is in more guitar-based music. Happy Mondays was perfect because that was beats *and* guitars. And to me, that's

the most important part of production: getting the right groove, in whatever genre. So working in dance music was great, but I wanted to get into working with bands, more guitar stuff. So I changed management to Ros and said I wanted to move away from so much dance mixing.

for me, but I just thought she had something special. I said to her, "A lot of girls come along who sing and play acoustic guitar, and we have to find the right vehicle for you to stand out." Her boyfriend, Luke [Bullen], is the drummer, and the first thing we did was we went into rehearsal with just the two of

I always have KT Tunstall playing guitar while she's singing because then you get that vibe between the vocal and the rhythm guitar. The more I produce, the more I try to get things done at the same time. I find that too much overdubbing makes things sound stale.

KT Tunstall's Drastic Fantastic album is another project that has guitars and beats. Can you describe the progression of her sound from singer/songwriter to more of a pop musician?

That was her decision. With the new album, she wanted to get a band kind of sound. It's a different groove. When we did her first album [*Eye to the Telescope*], it was a departure

them. I got him to play some songs, just the beats, and we worked on those beats—trying to get them as contemporary as possible. She plays the acoustic guitar like a drum anyway; she's very rhythmic.

So I thought, "Well, that's the basis of the album." It's her playing acoustic guitar and Luke drumming, and trying to capture the rhythm and the interplay between the

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two of them and getting her to sing at the same time. I always have her playing guitar while she's singing because then you get that vibe between the vocal and the rhythm guitar. The more I produce, the more I try to get things done at the same time. I find that too much overdubbing makes things sound stale.

What did you discuss in terms of the new direction that Drastic Fantastic would take?

KT really wanted to make an electric album. She didn't want to do another album that was acoustic guitar. And the songs are much straighter and lend themselves more to straighter beats, as opposed to the first album, which was quite shuffle-y. It had a lot of swing. This new record has more straight rock beats.

I think every record has its own organic kind of growth. You find out how things are going to sound as you go.

How did you approach The B-52s project?

Keith [Strickland] had done a lot of work before I started. They'd done very good demos and good vocals. But Keith had wanted me there because the New Order album [Get Ready] was one of his favorite albums, and they asked me about the process of making it. I said that Bernard [Sumner, lead singer] said it was almost like they recorded the album, then I remixed it and then they re-recorded it. So the process with The B-52s was similar.

First we went through Keith's demos, and some of them we kept and a lot of vocals we kept, because this band really has a vibe. If they all go in and do vocals in a room together and there's all this off-mic interjection and stuff going on, it's really difficult to re-create that. I'd say it was maybe 50/50 between vocals we kept and vocals we redid. Same thing with Keith's guitars; a lot of his guitars, we kept. Predominantly, what I would work on was grooves, bass lines, making the sound as contemporary as possible.

Where did you work?

We did half the sessions in Clubhouse in upstate New York, with Rick Morris engineering. He worked with me on KT's albums. Then we went back down to John Keane's studio in Athens, Georgia, and Dan Austin engineered. Dan's a very good producer in his own right.

Is it all real drums on this album?

It's a mixture. We were using real drums, but we would edit them and put beats behind, as well. We would edit the real drums to fit really tight on the programmed stuff, even if you can't exactly hear the program stuff. But on all the songs, there will always be some real drums, because without some air moving it can sound a bit stale.

The main thing with The B-52s is the lyrics are just brilliant, and it was really enjoyable. Sometimes making music can get a little too serious, so it's refreshing to work with a band who understands that vibe is about having a good groove.

Do they have as much fun in the studio as it looks like they're having?

Yeah, it's all fun, and that's my idea of how to make a record. We're not all just stroking our beards.

What would you say were the key pieces of gear to the sound of this album?

One of the big things was the RCA 44BX on Fred Schneider's vocal. That was stunning. As far as mixing, we had a Trident desk, so that was a big part of mixing the drum sounds.

How do you capture those amazing female vocal harmonies?

Cindy [Wilson] and Kate [Pierson] would always be in a studio together, and we would record them that way because there would be interplay. Kate has her own [Neumann] M249, and Cindy uses a U87.

Where did you mix?

We mixed it at John [Keane]'s. Because we were working in Pro Tools, the tracks were kind of mixing themselves as we were going. When we got to the end, we split up the desk—we'd take maybe all of the drum sounds and mix those up and re-record it back into Pro Tools, so everything would end up as being in the box. Generally, we'd record stuff, take it out and mess it up with analog stuff, and record it back in.

But I don't worry too much about what gear and what mic. Making KT's first album, that was done on a shoestring and it was a huge record. I'm finding that too much music now is based on being in time and in tune, and the technology now is being used to achieve that. To me, it's about getting back to more performance-based music. ■

Barbara Schultz is a Mix assistant editor.

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Philosophy of the World Recording

Steve Fisk Mixes Indies in the Box at Home

Seattle-based producer/engineer/musician Steve Fisk (www.stevefisk.com) developed his craft in the 1980s and '90s as part of the Pacific Northwest's burgeoning indie-rock scene. Working in various studios, Fisk helped shape and document the sounds of acts such as the Screaming Trees, Beat Happening, Soundgarden, Nirvana and Unwound. He initially set up some gear at home to work on personal projects, but found himself working with his client base of rock bands and singer/songwriters in his home.

Today, Fisk uses his Pro Tools-based home studio for mixing and occasional tracking and overdubbing sessions. "Traditionally, and 90 percent of the time, I spend three to four days doing basics in a big studio and then I drag things in here for the other stuff," Fisk explains. He says that he prefers tracking in studios that have high-quality vintage mixing boards. "I've always favored older boards. Part of the interesting thing about recording digitally with an older board is you really get the sound of the damn board."

In recent years, Fisk came to specialize in mixing within Pro Tools, and because of his analog aesthetic, he employs analog summing to "get around the limitations of Pro Tools," he explains. "That's how I'm doing my best work right now. I like mixing in other studios, but a lot of people that I work with are economy-minded, or if there's money to spend it gets spent in tracking. Plus, people like what it sounds like."

Fisk describes his home as "an old bungalow from 1929 with a lot of amazing Scandinavian woodwork." His living room serves as the tracking room. "Just by accident, [it] actually is a very nice-sounding place to record with its combination of drywall, veneered wooden ceiling, carpeting, the furniture and the fireplace," he notes. "There's a veneered wall, as well, so all the sound bounces around in a very pleasant way. For years, we recorded vocals in here, and said, 'Wow! This is a beautiful vocal room.' Somewhere along the way, people started bringing drum sets in here."

An add-on room in the back of the house, which measures 12x32 feet, serves as the control room. "I've done a lot of work to try to make it [acoustically] neutral with foam treatments and putting up [Auralex] LENRD [bass traps] in the corner, and some diffusion in the back."

The control room houses a Mac G5 and Pro Tools HD3 Accel system with Pro Tools Version 7.4 and a Digidesign 192 I/O audio interface. For analog summing, Fisk relies on a Roll Music Systems RMS216 Folcrom passive summing device. "It doesn't try to sound like an API or a Neve; it's theoretically neutral because its coil is completely passive," he says.

Quality outboard gear is also central to Fisk's produc-



Steve Fisk in his control room at home, surrounded by top gear

tion. "I use different mic pre's, depending on what I'm doing," he says. These pieces comprise a Summit Audio TPA-200B, three Chameleon Labs Model 7602s, which emulate the Neve 1073, and a Mackie Onyx 800R digital mic pre. His main compressor is a Joemeek C2 photo-optical stereo unit. Fisk's mic cabinet is modest: "I rent mics, but the Chameleon Labs TS-2 and Pacific Pro Audio LD-Tube see a lot of duty."

Fisk's vintage effects processors include an Echoplex, as well as Master Room and AKG BX20 spring reverb units, and he uses his ARP 2600 synth as both an audio source and a processor. Other vintage gear includes a Mellotron Mark V and Moog Theremin. Fisk monitors with ADAM P11As and Yamaha NS-10Ms. "I also have a \$65 Logitech system with a crappy subwoofer because I figure some people are actually listening on that," he adds.

This year, Fisk produced *Cody's Dream* from Mark Pickerel and His Praying Hands, and Paul Manousos' *Common Thread* (reviewed in "Cool Spins," page 128). "Pickerel's last record was almost completely in the box," Fisk notes. "The songs are post-modern references to older material, [but] I told him, 'If you hear Amy Winehouse, you don't need to have old-sounding sounds; your arrangements and your approach are old sounding.' Paul's records are usually recorded pretty traditionally. [He's] the loudest singer I've worked with in a long time. He hits notes like an opera singer. I think he actually enjoys being hard to record." [Laughs]

Both Pickerel and Manousos are Fisk's longtime clients and friends, and a look at Fisk's extensive discography reveals repeated collaborations with many artists. "I've been lucky enough to do multiple projects with several people," he says. "You develop a lot of communication and vocabulary, and a lot of approaches, so hopefully each time you get together you're working quicker, more efficiently and more creatively." ■

Matt Gallagher is an assistant editor at Mix.



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SOLID-STATE MIC PREAMPS

OUTBOARD BOXES DELIVER COLOR, POWER AND FEATURES TO YOUR DAW

By Tony Nunes

The stand-alone mic preamp has survived all of the different evolutions the recording industry has undergone. With the DAW-entrenched studio, engineers require an array of preamps for remote recordings, smaller production spaces and permanent installs in rooms that don't have traditional consoles. Not everyone can afford the space or price tag associated with a big desk, but a variety of outboard preamps can save the day—and your wallet.

In the January 2008 issue, *Mix* featured tube mic preamps; this month, we're concentrating on solid-state models. While tube preamps bring their own aural excitement and old-school patina to the table, solid-state pre's provide an alternative feature set—and their own brand of coloration, if desired.

A LITTLE TECH

Transformer-coupled designs from such companies as Neve and API are common favorites among engineers. When hit with enough signal, transformer-core saturation may color the signal and even enhance harmonics. This isn't necessarily a bad thing and can be used as a creative tool, much like saturating a tube preamp. Another feature to consider is impedance ("Z").

Matching a mic's output impedance to a preamp's input impedance results in a maximum voltage transfer. A properly selected mic/preamp combination can yield improved frequency response, with increased headroom and transient response. More manufacturers incorporate switchable input impedance into their designs as another creative tone-bending and/or impedance-matching option.

Operational amplifiers (op amps) are also

a consideration when comparing different topologies. There are basically two types: monolithic (IC) and discrete. An op amp is the sum of its parts, including an array of transistors, resistors, capacitors and diodes. Monolithic op amps are inexpensive and are created onto a silicone chip. This design (typically found on DAW interfaces) doesn't allow the manufacturer to use individual components in fabrication. A discrete op amp (for example, John Hardy 990 or API 2520) design uses select, individual premium components for optimal performance. Designers can choose and match these individual components with superior results. Granted, there are substantial cost differences between the two, which can range from \$0.10 to \$100.

As most tube preamps are Class-A, there's a slew of solid-state preamps that are also considered Class-A (such as the Neve 1073 or Crane Song's Flamingo). Class-A amplifiers operate at more than 100 percent of the input cycle, with the active output devices working all the time and always carrying a significant current level. Because of this, Class-A amps run hot and are considered inefficient, but are linear and highly sought after.

DECISIONS, DECISIONS

Your mic collection might have a say in which solid-state preamp you choose. For example, traditional ribbon mics require a preamp with high levels of clean gain. A unit like AEA's TRP provides a generous 84 dB of gain and a minimal-path circuit design for ribbon, moving-coil and tube mics. And certain DPA mics require 130-volt power for operation; preamps such as Millennia Media's HV Series can accommodate those mics.

Some of the more standard "bread-and-butter" features to consider when choosing a preamp include switches for polarity ("phase") inversion, input pads, and highpass and lowpass filters. A 1/2-inch input matched for connecting high-impedance instrument



Audient Mico features Variphase control.

pickups. For visual stats in reference to gain, I/O metering can vary between VU, segment LEDs or a simple clip LED. Accurate, trustworthy metering is essential when your I/O boxes are in a quiet room and not easily visible.

For those seeking an all-in-one conversion solution, mic preamps with onboard A/D converters provide a major advantage. Manufacturers like Audient, Focusrite and PreSonus offer multichannel preamps with stock/optional A/D converters featuring AES/EBU, S/PDIF, ADAT optical and even word clock I/O.

Some preamps offer unique features setting them apart from the crowd. Rupert Neve Designs' Portico 5016 offers a Vari-Phase feature that allows the user to rotate the phase of the DI in reference to the mic input. This is ideally suited for tracking guitars through a mic/DI combination and experimenting with or correcting their phase relationship. Solid State Logic's VHD preamp has a variable harmonic-distortion circuit that blends second or third harmonic distortion into the signal for different overdrive characteristics. The Grace Design m802 takes control functions to the next level, with a full LCD remote control and added control via Pro Tools HD.

Regardless of topology, a well-designed solid-state circuit can yield extended dynamic range, low-noise, high headroom and excellent transient response. If you have access to a variety of solid-state pre's currently on the market, listen and compare for yourself. For this roundup, we're featuring stand-alone solid-state preamps. What you won't find here are preamp DAW interfaces or channel strips; that's a topic for another feature. For a list of these preamps, see the charts on the following two pages.

Tony Nunes is an engineer, educator, and daddy to Brooklyn and Luc.



Great River Electronics ME-1NV has a 600-ohm output loading switch.



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SOLID-STATE MIC PREAMPS

Manufacturer, Model, Website	Polarity Reversal	Channels	Gain	Analog I/O	Digital I/O	Meters, Type	Extras	Price (USD)
A-Designs EM-Blue www.a-designs.com	Yes	1	20 dB	500 Series term-factor, DI	None	None	None-output xformer	\$895
A-Designs EM-Gold	Yes	1	20 dB	100 Series term-factor, DI	None	None		\$895
A-Designs EM-Red	Yes	1	20 dB	500 Series term-factor, DI	None	None		\$895
A-Designs EM-Silver	Yes	1	20 dB	500 Series term-factor, DI	None	None	Step-output xformer	\$895
A-Designs P-1	Yes	1	20 dB	500 Series term-factor, DI	None	None		\$895
A-Designs Pacifica	Yes	2	20 dB	XLR I/O, DI	None	None	Xformer I/O	\$2,250
AEA TRP www.aeadesign.com	Yes	2	None	XLR I/O, TRS out	None	Clip LED	HPF, 18k-ohm input impedance	\$965
Alto MP2-D www.altopa.com	Yes	2	None	XLR I/O, DI, TS out, 1/4" inserts	AES/EBU, S/PDIF, WC in	Output LED ladder	Harmonic drive, HPF, stereo bus	
Alto MP8	Yes	8	None	XLR in, DI on channel 1/2, DB-25 outputs, 1/4" inserts	None	Clip LED	HPF	\$349
Alto MP8-D	Yes	8	None	XLR in, DI on channel 1/2, 1/4" inserts	AES/EBU, S/PDIF, ADAT, WC I/O	Clip LED	HPF	
AMS Home 1073DPA www.ams-neve.com	Yes	2	None	XLR I/O, XLR/TRS ins	None	Clip LED		\$2,995
AMS Home 1073DPD	Yes	2	None	XLR I/O, XLR/TRS ins, inserts	AES/EBU, WC I/O, DSD out	Clip LED	Neve DSD output	\$3,485
AMS Home 1081 Quad	Yes	4	20 dB	XLR I/O	Opt. FireWire/AES out	Clip LED	Remote control via Mac/PC	\$3,750
API 212L www.apiaudio.com	Yes	1	20 dB	API 100 Series, DI	None	Output LED ladder	Xformer I/O	\$695
API 3124+	Yes	4	20 dB	XLR I/O, DI, inserts	None	Output LED ladder	Xformer I/O	\$2,795
API 512C	Yes	1	20 dB	API 500 Series, XLR in, DI	None	Output LED ladder	Xformer out	\$795
API A20	Yes	2	20 dB	XLR I/O, A/D input, DI	AES/EBU, S/PDIF, WC in	Gain LED ladder	Multiple units can cascade	\$1,995
Apogee Mini-MP www.apogeedigital.com	Yes	2	None	XLR/TRS input, XLR out	None	LED ladder	M/S matrix, HPF	\$795
Apogee Trak2	Yes	2	20 dB	XLR/TRS input, XLR out, DI, XLR inserts	AES/EBU, S/PDIF, WC I/O	LED ladder	AMBUS slots interface with Pro Tools, ADAT, TDIF, SDF-2	\$3,995
Audient ASP008 www.audient.com	Yes	8	20 dB	XLR in, D-25 sub I/O, DI on ch 1/2	Opt. AES/EBU, S/PDIF, ADAT, WC out	Clip LED	Variable HPF and Z	\$1,495
Audient Mico	Yes	2	10 dB	XLR/TRS input, XLR out, DI (ch 1)	AES/EBU, S/PDIF, WC in	Input LED ladder	HMX harmonic sculpting, Variphase control of second ch	\$1,100
Avaton Design AD 2022 www.avatondesign.com	Yes	2	20 dB	XLR I/O, DI	None	VU w/peak LED	Variable Z, input xformer, variable HPF	\$3,300
Avaton Design MS	Yes	1	20 dB	XLR I/O, DI	None	Output VU, peak LED	Input xformer, variable HPF, 130V phantom option	\$1,750
Behringer MIC-100 www.behringer.com	Yes	1	20 dB	XLR/TRS in, TRS out	None	Output VU, clip LED	VTC tube modeling, HPF	\$59.99
Cramer-Song Famingo www.cramersonline.com	Yes	2	None	XLR I/O	None	Input LED ladder	Alternative amp path, iron/fat-tone switch	\$3,125
Daisi Charlie Mic Amp www.daisi-audio.com	Yes	2	None	XLR I/O	None	LED ladder		\$2,393
Daking Mic Pre IV www.daking.com	Yes	4	20 dB	XLR/TRS I/O, DI	None	LED ladder	Xformer I/O	\$3,150
DI Media Engineering DME103 www.damediaengineering.com	None	2	Switchable	XLR I/O	None	VU	Xformer I/O	\$2,500
Digidesign Pre www.digidesign.com	Yes	8	18 dB	XLR/TRS in, DI, D-25 sub out, TRS send/return	None	Input LED ladder	HPF, remote control via Pro Tools TDM	\$2,495
Focusrite ISA One www.focusrite.com	Yes	1 mic, 1 DI	None	XLR I/O, TRS in, DI, TRS cue inputs, TRS cue out, TRS inserts	Opt. AES/EBU or S/PDIF on D-Sub	Input LED ladder, input VU	Variable Z, HPF	\$999
Focusrite ISA428	Yes	4	None	XLR I/O, DI, TRS in, TRS inserts	Opt. AES/EBU or S/PDIF on D-Sub, ADAT, WC I/O	Clip LED, analog or dBFS output LED ladder, output VU	Variable Z, variable HPF, input xformers	\$1,999
Focusrite ISA828	Yes	8	None	XLR I/O, DI, TRS in, D-25 sub out, D-25 sub A/D ins	Opt. AES/EBU or S/PDIF on D-Sub, ADAT, WC I/O	Analog or dBFS output LED ladder	Variable Z, variable HPF	\$2,999
Focusrite Liquid 4Pre	Yes	4	None	XLR I/O	AES/EBU, S/PDIF, WC I/O, ADAT	Clip LED, LCD VU	DAW control, recall system, HPF	\$3,499
Focusrite OnTopPre LE	Yes (ch 1)	8	None	XLR in, TRS out	Opt. ADAT, WC I/O	LED peak input, input VU	HPF	\$699
Focusrite RED 1	Yes	4	None	XLR I/O	None	Input VU		\$3,699
Focusrite RED 8	Yes	2	None	XLR I/O	None	Input VU		\$2,799
GML 8302 www.massenburg.com	None	2	None	XLR I/O	None	Clip LED	Xformerless design	\$2,100 (requires GML8355 PS)
GML 8304	None	4	None	XLR I/O	None	Clip LED	Xformerless design	\$2,900 (requires GML8355 PS)
Grace Design 101 www.gracedesign.com	None	1	None	XLR I/O, TRS out, DI	None	Clip LED	HPF, trim-impedance design	\$695
Grace Design LunaTec V3	None	2	None	XLR I/O	AES/EBU, S/PDIF, WC out, S/PDIF optical out option	dBFS LED ladder	Variable HPF	\$1,695
Grace Design m201	Yes	2	20 dB	XLR I/O, DI, XLR M/S out	None	Clip LED	130V phantom power, M/S width control	\$2,295
Grace Design m201 with A/D	Yes	2	20 dB	XLR I/O, DI, XLR M-S out	AES3, S/PDIF, optical, WC I/O	Clip LED, dBFS LED ladder	130V phantom power, M-S width control	\$2,295, (\$995 for digital option)
Grace Design m801	Yes	8	20 dB	XLR I/O	None	Clip LED	10dB ribbon gain switch	\$4,595
Grace Design m802	Yes	8	None	XLR I/O, D-25 sub out, remote I/O, MIDI I/O	Opt. 25-pin D-Sub AES-3 outs, WC I/O, AES3-HD out, ADAT out	LCD	remotable, controllable via Pro Tools HD, 130V phantom power	\$4,995
Great River Electronics ME-10V www.greatriverelectronics.com	Yes	1	None	XLR I/O, DI, TRS send/return, TS out	None	I/O LED ladder	Variable Z, 600-ohm output loading switch	\$1,395
Great River Electronics MP-300UV	Yes	1	None	500 Series term-factor, DI	None	I/O LED ladder	Variable Z, 600-ohm output loading switch	\$975
Great River Electronics MP-20V	Yes	2	None	XLR I/O, DI, TRS send/return, TS out	None	I/O LED ladder	Variable Z, 600-ohm output loading switch	\$2,795

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Manufacturer, Model, Website	Polarity Reversal	Channels	Pad	Analog I/O	Digital I/O	Meters, Type	Extras	Price (USD)
John Hardy Jensen Twin Stereo 990, www.johnhardy.com	Yes	1-4	20 dB	XLR I/O	None	Output LED ladder, peak LED	Jensen I/O xformer, 990 discrete op amps	\$1,550-4,250
John Hardy M-1	Yes	1-4	None	XLR I/O	None	Output LED ladder, peak LED	990 discrete op amps, Jensen input xformer, xformer out option	\$1,120-\$2,909
John Hardy M-2	Yes	1-4	Optional 20 dB	XLR I/O	None	Output LED ladder, peak LED	Jensen input xformer, output xformer option	\$1,165-\$3,085
Little Labs Linnopre, www.littlelabs.com	Yes	1	20 dB	XLR I/O, DI, XLR phase-align insert	None	Clip LED	Variable phase alignment	\$1,680
Mackie Onyx 800R, www.mackie.com	Yes	8	None	XLR in, 0-25 sub I/O, DI on ch 7/8	AES/EBU, S/PDIF, ADAT, WC in	Output LED ladder	HPF, variable Z (channel 1/2), M/S matrix	\$1,299
Manley TNT, www.manleylabs.com	Yes	2 (other channel is tube)	None	XLR I/O, TS output, DI	None	Signal-presence LED, clip LED	HPF, switchable Z	\$3,000
Martech MSS-10, www.martinsound.com	Yes	1	20 dB	XLR I/O	None	Output VU		\$1,995
M-Audio Audio Buddy, www.m-audio.com	None	2	None	XLR input, TRS out, DI	None	Signal/clip LEDs		\$119
M-Audio DMP3	Yes	2	None	XLR input, TRS out, DI	None	Output VU, clip LED	HPF	\$199
M-Audio Octane	Yes	8	20 dB	XLR input, TRS out, 2 ch of DI, TRS A/D in	ADAT out, WC I/O	Input LED ladder	M/S matrix	\$749
Millennia Media HV-3C, www.mil-media.com	None	2	None	XLR I/O	None	Signal-presence LED, clip LED	Optional 130V phantom power	\$1,995
Millennia Media HV-3D	None	8	None	XLR I/O	None	Signal/clip LEDs	Optional 130V phantom, remote control	\$4,399
Millennia Media HV-3R	Yes	8	14 dB	XLR I/O, 0-25 sub out	Optional AO-R96 card	LCD	Optional 130V phantom, Ethernet control, Pro Tools interface via MIDI	\$5,249
MindPrint AV/DI Pro, www.mindprint.de	None	2	20 dB	XLR in, DI, TRS inserts	AES/EBU, S/PDIF, WC in	Input LED ladder		\$549
MindPrint DI-Port	None	2	None	XLR, TRS in, DI, RCA I/O	S/PDIF I/O	Input LED ladder	Headphone out	\$1,499
Old School Audio MP1-A, www.oldschoolaudio.com	Yes	1	20 dB	500 Series form-factor, TRS in (DI optional)	None	Clip LED	Altran input xformer	\$595
Old School Audio MP1-C	Yes	1	20 dB	500 Series form-factor, TRS in (DI optional)	None	Clip LED	Crimson input xformer	\$595
Old School Audio MP1-L	Yes	1	20 dB	500 Series form-factor, TRS in (DI optional)	None	Clip LED	Lundahl 1538EL input xformer	\$645
Old School Audio MP1-L3	Yes	1	20 dB	500 Series form-factor, TRS in (DI optional)	None	Clip LED	Lundahl LL7903 input xformer	\$745
PreSonus DigiMax 96K, www.presonus.com	Yes (ch 1/2)	8	20 dB	XLR in, TRS out, DI (ch 1/2)	AES/EBU, S/PDIF, ADAT, WC I/O	Signal/clip LEDs		\$1,695
PreSonus DigiMax D8	None	8	20 dB	XLR in, TRS out, DI (ch 1/2)	ADAT out, WC in	Input LED ladder		\$499
PreSonus DigiMax FS	None	8	None	XLR/TRS in, TRS out, TRS inserts, DI (ch 1/2)	ADAT (dual SMUX) I/O, WC I/O	Clip LED	JefPII jitter reduction	\$799
PreSonus DigiMax LT	None	8	20 dB	XLR/TRS combo in, TRS inserts	ADAT, WC I/O	Output LED ladder		\$999
Purple Audio Biz, www.purpleaudio.com	Yes	1	None	500 Series form-factor, DI	None	I/O LED	Purple discrete op amp	\$675
Purple Audio Pants	Yes	1	None	500 Series form-factor, DI	None	I/O LED	Four op amps, differential preamp	\$675
Rane ML 1, www.rane.com	None	2	None	XLR I/O	AES, S/PDIF	Signal/clip LEDs		\$399
Rane MS 1b	Yes	1	None	XLR I/O	None	Signal/clip LEDs		\$199
Rolls MP13, www.rolls.com	None	1	None	XLR I/O, 1/8" mic input, TRS out	None	Clip LED		\$90
Rupert Neve Designs Portico 5012, www.rupertneve.com	Yes	2	None	XLR I/O, TRS out for Portico Bus Amp	None	Output LED ladder	Variable HPF, variable "stik" (negative feedback/frequency spectrum)	\$1,795
Rupert Neve Designs Portico 5016	Yes	2 (mic, independent DI ch)	None	XLR I/O, DI, TRS out for Portico Bus Amp	None	Output LED ladder	Vari-Phase rotates the phase of the DI ch, variable HPF	\$1,195
SM Pro Audio EP84, www.smpaudio.com	Yes	8	20 dB	XLR/TRS, TS out, TRS inserts	Opt ADAT, WC I/O	Clip LED	HPF	\$499
SM Pro Audio PR4V	None	4	None	XLR in, TRS out	None	Clip LED	Half-rack design	\$109
SM Pro Audio PR6DS	Yes	8	None	XLR/TRS combo input jack, 0-25 sub out	None	Clip LED	Remote control via Windows	tba
SM Pro Audio PR8E	Yes	8	20 dB (TRS inputs only)	XLR/TRS in, TRS out	None	Clip LED		\$199
Solid State Logic XLogic Alpha VHD Pre, www.solid-state-logic.com	Yes	4	20 dB	XLR I/O, DI	None	None	Variable Harmonic Drive	\$2,235
Studio Projects SP828, www.studioprojects.com	Yes	8	20 dB	XLR in, TRS I/O, mix TRS inserts	None	Signal/clip LED	8x2 mix bus	\$959
Symetrix 302, www.symetrixaudio.com	Yes	2	15 dB	XLR in, TRS out, Euroblock out	None	Clip LED	Half-rack design	\$369
Tindera Audio S20, www.tinderaudio.co.uk	Yes	2	None	XLR I/O, TS out	None	Output LED ladder	Variable HPF	\$2,250
Universal Audio 4110, www.uaudio.com	Yes	4	15 dB	XLR I/O, DI	None	Input LED, output LED ladder	Variable Z, HPF, Shape control (xformer loaded)	\$4,099
Universal Audio 8110	Yes	8	15 dB	XLR I/O	None	Input LED, output LED ladder	Variable Z, HPF, Shape control (xformer loaded)	\$6,899
Universal Audio Solo 110	Yes	1	None	XLR I/O, DI	None	Signal/clip LEDs	HPF	\$949
Vintage Audio Dual 72, www.vintageaudio.com	Yes	2	None	XLR I/O, DI	None	Output LED ladder	Xformer I/O	\$1,495
Wunder Audio PAF04R, www.wunderaudio.com	Yes	4	None	XLR I/O, DI	None	Peak LED	Xformer I/O	\$3,495

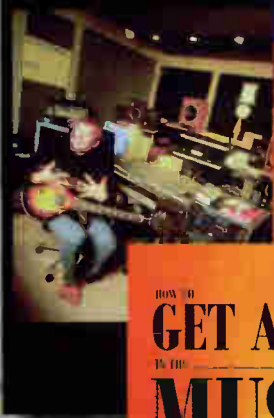
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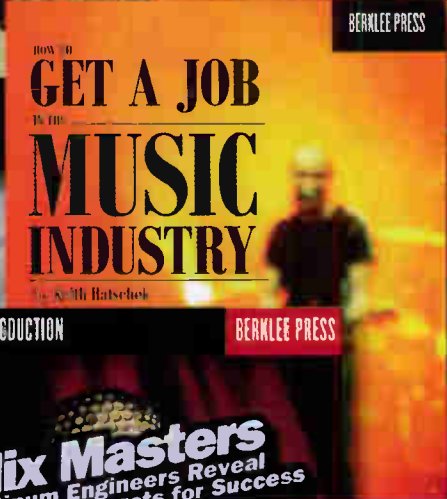
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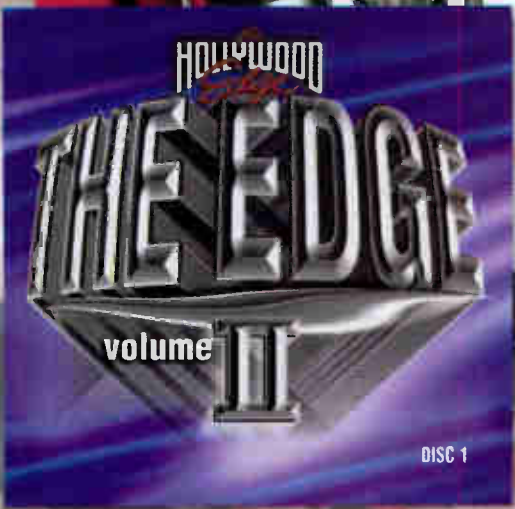
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Understanding Integration

More Basics of Videogame Sound Development

Way back in the December 2007 issue of *Mix*, we scratched the surface of game sound integration techniques. (See “AudioNext: Roll Your Own Level.”) We explored the concepts of asset preparation and rudimentary level construction, which I hope helped you to incorporate a simple ambient sound. This time, we’ll dig a little deeper and introduce concepts for other game-specific classes of audio.

ANIMATIONS

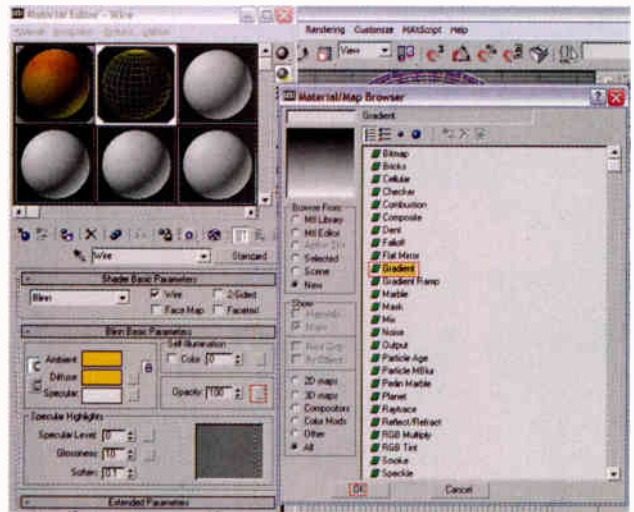
Animation is simply a term for things that have moving parts. A box can move if you were to throw it off of a cliff, but that doesn’t mean that it actually animates. An easy concept to think of with animation is a human who is walking or running. The question becomes, how do you hook it up?

There are two elements to consider when attaching a sound to an animation: the frame of the animation and what, if anything, the animation interacts with. As an example, consider footsteps. For the walk-and-run cycle of a standard adult human male, footsteps will vary widely. Typically, there is more scuffing when you run and crisper attack when you walk. There are also different surfaces to walk on, such as wood, carpet or concrete. In an editor such as the *Neverwinter Nights 2* Toolset, there is such a thing as an Animation viewer, where you can observe various characters’ walk, run and attack animations.

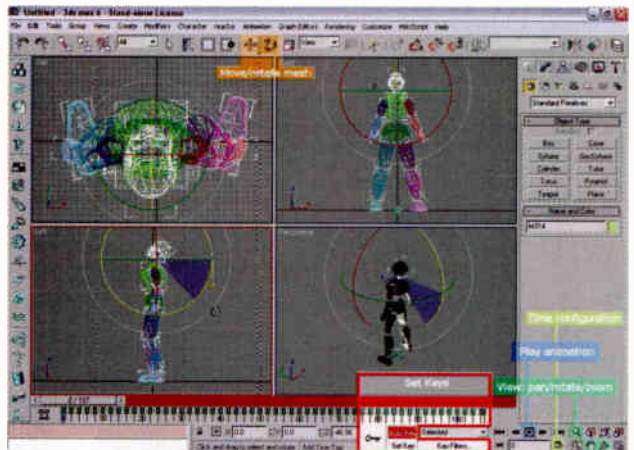
Let’s place a sound on an animation. Download a trial copy of Autodesk’s 3D Studio Max, one of the most widely used animation tools in the game industry, from <http://usa.autodesk.com/adsk/servlet/mform?id=10083915&siteID=123112>. Once you’ve done that, download a character rig from www.highend3d.com/3-Dsmax/downloads/character_rigs/4566.html. This will allow you to view a human figure. Now open the Track view.

From here, you can add keyframes; each keyframe can trigger a sound. This should provide an idea of how the animation-hookup system operates in many commercial game engines. Sometimes a keyframe may be known as an “annotation” or a “notification,” but essentially you’re making something happen when that frame hits. The complex consideration is material assignments, which are usually done automatically. For example, you have a set of footstep sounds for concrete, wood and carpet. On each material in the game world, a material property is assigned for footstep impacts. In whichever game engine’s sound bank manager you use (FMOD, Wwise, etc.), there should also be a property that has the same material entries, and when you assign the material in both of these cases properly the footsteps just “work.”

You can download an evaluation of the Gamebryo game engine from www.emergent.net/en/Products/



Use 3D Studio Max’s Materials Editor to design surfaces.



3D Studio Max Track lets you see characters from various perspectives.

Gamebryo, as well as an evaluation copy of Wwise (www.audiokinetic.com/4105/try-wwise-now.asp), which also has a 3D Studio Max plug-in. All of the integration tools will be at your disposal—and not just for animation. But before we move onward, let’s delve into the difference between 2-D and 3-D sounds.

3-D SOUNDS

Most non-game studio junkies consider a 3-D sound to be something that’s panned across multiple channels in a multichannel file of some sort, be it a multichannel WAV or, once compressed, an AC3 file. In games, however, a 3-D sound is mono.

This is because the sound will be panned in real time across any channels that the player has hooked up (up to

"I use two X-48s as the main 96-track recording system and two more as a backup. I'm very pleased with the sound quality, the support has been great and I'm happy I went with the TASCAMs."

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*Sound Design
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7.1 on the PlayStation 3, for example). This panning can take place relative to either the player model or the camera, and in a first-person perspective game the camera and the player are one and the same. This is certainly nifty, but it presents a number of complex considerations outside the normal linear formats when it comes to real-time mixing.

DEFINING RADIUS

A 3-D positional sound comprises an inner and outer radius, measured in units that your engine uses (meters, feet, etc.). Each sound must have its radius defined properly based on your game design mandates. If you're bucking for utter realism, an airplane flying nearby overhead would easily drown out other sounds. However, if you want to go for a dramatic moment so that a plane flying overhead wouldn't have such an effect and you want music to take over, then you can either make the radius smaller or you can create a ducking group that will immediately lower the volume of the plane when its radius reaches the player.

In an area where a lot of sounds take place, using a few techniques such as compression and limiting in real time (as was done in *Halo 3*) is also necessary to avoid slamming your headroom too hard. Games don't have to join the loudness war.

OCCUSION AND OBSTRUCTION

The concepts of occlusion and obstruction relate to the sonic changes that occur when there's something between the player and the sound source. Consider the airplane that just flew overhead. Creating the proper sound image once we're inside the plane would require using a lowpass filter and a bit of overall attenuation. Sounds familiar, but doing this in real time requires something called a raycast or linecast. This equates to the game engine drawing an invisible line from the sound source to you and ascertaining what's between these two points.

Occlusion and obstruction can cause processing headaches for your programming team, even on next-gen games. One possible work-around is to set up all the volumes that require occlusion/obstruction yourself. It's more work, but also allows more control. How do you do this?

Everything depends on your game engine. Say you use the Unreal Engine to create your level. It's possible to create volumes in the Unreal editor, and you can assign occlusion values to these volumes. Volumes take the shape of spheres, cubes—just about any primitive you want—and you

can specify the kind of occlusion (how much LPF, how much volume should be cut, etc.) to be applied to these volumes.

REAL-TIME EFFECTS

Real-time effects were used in *Halo 3* to achieve EQ and lowpass filtering with Waves technology. This allowed radio effects to be used on voice-over files without the need for a duplicate file. Quite an achievement, but how else can we use real-time effects?

The next phase of real-time effects is represented by examples such as applying a Lexicon or Waves reverb in real time as you walk into a room. If you've defined occlusion and obstruction, chances are these volumes can double as "reverb zones." You may have heard of EAX 4 (Enhanced Audio Effects) functionality from Creative Labs, the creators of the SoundBlaster soundcard line and parent company of E-mu Systems. Working entirely in software, EAX can allow reverb crossfades through different zones and pre-loading other zones so you—the game character—can stand in a small hallway area with a "plate" reverb effect while firing a shot into a heavily reverberant room and hear that reverb.

HUGE RESULTS FROM SMALL RESOURCES

A lot of folks—myself included—might insist that creating an entire soundscape in real time is the goal, yet that scenario is rarely the reality. Here are some proven, pro techniques for getting the most from what are often limited resources.

If you have an immersive, rich landscape with dozens of sounds of varying lengths (a blustering wind, an ocean, birds chirping, a distant foghorn, planes flying overhead), processing all those sounds just might put too much strain on your channel count. In lieu of this, playing a multichannel surround file might alleviate the problem and generate the more intense experience that you'd prefer the listener to hear rather than leave more to chance in a real-time mix. And to help you along, numerous vendors offer surround ambience collections, with walla and sonic backgrounds in a variety of sound effects packages suited to the needs of the game or film designer. For details on many of these, check out "Total Immersion Effects" in the February 2008 issue of *Mix*.



Image occlusion/abstraction can cause headaches for the programmers.

TOOLBOXES

Imagine a game in which you had 500 unique attack sounds per character, which isn't out of the ordinary. I wouldn't be surprised if Capcom's highly anticipated *Street Fighter IV* had this amount. But say you have a fighting game with more than two characters onscreen at once (say, four, as in *Gauntlet*) and each character has a few hundred moves, each with its own set of visual effects and sound needs. One way to circumvent this is through toolboxes: batches of sounds that can be used for multiple situations.

In the case of melee attacks, for example, you can use a set of small, medium and large whoosh sounds, as well as a whole slew of exertions (guttural "hah!" and "rgh!" grunts that go with the territory of melee attacks). For the folks on the receiving end of the attacks, a set of impacts can be used. Here, a couple dozen toolboxes spread across categories of impact (a simple example being "small," "medium" and "large") and the use of a good randomization scheme should ensure that there's no repetition. This will save precious channels and memory while allowing you to focus on the all-important "money shot" sounds.

FAREWELL, MY FRIENDS

There is far more to be explored in the world of game audio integration, but other duties have called me away from writing "AudioNext." So I must bid a grateful farewell to *Mix*. It's been an honor to have written for the best-known magazine in audio production, and I wish the best for everyone reading this. Hopefully, I'll see some of you at GDC next year!

Alexander Brandon is the audio director at Obsidian Entertainment.

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LIVE SOUND SYSTEM CONTROLLERS

POWERHOUSE TWEAKS FROM A RACKMOUNT BOX

BY STEVE LA CERRA

There's nothing like the joy of assembling a new P.A. system. The sweet smell of new cabinetry, manuals everywhere and enough audio wiring to entertain a snake charmer. The best part is building and prepping the drive rack—connecting the audio routers, crossovers, equalizers and delay lines, and then fine-tuning it. Of course, after you've spent a week painstakingly dialing in the crossover, EQ and delay settings, somebody comes along and changes everything when you're not looking.

Luckily, audio manufacturers felt our pain and created the system controller or drive processor. Typically incorporating graphic and parametric EQ, dynamics, crossover, delay, feedback elimination and audio routing, these controllers make touring life easier by consolidating gear that previously existed in a separate chassis. This combined functionality reduces the amount of wiring and rack real estate, a valuable asset especially in small venues.

In addition to the audio functions previously mentioned, most system controllers feature preset and user libraries, and the ability to access them via MIDI, USB or a memory card. This is great for traveling systems in which custom profiles can be created and recalled for use in different venues. Some controllers furnish preconfigured crossover setups or presets for specific loudspeakers to get you up and running quickly. For example, the dbx DriveRack unit ships preloaded with crossover settings

for certain JBL loudspeakers, removing the guesswork while saving you time in the process.

Front panel muting, metering and level adjust are a must, and—as it won't be long before analog wiring resides in the Museum of Radio and Television—it'd be wise to choose a device with digital I/O capabilities. More and more manufacturers are providing Ethernet ports and software for control via PC, and you'll find at least one controller (the Dolby DLP) that allows you to remotely make/break ground on audio channels for *much* faster troubleshooting of ground loops. Security lock-out for the front panel can keep snooping sniffers out of your precious audio parameters.

Some loudspeaker manufacturers produce system controllers optimized for use with their own products, and system control integrated with power amplifiers is on the horizon. Let's look at some system controllers from a variety of audio manufacturers, listed alphabetically.

A BREAKDOWN OF THE UNITS

The Intelli-Q 22 (about \$5,700) from Apex (www.apex-audio.be) is a 2-channel processor for stereo or dual-mono use. Each channel has 30-band, constant-Q graphic



Yamaha's DME Series combines mixer, EQ, dynamics control and more.

and 10-band parametric EQ, high- and low-pass filters, shelf EQ, 2-band compressor with adjustable crossover and a look-ahead limiter on the audio outputs. Sidechain inputs allow control over the dual-band compressor or can feed a built-in RTA. AES-3 I/O is available as an option, and a universal switch-mode power supply facilitates worldwide use.

Apex's Intelli-X 48 (about \$7,900) comes in a 4x8 configuration, allowing XLR connectors to be switched between analog and AES-3 digital input. Up to 256 filters may be used simultaneously, including 30-band, constant-Q graphic, 8-band parametric and 2-band shelf EQ per input, plus 8-band parametric and 2-band shelf EQ per output. All Apex controllers may be accessed via the company's Intelli-Ware PC software for real-time control.

The 4.24C Protea System II (\$1,795) from Ashly (www.ashly.com) is a 4x8 digital crossover/system processor employing active, balanced I/O and 24-bit/48kHz conversion. Input processing includes gain, delay and six filters (parametric, low- or high-shelf), while output processing includes crossover, four filters, delay, polarity reverse and compression/limiting. The 4.24C may be programmed and run from the front panel or via MIDI, Ashly's Protea System Software (Windows) or SIA Smaart software. Preset recall, input level, output level



Meyer Sound Galileo features CP-10 phase-parametric EQ on each audio I/O.



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and mute functions can also be controlled by an AMX NetLinx system.

With 3x6 audio I/O, Ashly's Protea 3.24CL (\$1,035) was designed for use in small systems. Each input provides control over gain, delay and six filters (parametric, low- or high-shelf). Each output provides four filters (parametric, low- or high-shelf), delay, crossover, gain, polarity and compression limiting for speaker protection, and may be assigned to any combination of inputs. Conversion is 24-bit/48kHz, and the 3.24CL provides four levels of security.

Behringer's (www.behringer.com) Ultra-drive Pro DCX 2496 (\$339.95) loudspeaker-management system has a 3x6 configuration, with 24-bit/96kHz conversion and four different operating modes. One of the analog inputs is switchable to an AES/EBU digital input. Onboard sample rate conversion allows easy connection of incoming digital signals with sample rates from 32 to 96 kHz.



Input processing from Ashly's 4.24C Protea System includes gain, delay and six filters.



The EAW UX8800 operates in either System Processor mode or Loudspeaker Processor mode.

Zero-attack limiters on all output channels provide optimal signal protection.

Nexia SP (\$1,999) from Biamp (www.biamp.com) provides up to 4x8 routing. System configuration is user-definable via daVinci PC software, and you can create multi-unit systems using Ethernet and NexLink digital audio linking. DSP includes a variety of mixers, graphic and parametric EQ, high- and lowpass filtering, two three/four-way crossovers, dynamics, delay and a signal generator. Rear panel NexLink ports facilitate linking of multiple units for larger systems, and an RS-232 port links a variety of optional third-party remote-control devices.

Biamp's AudiaSOLO (\$3,998) is available in 12x4, 4x12 and 8x8 versions with bal-

anced I/O on barrier-strip terminals. Inputs accept mic or line-level signals. AudiaSOLO has a minimalist front panel; Biamp provides software for system design, control and diagnostics via PC. Once a system design is compiled, it's downloaded into AudiaSOLO, where it can be controlled via third-party systems such as AMX and Crestron via daVinci software and/or via dedicated Audia remote-control panels.

The latest addition to the dbx (www.dbx.com) line of DriveRack processors is the DriveRack PX (\$599.95), which is designed for use with powered loudspeakers. This 2x2 controller has supplemental subwoofer outputs, and a Setup Wizard includes profiles for JBL and other powered speakers; patented AFS™ Advanced Feedback Suppression kills problematic frequencies, allowing higher gain-before-feedback. DSP includes dual 28-band graphic EQ, stereo multiband parametric EQ, PeakStopPlus limiting, classic dbx compression and sub-harmonic





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synthesis from the dbx 120A. A front panel mic input allows performing RTA with the (included) dbx M2 measurement mic.

The 4800 (\$4,999.95) is the flagship of dbx's DriveRack Series, boasting 4x8 analog and 4x8 digital I/O. The 4800 may be run at sample rates of 48 or 96 kHz for a dynamic range of 116 dBA. In its complement of DSP are 31-band graphic and 9-band parametric EQ per input; crossover routing configurations with Bessel, Butterworth or Linkwitz-Riley filters; 6-band parametric on every out; loudspeaker cluster; and driver alignment delays, plus selectable inserts on every channel. The 4800 is compatible with HiQNet control and offers a CobraNet option.

The DLP (Dolby Lake Processor) from Dolby (www.dolby.com) is a sophisticated audio processor "main frame" for live and studio apps. Combining proprietary technology from Dolby Labs, as well as Lake Contour and Lake MESA EQ, the DLP comes in configurations ranging from the LPD (digital I/O only) up to the LP4D12 (4x12



Dynacord DSP 260 24-bit system controller

analog I/O). The rear panel features balanced analog XLR I/O, and eight channels of AES/EBU and S/PDIF optical I/O. The DLP performs crossover, delay and limiting functions, as well as convolution reverb for creating natural-sounding impulse responses without the need to sample spaces. Recent updates include Dante, a digital audio networking format that addresses some of the weaknesses of other audio networks, and a firmware upgrade for 8x16 digital audio networking at no additional cost. Ethernet ports connect the DLP to a network. Price varies with configuration.

The Dynacord (www.dynacord.com) DSP 260 (\$980) is a 24-bit system controller with 2x6 audio I/O. In addition to EQ, delay and limiting per channel, it offers global parametric and graphic EQ, delay and crossover. DSP 260 presets can be written from the front panel or via companion editing software, and presets that are compatible with Dynacord's DSP 244 are available for the company's loudspeaker systems. An RS-232 interface allows slave operation of multiple devices, and a 6dB pre-A/D pad switch prevents input overload.

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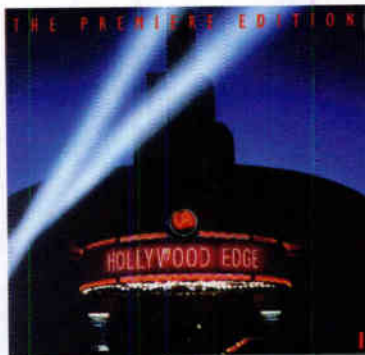
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LIVE SOUND SYSTEM CONTROLLERS

EAW's (www.eaw.com) UX8800 (\$3,325) 4x8 incorporates two distinct modes of operation. In System Processor mode, user-adjustable functions include EQ, filters, delay, gain, crossover, limiter and polarity. In Loudspeaker Processor mode, preset processing is available for EAW loudspeakers and arrays with Gunness Focusing. In this mode, the UX8800 corrects loudspeaker anomalies that cannot be corrected with conventional DSP. Standard Ethernet protocol and hardware-enabled computer control are offered through EAW's Pilot software for easy plug-and-play Ethernet communication. Audio and control signals can be transmitted between up to 254 additional devices using the built-in 32-

channel U-Net network.

The MX8750 (\$2,775) was designed to complement EAW loudspeakers. Functions for the 2x8 unit include crossover (seven types) parametric and shelf EQ, high- and lowpass filters, delay, polarity and limiting. Six bands of parametric EQ are available per input, as are five bands per output. Analog audio I/O is on balanced XLR connectors with 24-bit/48kHz conversion. The MX8750 may be controlled using EAW software and a PC with an RS-232 interface or via MIDI.

The DC-One (\$980) 2x6 system controller from Electro-Voice (www.electrovoice.com) has analog I/O on balanced XLR connectors, with DSP being 24-bit/48kHz with 32-bit, floating-point internal processing. Loudspeaker presets are available for automatic configuration of EQ and crossover settings, providing enhanced sonic performance while protecting loudspeaker components.

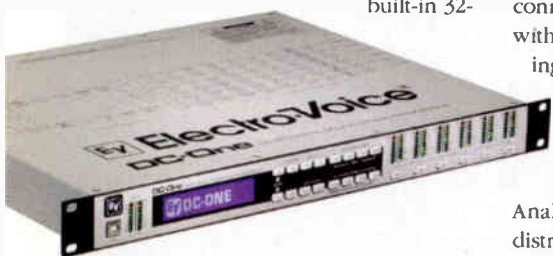
Analog inputs feature Thru connectors for distribution of audio to additional DC-One processors for use with larger systems. A front panel USB interface with the com-



Dolby recently added Dante digital audio networking to its DLP.

pany's DC-One Editor software supports advanced editing and control via PC.

Clark Teknik's (www.klarktechnik.com) Helix DN9848E (\$5,250) system controller is fully programmable, with input processing of gain, compression, parametric EQ and delay. Output processing includes configurable routing, delay, cascaded all-pass phase-correction filters, low- and highpass crossover, filters with a variety of slopes and characteristics, and six bands of parametric EQ. AES/EBU digital inputs are standard and are 96kHz-compatible for connection to external devices with high sample rates. Dual-port Ethernet increases communication speed over serial ports, while the company's proprietary ELGAR software can be used for remote access and



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control over the DN9848E.

The Meyer Sound (www.meyersound.com) Galileo 616 has six balanced analog inputs, three of which are individually switchable to AES/EBU digital inputs, enabling the unit to simultaneously accommodate analog and digital sources. Its 16 balanced analog outs deliver signal levels up to +26 dBu, driving self-powered loudspeakers to full output. Each audio I/O includes Meyer's CP-10 complementary phase-parametric EQ (five bands on inputs, 10 bands on outputs), with TruShaping filters to avoid the phase shift that can degrade intelligibility and signal clarity. Ethernet enables remote control via PC/Mac running Meyer Sound Compass control software, while bidirectional communication ensures that the user is always viewing active settings. Galileo 616's AC power switch is software-activated, so accidental button-pushes cannot turn off the unit's power.

Nexo's (www.nexo-sa.com) NX 242 (\$3,170) is a 2x4 processor with electronically balanced, 24-bit analog I/O and a latency of only 2.2 ms. The NX 242 was designed to support all Nexo GEO, Alpha and PS loudspeakers, providing crossover, driver protection and system alignment matched to each Nexo component. An EtherSound interface (\$5,170) enables connection to the NXtension-ES4 for remote control and distribution of digital audio, while Nexo's ND 242 TDController supports monitoring of amp status and I/O levels via PC. The NX 242's onboard Flash EPROM allows system firmware to be updated by the user.

The Digitool MX (\$1,699) from Peavey Architectural Acoustics (aa.peavey.com) is a programmable system controller employing 32-bit parallel SHARC processors. Audio I/O is 8x8 on balanced Euro connectors, with inputs accepting mic or line-level. Sample rates up to 96 kHz are supported with 24-bit conversion. In addition to input high- and lowpass filtering, the Digitool MX features a noise gate, shelf and parametric EQ, compressor, 5-band parametric EQ, output filtering, output delay and a signal generator. Access to internal settings can be restricted with a user-defined password.

Peavey's (www.peavey.com) VSX26 (\$559.99) programmable processor has 3x6



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LIVE SOUND SYSTEM CONTROLLERS



QSC SC28

balanced audio I/O. A front panel XLR input with phantom power can be used for measurement mic input or as an extra audio input. DSP capabilities include input graphic EQ, dynamics and delay, plus five independent filters for use on the audio outputs, including parametric, notch, horn EQ, low- and highpass filters with varying slope, bandpass, and high- and low-shelf EQ. Front panel USB ports allow the VSX26 to manage presets with a memory stick or connect to a PC for use with graphic editing software.

Boasting presets customized for its loudspeakers, the SC28 System Controller (\$1,331.66) from QSC (www.qscaudio.com) is a 2x8 device with 32-bit, floating-point processing with 24-bit/48kHz conversion. DSP tunings incorporate IIR (Infinite Impulse Response) and FIR (Finite Impulse Response) filtering for compensation of inherent transducer and waveguide response anomalies. System configurations are selected by scrolling through a list of QSC loudspeakers and selecting the desired crossover profile (two-way, three-way, etc.). A similar process is used to identify QSC amplifiers in the system, taking into consideration the amp's sensitivity. A rear panel USB port allows new tunings to be easily loaded into the SC28.

Rane's (www.rane.com) RPM 26z (\$999) can be drag-and-drop-configured on any PC with Ethernet and Windows XP using Rane's Drag Net software. The device provides a 2x6 analog I/O and an AES-3 digital input. All I/O has a user-defined processing path that can include gain, parametric, bandpass, all-pass, high- and low-shelf and -cut filters; crossovers with varying slopes and characteristics; compression; limiting; and automatic gain control. Rear panel Euroblock connectors and ground screws for direct connection to chassis help solve EMI issues due to shield wiring. Multiple units are control-

lable from a single PC via Ethernet.

Sabine's (www.sabine.com) Navigator Series (\$995) are available in configurations ranging from 2x4 to 8x8 with Ethernet capability. Every Navigator features front panel control and 24-bit conversion with 40-bit extended processing via SHARC processor. Each audio channel has control over gain and polarity, up to eight parametric filters, a variety of crossover filters and slopes, high- and low-shelf EQ, FBX Feedback Exterminator, comp/limiter and delay adjustable in 21ms increments. Navigator Remote Control software displays system status and provides access to all parameters via PC.

The Integrator Series Deuce 722 (\$849) from Symetrix (www.SymetrixAudio.com) is an audio DSP toolbox with two analog ins and outs accommodating mic or line-level input. Mic preamp, compression, expansion, de-essing, AGC, ambient noise compensation, feedback elimination and EQ are all performed in the single-rackspace unit. A rear panel Ethernet jack combined with a Windows interface facilitates setup and editing of parameters. Applications for the Deuce 722 include front-of-house speaker management, monitor EQ and feedback elimination, voice processing for P.A. and paging over background music.

The EQ Station (\$5,245 to \$9,345, depending on configuration) from TC Electronic (www.tcelectronic.com) runs eight channels of analog I/O on balanced XLR connectors, sampling at 6.1 MHz with 24-bit resolution. Dedicated front panel encoders provide control over frequency, bandwidth and gain for frequency, parametric and dynamic EQ. Each channel has 6-band parametric EQ, 29-band graphic EQ with four types of filtering, 3-band dynamic EQ or 2-band "paradynamic" EQ, peak limiter and delay. Channels may be linked for stereo operation, and an optional expansion card accepts AES/EBU digital I/O.



TC Electronic's EQ Station has front panel encoders for frequency, bandwidth and gain.

VirtualEQ Station software allows the unit to be remotely controlled from a PC using standard TCP/IP protocol. MotoFader 64 is a companion remote featuring 29 motorized faders with instant access to 64 channels of graphic EQ.

XTA's (www.xta.co.uk) DP448 (\$5,795) has a 4x8 audio I/O with 96kHz/24-bit processing. To facilitate configuration of new systems, it features templates with preset system routing and crossover points that can be user-tuned. Any audio output may be fed from any input, or combination of inputs, forming a flexible matrix. Input functions include 28-band graphic EQ and eight bands of parametric EQ, while output processing features nine parametric bands per output and crossover filters with slopes ranging from 6 to 48dB/octave. Also available is high- and low-shelf EQ, look-ahead limiting and phase adjustment in 2-degree increments. Audiocore PC software provides quick linking of I/Os, and up to 128 units are networkable using standard XLR cables.

The DME Digital Mixing Engine Series of controllers from Yamaha (www.yamahaproaudio.com) combine mixer, EQ, crossover, dynamics control, feed-back suppression and even WAV file players. The DME64N (\$6,500) and DME24N (\$3,600) feature 24-bit 96kHz DSP using Yamaha's DSP7 chip for audio processing. The DME64N has four rear panel Yamaha Mini-YGDAI expansion slots, allowing up to 64 I/O channels to be added. The DME24N features eight built-in analog I/Os and one Mini-YGDAI slot for an additional 16 channels. Expansion card options include analog or digital I/O in a variety of formats. DME Satellite Series network interfaces can be used to expand a DME system to CobraNet or EtherSound networked audio protocols, enabling remote-control I/O and distributed processing for increased system flexibility. DME Designer software runs on most Windows-based computers, allowing a user to graphically compile the audio components required for a particular system. ■



Peavey Architectural Acoustics Digitool MX

combine mixer, EQ, crossover, dynamics control, feed-back suppression and even WAV file players. The DME64N (\$6,500) and DME24N (\$3,600) feature 24-bit 96kHz DSP using Yamaha's DSP7 chip for audio processing. The DME64N has four rear panel Yamaha Mini-YGDAI expansion slots, allowing up to 64 I/O channels to be added. The DME24N features eight built-in analog I/Os and one Mini-YGDAI slot for an additional 16 channels. Expansion card options include analog or digital I/O in a variety of formats. DME Satellite Series network interfaces can be used to expand a DME system to CobraNet or EtherSound networked audio protocols, enabling remote-control I/O and distributed processing for increased system flexibility. DME Designer software runs on most Windows-based computers, allowing a user to graphically compile the audio components required for a particular system. ■

In addition to being Mix's sound reinforcement editor, Steve La Cerra mixes front of house for Blue Öyster Cult.

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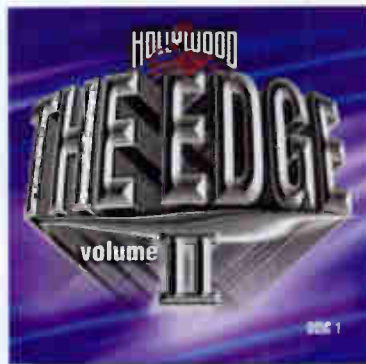


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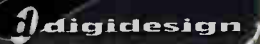
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Sara Bareilles



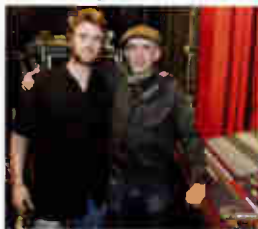
Photos & Text by Steve Jennings

Mix caught up with rising new talent Sara Bareilles, who's opening for James Blunt on the U.S. VH1 You Oughta Know tour. The singer/songwriter showed off her lyrical prowess to a sold-out crowd at San Francisco's Warfield Theater. Front-of-house engineer Mike Hornby and monitor engineer Gerry Wilkes are mixing for both acts.

Hornby mans a Midas Heritage H3000, using 35 channels for Blunt and 14 for Bareilles. "This means I overwrite about seven of my channels and reset them in the changeover," he explains. "Sara's band is pretty well-disciplined, so I don't really need much processing—just a dbx comp on the piano and Sara's vocal."

Bareilles sings through a Shure Beta 58A. The Sound Image—provided P.A. comprises eight V-DOSC per side with three dV-DOSC underhangs per side and four VerTec subs per side; all subs are onstage. Front-fills include four QSC WideLines spread out on the downstage edge. Powering is via Crown iTech 8000 amps.

Also on a H3000 is Wilkes, who is running 14 ins and four outs for Bareilles. As for outboard, Wilkes only uses XTA graphics. "It's the first time I've worked with Sara," he says. "She's a very talented musician and, more importantly, a very nice person. She shows great maturity and professionalism in her approach, making the task of mixing monitors much easier."



Monitor engineer Gerry Wilkes (right) with Marcus Douglas, Sound Image monitor tech



FOH engineer Mike Hornby

FixIt

Monitor engineer Dave Guerin recently road-tested the DiGiCo D5 Version 4 upgrade for The Pogues' Christmas tour. Entec Sound and Light supplied the console, along with the rest of the monitor gear.

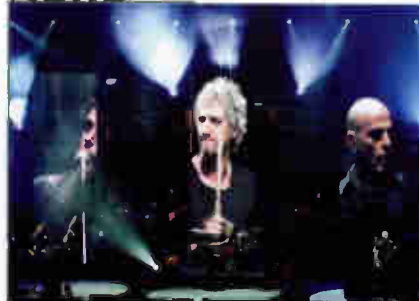
[With the upgrade,] now you can easily see the graphic that is inserted on the selected output and it's immediately available. As soon as you select the output, the graphic's there. You can also be listening to one output, but select a different mix to the one you are listening to, which means you can adjust the reverb send while listening to where the reverb is returning to. Guitarist James Walbourne has a full mix of drums, accordion, banjo and main vocal, plus his vocal and acoustic. [Guest vocalist] Ella Finer uses the same wedges but with a totally different mix of just her vocal and a bit of the main vocal. On an analog desk, there would be lots of buttons having to be turned off. On the D5, with one fader I can change between the mix for James and the mix for Ella in the same set of wedges.



inside

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News



Soda Stereo's reunion dates in Miami featured Shure microphones on Charly Alberti's drum kit, placed by FOH engineer Adrian Taverna, who has been with the band since their beginning.

For Celine Dion's current world tour, production company Solotech is bringing out a pair of new Studer 5 SR consoles for both FOH and monitors... DPA Sound has added to its DiGiCo inventory with two CS-D5s and a D1. The desks have already been used for a number of tours with Danish bands, including those of Tina Dickow, TV-2, Big Fat Snake, Poul Krebs, Thomas Helmig and Nephew... Saddle Creek Records has opened The Slowdown, a new 470-capacity bar and club in downtown Omaha, KS, that hosts live performances by regional and touring artists. Ohio-based A/V system integrators SoundCom installed three sound systems at the venue, including main and small club systems featuring Electro-Voice loudspeakers and subwoofers... Charlotte, NC-based production company Event Productions added EAW line array modules, digital signal processors and subwoofers to its audio system inventory... Broadway's latest addition, *The Ritz*, features a sound design by Tony Meola, who spec'd a Meyer Sound loudspeaker system... FiberPlex's LightViper was acquired for Third Day's recent tour, spec'd by David Jacques, the band's production manager/FOH engineer.

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On the Road

The Verve

The Verve tour, which rolled out across the UK in late 2007, found front-of-house engineer Ian Laughton and monitor engineer Tristan Farrow both manning Midas XL8s provided by Britannia Row Productions. Mix caught up with Farrow during the tour.

How much gear are you carrying?

The Verve December tour carried full production. Britannia Row provided all the sound equipment, and for myself I had my monitor rig of choice. The desk was an XL8 with all the associated bits. I used all the onboard "accessories" other than the onboard graphics, for which I chose the digital TC Electronic EQ station. All wedges were Turbosound 350s, which are fantastic for the full-frontal fatness required for the band. Sidefills were three-deep V-DOSC flown, with three dV-DOSC subs underneath them. This gave a very even coverage of the band over the stage.

Do you have a specific mixing style for this band?

It is always a pleasure when your own ideas about how the stage should sound is similar to what the band wants. I was fortunate to be in this position with The Verve. They are a band that jams and plays by feel, so it is important for the sound to have an emotive and sonic quality.

Is the band on in-ears, wedges or a combination of both?

The band is entirely on wedges. Pete, the drummer, will use IEMs for songs with a click-track for a more precise timing. This has been working great.

Where can we find you when you're not on tour?

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P.A./Amps: L-Acoustics V-DOSC, dV-DOSC, ARCs; Rat Dual 18-inch subwoofer/L-Acoustics LA48A, Crest 7001/4801, Crown 2400 and 3600, Chevin Q6
Monitors: ARC speakers, Rat Dual 18-inch subwoofer, L-Acoustics HI-Q
Outboard Gear: XTA DP428, TC Electronic D-Two/2290, Summit Audio DCL200
Mics: Sennheiser e609, e904; Shure SM58, SM57, Beta 52, 91, 98d/s, 58, 57; Neumann KSM109, KSM32; Audix OM7; Audio-Technica AT 4050; Radial J48V
Additional Crew: tour manager Jimmy P., production manager Jordan Coopersmith

Iron Maiden

Sound Company: ML Executives Group (Fort Lauderdale)
FOH Board/Engineer: Doug Hall/Soundcraft Vi6
Monitor Board/Engineer: Steve "Gonzo" Smith/DiGiCo D5 Live
P.A./Amps: EAW KF760, KF300z, KF761, SB1000z/Lab. gruppen FP7000, FP6400
Monitors: EAW SM200iH, KF850z; Turbosound TMS3, 2x15; EML 2x15; HK Audio 2x18



PHOTO: JOE CALABRESE

Outboard Gear: EAW Smaart Version 6, XTA DP226, AudioCore wireless, AMS RMS15, Smart c2 compressor, dbx 1066, Eventide H3000 DSE, Yamaha SPX2000
Mics: Shure UHF Series with Beta 87C element, wireless and wired mics
Additional Crew: system designer Gary Marks, line array system tech Michael Hackman, monitor/stage tech Squid Walsh

Gallo Center Opens With High-End Audio System

The Gallo Center for the Arts, a new \$40 million theater complex in Modesto, Calif., offers two performance venues: The Mary Stuart Rogers Theater holds 1,250 seats, and the Foster Family Theater has a capacity of 444 seats. This regional facility is home to the Modesto Symphony and will serve as a multipurpose center for a broad range of entertainment. Media Systems Design Group was the audio design consultant, with principal Tim Hart overseeing the design, which includes JBL VerTec and VRX line arrays, Crown amps and BSS Audio processing.

The main theater features 18 VT4888 midsize line array elements, configured nine per side with each cluster also rigged with two VT4882 mid-sized arrayable subwoofers; power is via CTs and I-Tech Series amplifiers. In the smaller theater, the line arrays comprise 12 JBL VRX932LA portable line arrays, arranged six per side, with four VRX918S subs mounted onstage. Signal processing is handled by BSS 9008iis.

The contractor for the facility was Henry Beaumont of pcd Inc., who had to respond quickly during the final phase of the installation because approval for the high-performance arrays resulted in a late design addition. "We had a short time window," Beaumont says. "The system had to go in and work right away, and it did. JBL has the suspension hardware so well-engineered on these products, that it helped us predict how they would hang, so we could just drop them in. It came out almost exactly as we projected."



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World Radio History

JILL SCOTT



Photos by Steve Jennings

Text by Sarah Jones


R&B singer Jill Scott and her 14-piece band have been on the road touring in support of Scott's latest album, *The Real Thing: Words and Sounds Vol. 3*, released this past fall. The tour is hitting mid-sized venues across the country, from Boston's Orpheum Theatre to Detroit's Fox Theatre and The Grove of Anaheim, Calif. *Mix* caught a sold-out February show at Oakland, Calif.'s grand art-deco Paramount Theatre, where the soulful diva kept 3,000 fans on their feet all night with her sultry blend of fierce funk and smooth grooves. Sound for the tour is being provided by Masque Sound (East Rutherford, N.J.), and includes a Meyer Sound MILO system (24 boxes), with eight d&b B2 subs and D-12 amps; monitoring is via Firehouse powered F-12s and XTA 226s.

Scott sings into a Neumann KMS 105. "Jill has a full stereo mix in her Future Sonics ear monitors," says monitor engineer Jim Roach. Scott also has four wedges on two mixes: "The outer pair of wedges has a band mix, and the inner pair is just her vocal."

Front-of-house engineer Lorne Grabe (second to right, with, from left: monitor engineer Jim Roach, system tech John Gaczewski and monitor tech James Good) has been with Scott since her last European tour. His Digidesign VENUE D-Show board is set up for eight stereo buses and 64 channels. As there are quite a few musicians onstage, he uses groups to stereo and then to the matrix. "That way," he explains, "I can put anything, anywhere. I can put a vocal-heavy mix where I need it to be." As for effects, Grabe uses some comps, but not much; instead, Grabe works off of the room's natural reverb. "If you have a good mic and a good player, you don't need much as for as outboard.

"I mix off of the VCAs and let the band do the dynamics," Grabe continues. "I follow Jill just like the band does. Mixing the show keeps me on my feet during the whole show—I'm very busy."






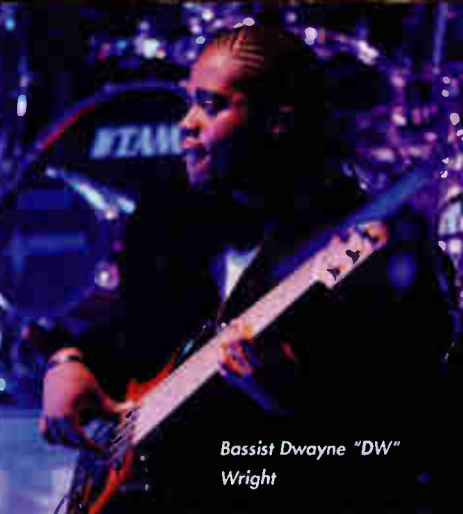
Horn mics include Neumann U89s on sax and trumpet, and Beyers M88 on trombone.




Percussionist Aaron Wapner




Drum/percussion tech Detrick Lowman checks the set. Drum mics include Neumann U87s on overheads, Sennheiser E908s on rack and floor toms, Yamaha Subkick and Audix D6 on kick, Neumann KM 184 on hi-hat, and Sennheiser 441 and Shure SM57 on snare. Congas, timbales and bongos are miked with Audix D2s and D3s.




Bassist Dwayne "DW" Wright




Guitarist/music director Randy Bowland



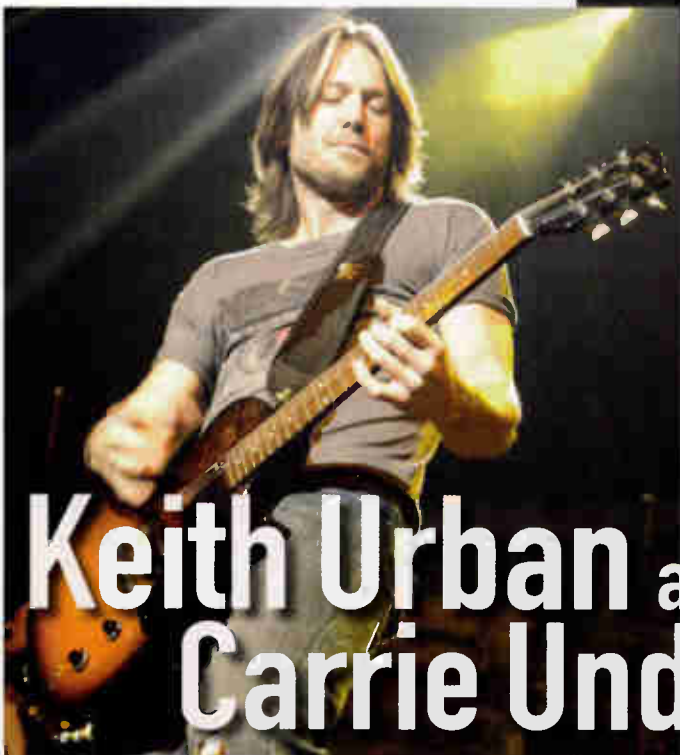
According to keyboard/bass/guitar tech Corey Reeves, the guitar and bass players are the only performers who get their monitor mixes on wedges.



Background singers are miked with Neumann KMS 105s.



There are 14 performers onstage. Monitor engineer Jim Roach gets the most out of his Digidesign VENUE D-Show, using 52 inputs and 30 outputs feeding various hard-wired and wireless in-ears, wedges and FX. "The only outboard piece of gear I have is an Aphex 8-channel mic pre to get my console the extra inputs I need for communication mics around the stage," he says. "I'm using the onboard gates and comps on drums, Fairchild 660 plug-in on guitars, Purple Audio MC77 plug-in on bass and [Digidesign] Smack! on vocals." More plug-ins are used for effects: Digidesign Re-Vibe on vocals and flute, and Reverb One on drums; and TC Electronic VSS3 reverb on Scott's vocal. "So far, the biggest challenge has been keeping my eyes on 12 musicians and vocalists," says monitor engineer Jim Roach. "It's a big group to look after; they keep me on my toes and I love it."



Keith Urban and Carrie Underwood

WORKING THE STAGE AND THE AUDIENCE THE GOOD OLD-FASHIONED WAY

By Gaby Alter

When many big pop acts put on a show, it typically calls for a heavily choreographed routine. Such acts follow a tight script that's filled with large production numbers, dancers and special effects. For Keith Urban, one of the biggest names in contemporary country music, putting on a show means doing it the old-fashioned way: working hard to win over the crowd, changing up the set with new arrangements—in short, making it anything but routine. This was evident at New York City's Madison Square Garden, one of the first stops on the Love, Pain and the Whole Crazy Carnival Ride tour featuring co-headliners Urban and Carrie Underwood. The tour began in January and will be making stops across the U.S. before heading to Urban's native Australia and then finishing up Stateside this month. During his performance, Urban ran from one end of the stage to the other, up and down a runway and often into the audience, where he let fans touch him as he took guitar solos. At one point, he even unplugged his axe, signed it and gave it to a dumbfounded fan.

Urban's front-of-house engineer, Steve Laws, has been with the singer (minus a few breaks) since Urban started out on Australia's club scene 20 years ago. Admittedly, Urban's old-school Aussie club chops are enhanced by

Steve Laws,
FOH engineer for
Keith Urban



Rob Rankin,
FOH engineer for
Carrie Underwood

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very new-school technology, in particular a 60x40-foot high-definition video wall that adds some fancy imagery and close-ups of the band.

The tour is carrying a Clair Bros. P.A., with the new "bow-tie" subs, eight i4s as side hangs in large arenas and a pair doing frontfills. "There's always a zone in the center that no matter what concert you go to is the worst seat in the house," Laws says. "So we put a pair of i4s there, stacked on the subs, making it punchy down in the front. We have a couple of smaller P2 cabinets doing outfills on the very end of the runway on the sides, just for the people way close in the front. It's very consistent sonically from venue to venue. It doesn't throw a lot of junk off the back. It's a great system."

However, the nucleus of the show remains Urban's spontaneous, crowd-engaging style. "He's known for grabbing the mic and going out into the audience, which is always fun," says Spence. "The biggest trick was coming up with a game plan for his spontaneity to make sure he had a mic when he was out in the crowd and by the time he got back up onstage. So we have six vocal mic positions for him between the main stage, the B stage and the piano position. Whatever

he's closest to, he grabs it and goes." The mics—Shure Beta 87 capsules with Shure U4D receivers and U2 transmitters, along with a KSM9 as the main stage mic—often see abuse in the line of duty. "He goes out into the audience, grabs a mic and sings on it; now when it's time for him to play guitar, the mic just gets thrown," Spence says, "so they're a little dinged up. We're on a rotation of getting 'em repaired, but it makes it fun for the audience."

"Both Jason and I have to be on our toes a lot because he'll do audibles," adds Laws. "He'll just call a song, and we've got to be ready to go. It doesn't happen a lot, but it does happen." What's more, the band changes instruments frequently. During the show, Urban plays electric and acoustic guitars, banjo and bass, and his bandmembers switch between acoustic and electric guitars, banjo and mandolin. In addition, the band plays a second, mostly acoustic set on a raised platform at the end of a runway in the center of the arena, which has its own setup (and during which more instrument switching occurs). In all,



Some members of Urban's crew, L-R: Joe Kaiser, Kenneth McDowell, Jason Spence, Steve Laws, Bill Flugan and Matt Wobst

Spence and Laws must deal with a massive 104 inputs. "I do a lot of awards shows, and I don't have that many inputs coming from [them]," Spence says.

FOH SIGNAL CHAIN

To handle the FOH mix, Laws uses a DiGiCo D5 console. "I'd still rather have an analog system at the end of the day, but it's really impractical, especially now," he says. "It's also a space-saving thing. I'd basically need two [Midias] XL4s to make the whole thing work, and the amount of real estate I'd take

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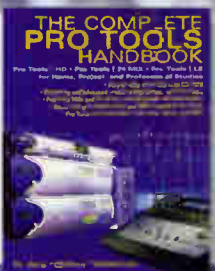
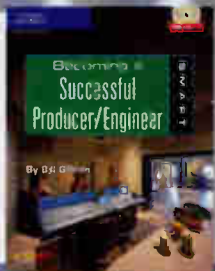
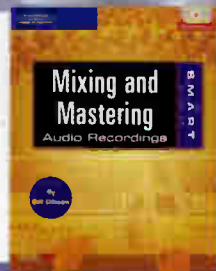
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Live mix

up would be obscure.

"I use the onboard EQ," Laws continues. "I'm not big on using too many inserts or too many onboard devices, especially on a digital console; that kind of defeats the purpose of why you got the thing in the first place. Not only that, you can introduce latency, and then trying to compensate for that. I know a lot of people who don't compensate for it, and personally I can hear it.

"The only outboard I use is a [Lexicon] 480L. There's not many things around that can do what a 480L does. I use a medium hall setting, and I use a snare plate or a wood room on the snare drum. I have a [Tech 21] SansAmp guitar preamp I use to distort the drum kit for a couple of songs, and also the bass guitar for a couple of songs. It gives it a little edge. [For] the drum kit, I have [Empirical Labs] Distressors on the kick and snare, simply because there's nothing like that inside the DiGiCo. I've also got the ADK [Pro Audio] computer with the Universal Audio card, so I can access LA-2As and 1176s and things like that, but it's through the DiGiCo without having to go through any kind of conversion." Laws sends the rest of the drum kit through a stereo pair to an Empirical Labs EL7 Fatso audio processor, "which really makes the drums leap out of the mix," he adds.

Laws groups Urban's six vocal channels together and inserts Crane Song Trakker Class-A compressor limiters across the group. "[It's] a studio device, primarily, but probably one of the most awesome compressors I've ever used," he says. "I've got two of the Trakkers, and I also have an STC-8 [Crane Song stereo compressor], which I use over bass and guitar. There's a few touring guys that use the STC-8 on bass; it's really one of the best bass guitar compressors out there. The Trakkers are a little different—more of a mastering compressor and really good at handling vocal transients without any kind of coloration. It does have a lot of options. It's basically every compressor that you've ever used built into one compressor."

MONITOR WORLD

At stage-left, Spence is mixing on a Yamaha PM1D dual engine with LMY4-MLF mic/line input cards with 5k preamps, clocked with an Apogee Big Ben. "It's the only reliable console that can handle the inputs and outputs that we're running," he says.

"All the FX are onboard," Spence continues. "I do have the [Yamaha] REV-X 'verbs installed in there. I'm running Version 2 on the 1D. There's a really cool 1176 emulator on there that I use on a few inputs; that works quite well. There's a tape-saturation



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emulator, which is great for putting on kick drums—it emulates slamming analog tape and gives you that punch.”

Sharing the Yamaha PM1D as a surface with Spence is Underwood’s monitor engineer, Cam Beachley. “I have my own wireless rack and output cage for the PM1Ds so that we’re not having to repatch,” he says. “Jason and I really thought about this, what would be most effective and speedy.”

The band uses Future Sonics custom ear buds with MG4 drivers with Sennheiser EW 300 IEM G2 in-ear transmitters and receiver packs. The drummer uses a hardwired

Shure PSM 600 pack. “[The Future Sonics] are probably my favorite of all the in-ears, because they don’t scoop out the mids,” Spence says. “It’s not an armature, it’s a real driver. No dual-driver, no triple-driver: it’s one driver, 20 kHz.”

“Everybody’s wearing Future Sonics right now, and we’re using Sennheiser G2 transmitters and receivers,” Beachley adds. “Everybody’s in-ears; we’ve got two subs up on the deck, and the bass player’s using a wedge as a faux bass amp.”

In addition to the in-ears, Urban listens to Showco Prism SRM wedges suspended



Keith Urban monitor engineer Jason Spence

underneath a center-stage grating. “He tends to pull one ear out and switches back and forth,” Spence says. “It started out just as feel, but as he started pulling an ear out to get the crowd, it started becoming more of a full mix in there.”

Spence also uses multiple pairs of mics to pick up the audience: Shure VP88 stereo mics and Shure 91s at FOH, a pair of KSM32s downstage and a second pair facing the back of the arena behind the B stage. “It’s an interesting balance to try to achieve in the ears between getting the isolation you need, but then also not so isolated that your mix is just sterile,” he says. “So we use quite a lot of audience mics, and if it’s a good-sounding room, often I’ll leave the audience mics up in the mix all night long, and then I’ll just ride ‘em harder or in between songs just to get that crowd reaction.”

Urban’s electric guitar rig runs through two Royer 122 ribbon mics and two Sennheiser MD 409s, which go separately through two pairs of Neve 1073 preamps to Universal Audio 1176s, and finally to an Apogee AD-8000 that converts the signal into AES.

MIKING VOCAL MISTRESS

Doing FOH duties for co-headliner Carrie Underwood is Rob Rankin, who mixes on a Midas XL4. “Everything is available to me, as opposed to a digital console, where lots of stuff is buried. I’m old school,” he says unapologetically. “It’s mostly about her vocal and keeping up the band to support it.” Underwood’s vocals go through a Shure SM57, and then to an Empirical Labs DL8 Distressor and an XTA stereo dynamic EQ to help with sibilance.

Beachley adds that there is no need for him to treat Underwood’s voice. “Nothing on her vocals, flat EQ,” he confirms. “She’s an awesome singer, has great microphone technique. No compression, no nothing. She’s the real deal.” ■

Gaby Alter is a New York City-based writer.

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H.A.S. Productions

Musician Loses Job, Gets Lucky Break

Larry Hall, owner and founder of H.A.S. Productions (Las Vegas, www.hasaudio.com), believes that “things happen for a reason.” For example, his music career took a fortuitous hit in 1994 after he moved his young family West to join a band. He had been living in New Hampshire with his wife and two small children, hating the cold and feeling disappointed in the local music scene, when friends suggested he relocate to Las Vegas.

“They said, ‘You guys should move out here because a professional musician in Las Vegas can buy a house and a car, and they get treated like normal people,’” Hall recalls. “They sent me a newspaper because bands actually advertised, ‘Wanted: singing guitar player who can sing this type of music.’ I auditioned for a group over the phone, and they hired me, so we sold off a bunch of stuff and got in our little car with our two kids and the little P.A. I had at the time, and we moved out here. But the band had flaked on me and they’d hired somebody else.”

A stranger in a strange land, Hall had to find some kind of work to keep his family afloat, so he took a job cleaning carpets at the Mirage Hotel and Casino. Coincidentally, his new supervisor was also a music and audio lover, and he and Hall began working on outside projects. In addition to playing, Hall rented out and ran the P.A. he’d brought West for low-budget gigs around town and began investing every dime he could spare in more and better gear.

“When I was working as a musician, I took all the money I made rental-wise and dumped it into more gear so I could do more at that lower level—the casinos and lounges, and that kind of thing,” Hall explains. “Then I got to a point where I was making more money being an audio provider.”

As his business (then called Hall Audio Services) and inventory grew, Hall continued to invest wisely. “My wife said that as long as I was providing enough money to take care of us, she didn’t care what I did with the rest of the money. Say I needed to make \$800 or \$1,000 per week to support our family, and I made \$3,000 that week, I would put the \$2,000 into Hall Audio Services.”

In time, Hall added services and more gear to the business. Today, the renamed H.A.S. Productions provides backline, staging and lighting, as well as full-on audio production and equipment rental to clients in Nevada, Arizona, California, Utah and New Mexico. Hall laughs when he remembers his first pro-level gig: a Gary Hoey concert that he worked using an old Allen & Heath board and Carvin speakers. His inventory now includes multiple Yamaha PM5D and PM4000 boards, and additional consoles from Midas, Soundcraft and Al-



H.A.S. Productions' Larry Hall takes a moment to relax between gigs, which include an Al Jardine performance at Caesar's Palace (inset).



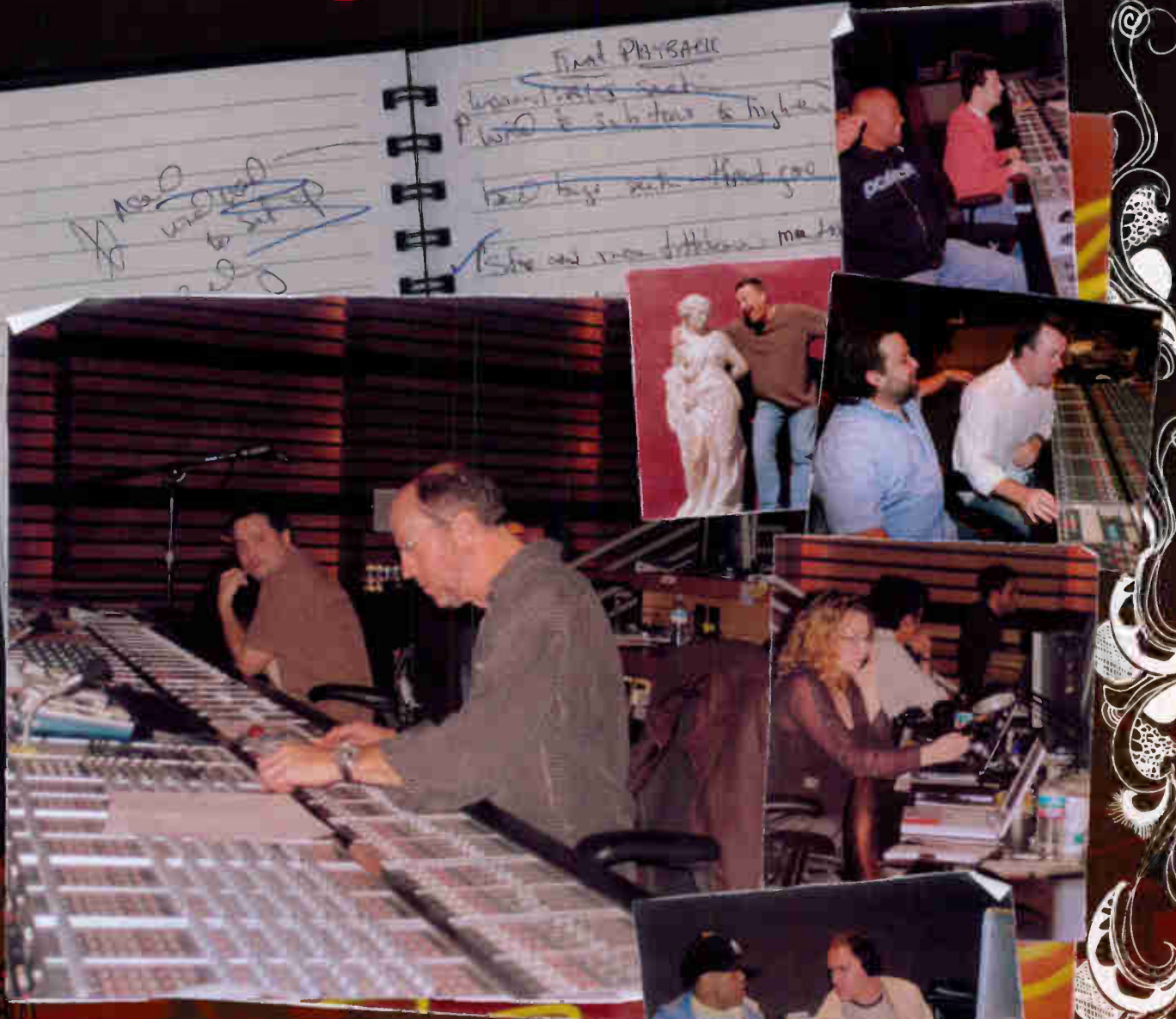
len & Heath. H.A.S. also maintains more than 100 line array cabinets, including an impressive JBL VerTec rig and three D.A.S. Audio arrays.

Hall is proud to list among his clients the Academy of Country Music (“everything but the big awards show,” he says), Fremont Street and the MGM Grand. Recent performers have included Patti LaBelle, Michael Buble, Randy Travis and more. He hired operations manager Danny Lane a year-and-a-half ago because H.A.S. has grown to where one person can’t handle all of the day-to-day operations. Three full-time staffers keep the gear maintained and the office running, and Hall has his pick of 15 to 20 freelance engineers.

The road was a bit bumpy at first, but Hall has come a long way since losing that promising bar-band job. “When I first got here, I had two small kids and a pregnant wife, and no income,” Hall says. “But if I hadn’t ended up getting this stupid job cleaning carpets at the Mirage, I wouldn’t have ended up doing that Gary Hoey show and having the support and courage to take this business to the next level.” ■

Barbara Schultz is an assistant editor at Mix.

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RCF TTL31-A LINE ARRAY

RCF (www.rcfaudio.com) is now shipping its "mini-sized" TTL31-A two-way line array. The bi-amplified system has switching amps (500W LF/250W HF) powering an 8-inch neodymium woofer and three ND1411-MT neodymium compression drivers in a compact, 12x21x18-inch Baltic Birch-ply cabinet. Onboard 96kHz/32-bit DSP handles system optimization—equalization, driver alignment and crossover—along with hard limiting and clipping protection. A matching 1,000W, 12-inch subwoofer (model TTL12-AS) is optional.



KLARK TEKNIK SQUARE ONE SPLITTER

The Square One splitter from Klark Teknik (www.ktsquareone.com) provides a simple analog solution to signal distribution with a high-performance, Midas XL8-derived preamp design packaged in a 2U, 8-channel format. To increase versatility, a third set of independent (fixed-gain), transformer-isolated outputs are provided. The Square One splitter can also function as a 1-in/16-out media split box.



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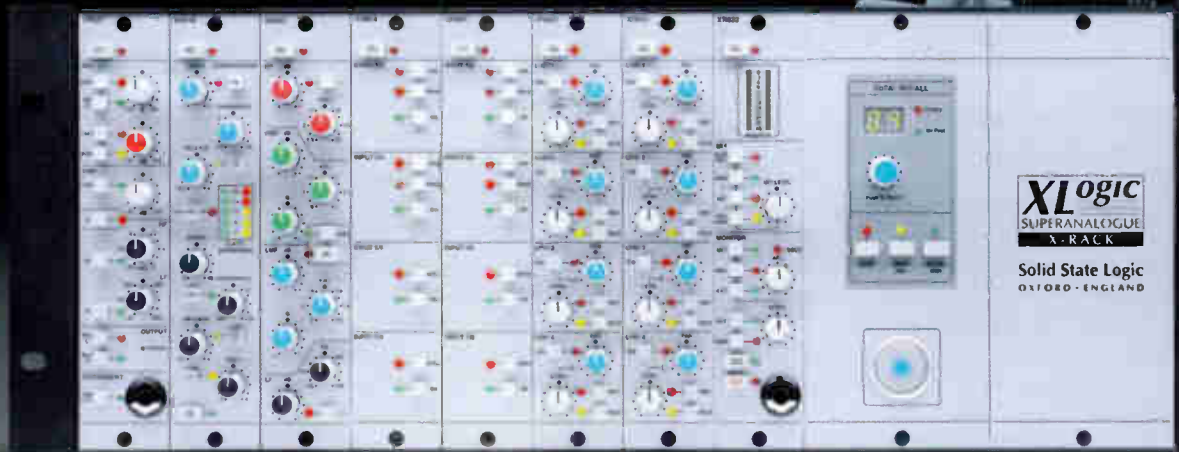
With models from 2,500 to 8,000W, QSC's (www.qscaudio.com) new PowerLight 3 Series offers a choice of DSP with remote control/monitoring via BASIS or value-oriented analog input operation. The top-end PL380 (\$2,735) has two 4,000W, Class-D channels; the 2,000W PL34n (\$1,633) and 1,250W PL325 (\$1,253) have the same features as the PL380, but are Class-H designs. All of these two-rack-space amps also offer detented gain controls with 1dB increments, removable knobs with a lockout security plate and selectable 1.2V/32dB/26dB input gains.

ALTO MS MONITORS

Alto (www.altoproaudio.com) expands its MS line with the MS12A, a compact, high-power monitor with a lightweight, 12-inch coaxial driver with a neodymium compression driver, 420W of bi-amplification and onboard DSP modeling to simulate various acoustic environments. Other features include an analog protection limiter, multilayer plywood trapezoidal enclosure, a steel grille, balanced line input and link/thru XLRs, a 121dB max SPL output and a weight of only 26 pounds. Retail is \$649; also available is a 10-inch version (MS10A) priced at \$579.



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Quest for the Optimal DAW Display

Understanding Specs on Those "Other" Monitors

Most of my geek-related purchases are made online. But choosing a computer monitor is a bit different than buying a hard drive—I want to see it, compare it and, should something not work out, easily return it. These days, with an array of inputs and internal DSP format-conversion possibilities, finding the best monitor for your DAW is not so easy.

After first checking options and specs online, I went to a local Best Buy, made the comparisons and left with an LG Flatron L226WTQ-SF, a 22-inch, widescreen LCD for less than \$300.

CHECK THE TAGS

When shopping for a monitor, there's a good chance that the display panel came from an original equipment manufacturer (OEM) and that another company created the I/O, signal processing and aesthetic "wrapping" around it. The Zenith Corporation that built my dad's portable tube radio wasn't likely to be the same one that manufactured my first flat-panel TV.

With so many new and unfamiliar brand names, it's hard to know whether a brand and a manufacturer are one in the same. Manufacturer reinvention happens a lot, phone companies being the most obvious example. A change in direction, new technology or being purchased by another company can lead to a more fitting name change.

After spotting the identical version of my Zenith plasma TV branded as an LG MU-42PZ90V, my relationship (and curiosity) with LG began. In researching this article, I learned that LG is the Korean manufacturer formerly known as Goldstar, and it had purchased Zenith in 1999. LG also has a partnership with Netherlands-based Philips. LG-Philips produces the Apple Cinema LCD Panel and the Dell Ultrasharp 2005FPW.

SPECS, SPECS, SPECS

Specifications help to quantify and translate what we see and hear. My transition to the LG L226 LCD was quite a bump up from a 7-year-old CRT. With its 3,000:1 contrast ratio, 2ms response time and 1,680x1,050 resolution, I was amazed at how small things could be made and still retain their clarity—not a strong suit for a CRT, but a piece of cake for the L226. In fact, I learned about something called native resolution—the target you want to hit to get the most out of any digital monitor, whether LCD, plasma or DLP (Digital Light Processing).

For all monitor types, resolution is primarily determined by the size of whatever technology creates the image—the smaller the better. For the old-familiar CRT, high voltage accelerates an electron beam so that it strikes



PHOTO: MIKULSHUTTERSTOCK

a phosphor-coated screen with such force as to make it light up. Early on in display technology, a monochrome CRT could easily deliver higher resolution than its color counterpart because only a single beam made the dot, the analog equivalent of a pixel. A perfect example is the 5-inch green CRT that was used in the SSL 4000 Series consoles, which was capable of very fine text. Dot size is controlled by an electronic focus "mechanism," along with the monitor's condition—it is a vacuum tube, after all.

A color CRT complicates the matter by a factor of three: A trio of red, green and blue phosphors combine to make a white dot; the size of that trio determines the resolution (dot pitch). Not only are there now three electron beams, but each must strike *only* its respective color (known as "convergence"). Smaller dot pitches increase the convergence challenge, which requires several internal adjustments to achieve the same performance from center-screen to all extremities. Again, age brings variables in focus and tube-life.

SOLID-STATE DISPLAY TYPES

Conversely, all of the "solid-state" display technologies are based on an X/Y matrix of columns and rows, eliminating the need for focus—yeah!—the exception being any projector that relies on a standard optical-focus mechanism. For CRT, LCD and PDP (Plasma Display Panel), you can think of each white dot as a pixel, the three colors that combine to white as subpixels.

LCD screens are used in laptops because they are remarkably energy-efficient: LCD = TFT (Thin-Film Transistor) = active matrix. No transistor equals a passive matrix. The light source behind most screens is either a cold cathode fluorescent light or the same Electro-Luminescent Panel (ELP) technology that first made the LA-2 and LA-3 opto-limiters possible back in the '60s and '70s.

Contrast ratio is the relationship between the brightest white and the blackest black. Bigger ratios are better: Too bright might yield a better contrast ratio, but tends to be

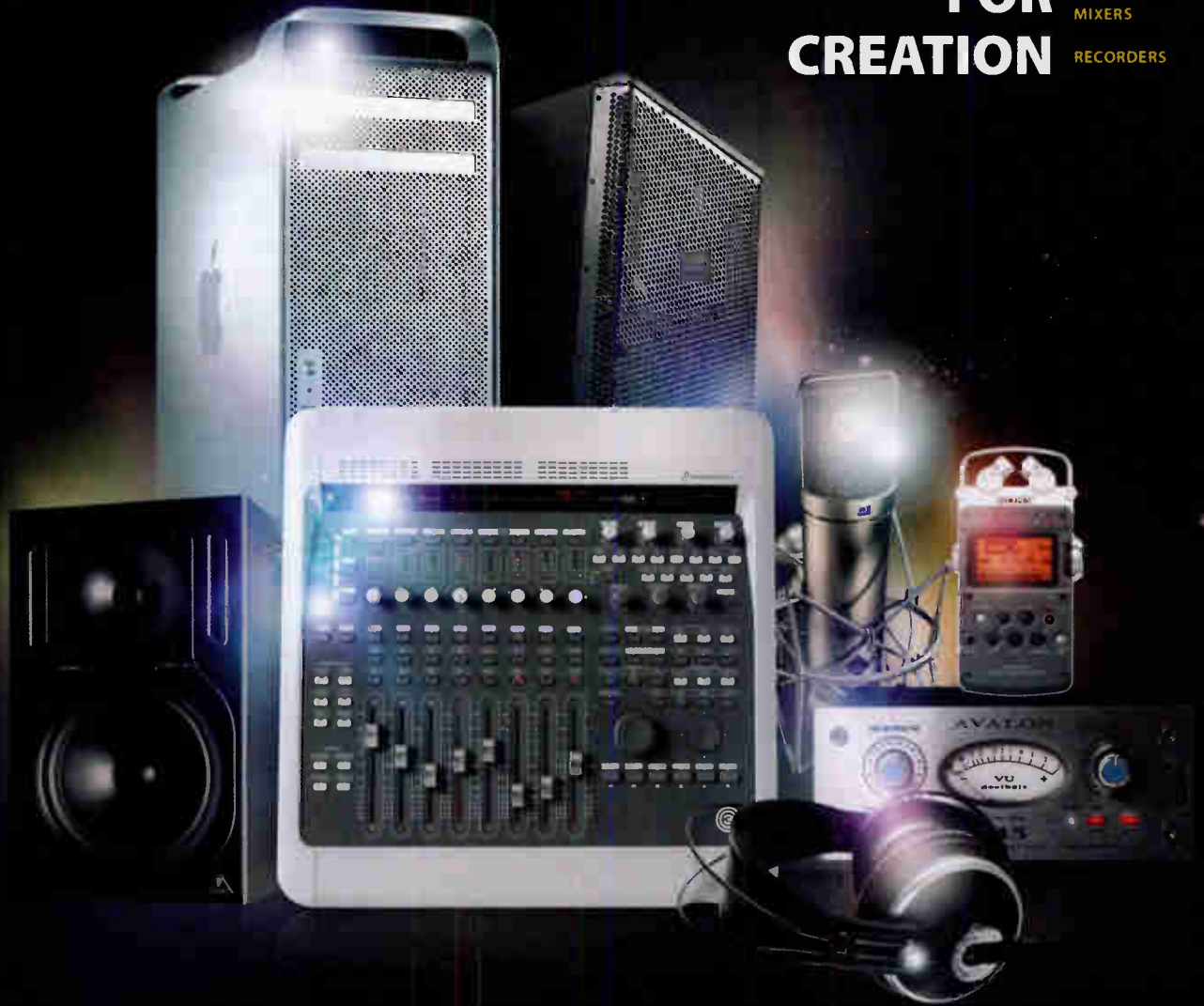
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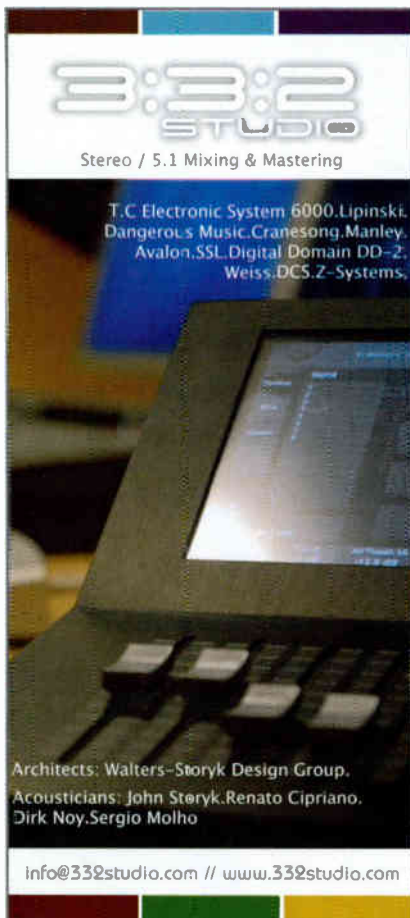
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hard to view at close range (but great at a distance). LCDs are “black challenged,” but improvements are always being made.

The brightness (luminance) spec for the LG L226 LCD is 300 cd/m², a (metric) light-density measurement where one candela per square meter = one lux, and 10.76 lux = one foot-candle. This was substantially brighter than my older, tired CRT, but almost bright enough to give me a tan. By comparison, the older plasma display is capable of 1,000 lux but has a lower contrast ratio (1,200:1). New plasmas have a 10,000:1 contrast ratio. Sunlight is in the 50,000-lux ballpark, while indoor lighting ranges from 100 to 1,000 lux. Bright is good when working in a high-ambient light environment.

For an LCD, a brighter light source not only challenges the ability to make black, but it also requires more care to prevent the light from leaking out (most noticeable around the screen's edges). To block or pass the light, an LCD relies on twisting the liquid crystals that are sandwiched between a pair of polarizing filters. On axis, the view is vibrant, but off axis the response is poor. Also known as viewing angle (170 degrees horizontal and vertical for the LG L226), this is good for security but bad if you need to view with a group.

While this idiosyncrasy does not limit the LCD's ability to produce an image, screen sizes are limited to the range that maintains edge-to-edge image consistency for a typical user's range of movement. CRT, DLP (projection technology) and PDP all have good off-axis response. The crossover screen size between LCD and plasma is between 32 and 40 inches, although displays more than twice this size have been made.

For a PDP system, light is generated by a trio of “cells” containing the “noble” (inert) gases of xenon and neon. When electrically tickled, the gases turn into an ultraviolet, photon-emitting plasma that lights its respective colored phosphor. A PDP is, in essence, a massive array of miniature fluorescent lights. The Zenith/LG MU-42PZ90V plasma specs are 852x480 resolution, 1,000 cd/m² brightness and 1,200:1 contrast ratio.

Early PDP models consumed nearly as much power as a CRT, but efficiency is improving. Both CRT and PDP suffer from “burn-in fatigue” if run for long periods at full brightness and stationary graphics. Solutions include screen-savers, using gray text (instead of white) and image randomizing.

DLP technology was developed and is licensed by Texas Instruments. The system starts with a light source that is bounced onto a chip-sized matrix of mirrors. In a single-matrix system, the color information

is broken up into its component parts, each bouncing off the mirrors and through its respective filter on a synchronized rotary wheel. On a three-chip system, the light source is divided into RGB via prism before striking the matrix.

KEEP LOOKING

The speed at which data is fed to a monitor is referred to as the “refresh rate.” Higher speeds are better because they are less related to the native frame rate of various sources. In old analog TV terms, the video rate is 30 frames per second, within which separate odd- and even-line fields are “interlaced” at twice the frame rate, or 60 fields per second. (Computer and modern TV monitors are progressive scan.) Typical refresh rates are between 55 and 85 Hz, which can be as high as 120 Hz. Video for Internet use is often converted to 15 frames per second, where either the even or odd fields are dropped.

“Color support” refers to the number or range of colors (gamut), 256 steps each of R, G and B yields 16.7 million colors, a number that might be considered a minimum. Just as most audio converters are not capable of 24 bits of resolution, a video display's ability to reproduce the color spectrum is limited by the purity of the color sources.

A display's “response time” is the period required to turn pixels from one state to another and back again—from black to white to black, for example. And here, faster is better for minimal image distortion. While I could not find the specific spec for the LG MU-42PZ90V plasma, a similar monitor had an 8ms response time. (A video frame is 1/30th of a second or 0.033 seconds or 33 ms.)

For those of us concerned with audio and video sync, you might think response time is critical. From my limited experience, it seems there are more problems with keeping audio and video signals in sync during the distribution and transmission process. (Check out Paul Lehrman's February 2008 “Insider Audio” column on the subject.) I would also speculate that the response time quoted in product literature might be that of the display panel only and not include the DSP required to optimize the image for the screen—just as any audio plug-in has a certain amount of latency.

As most product disclaimers clearly spell out “specifications are subject to change,” this is particularly true for products that are still on a growth curve. Sad to say, my plasma is already old news. ■

Eddie's refresh rate at www.tangible-technology.com is specified in weeks rather than ms.



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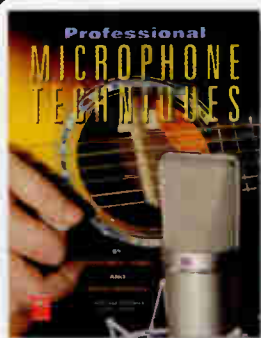
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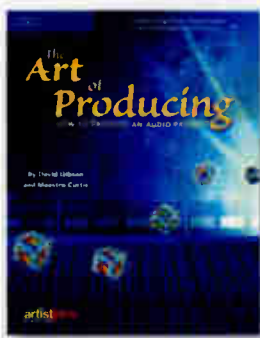
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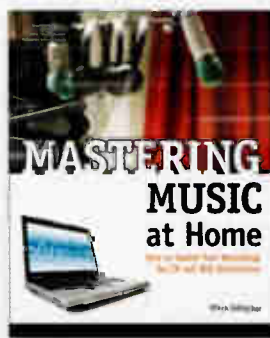
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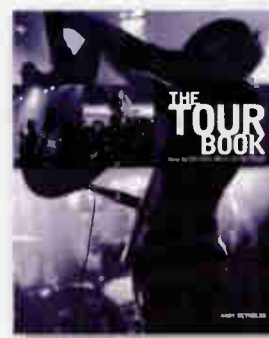
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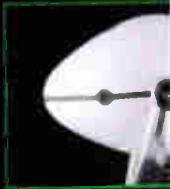


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The Model 7720 Stereo Compressor is based on trusted design and is electronically balanced, utilizing "THAT Corporation" (formerly DBX) VCA circuitry. It features a low component count to provide the cleanest signal path possible.

MICROPHONE PREAMPLIFIER EQUALIZER

The Model 7602 Microphone Preamp/Equalizer utilizes Class 'A' circuitry. This unit is made with 100% discrete components and custom wound transformers. The Model 7602 represents a dramatic breakthrough in delivering vintage audio performance at an affordable price. Equalizer Section: Selectable 3 band design with a flexible filter section

DUAL MICROPHONE PREAMPLIFIER

The Model 7622 Dual Microphone Preamp/Equalizer utilizes Class 'A' circuitry. This unit is made with 100% discrete components and custom wound transformers. It has been designed to complement the Model 7602 Preamp/Equalizer for those who desire two channels of preamplification in the same size chassis, but do not need additional equalization.

SMALL DIAPHRAGM TUBE CONDENSER MICROPHONE

The TS-1 is a small diaphragm tube condenser microphone featuring interchangeable capsules. Driven by newly designed vacuum tube electronics, the TS-1 provides an unmatched combination of sparkle and warmth without the overly bright sonic qualities of other leading pencil condensers.

LARGE DIAPHRAGM TUBE CONDENSER MICROPHONE

The TS-2 is a multi-pattern large diaphragm tube condenser microphone. Its unique tube voltage control allows for unprecedented adjustment of sound character. A continuously variable pattern selector located on the microphone body provides maximum versatility.

Model 7720 Features:

Sidechain with Variable HPF, Multiple metering selections, Ratio Selection: 1.5:1, 2:1, 4:1, and 10:1, 24VAC adapter, One year warranty \$649 MSRP, CPS-1 Power Supply \$100 (Optional)

Model 7602 Features:

Balanced transformer inputs, Balanced XLR output, Output level control functions as a master fader when going straight to recorder, DI for instruments, Gold contact ELMA rotary gain switch, Phase reversal switch, 48VDC phantom power selector, Oversize external power supply, One year warranty \$699 MSRP CPS-1 Power Supply \$100 (Required)

Model 7622 Features:

Balanced transformer inputs, Balanced XLR outputs, Output level controls function as master faders when going straight to tape, DI for instruments, Gold contact ELMA rotary gain switches, Phase reversal switches, 48VDC phantom power selectors, Oversize external power supply, One year warranty, \$799 MSRP CPS-1 Power Supply Included

System Contains:

TS-1 microphone, Cardioid capsule, Omni capsule, Windscreen, Shock mount, AC power supply, AC power cable, 25-foot 7-pin microphone cable, Aluminum carrying case, One year warranty \$499 MSRP

System Contains:

TS-2 microphone, Windscreen, Shock mount, AC power supply, AC power cable, 25-foot 7-pin microphone cable, Aluminum carrying case, One year warranty, \$749 MSRP

CHAMELEON LABS

704 228th Ave NE #826
Sammamish, WA 98074
Tel. 206-264-7602
www.chameleonlabs.com



720



602



622



S1



S2



CASCADE MICROPHONES

A bout Cascade Microphones

Over the past year, the Cascade Microphone Company has seen many changes. The move last fall to a new, larger facility, was the catalyst for many of these changes. The installation of a state-of-the-art lab has not only allowed for custom-fitted modifications, such as Lundahl and Cinemag transformers, but it has also served as the creative space in which new custom designs and models have been born.

New Cascade GOMEZ Michael Joly Edition The most recent addition to the Cascade line-up is the "GOMEZ Michael Joly Edition" ribbon microphone. The new GOMEZ ribbon mic, completely hand-assembled and certified at the Cascade Microphones lab in Olympia, Washington, is the result of a new collaboration between two industry leaders. Cascade Microphones CEO Michael Chiriac and Michael Joly, a trusted source of microphone modifications, worked together on the design and specifications of the new

GOMEZ microphone. The Cascade Microphones GOMEZ Michael Joly Edition, assembled in the USA, features a renowned Lundahl ribbon mic transformer, custom PC board, high-quality Switchcraft XLR connector and Evidence Audio™ LYRIC HG wire with IGL copper. The microphone is packaged in a sturdy, attractive aluminum case with shockmount. It comes with a signed and dated "Certificate of Performance" documenting a multi-step inspection, assembly and performance approval process - including certification of proper ribbon tension.

Though Cascade Microphones has been busy in the lab with new designs and models, the highly recognized Cascade FAT HEAD II microphone, is still one of the

top sellers and was a huge hit at the AES and NAMM shows. Winning two awards last year, the 2007 Pro Audio Review "Reviewer's Pick Award" and the 2007 Pro Audio Review "Par Excellence Award,"

the FAT HEAD II is now one of the leading microphones used in recording studios all around the country.

Quality Control Cascade Microphones prides itself on quality control. Working closely and diligently with the manufacturing team, the product designs, modifications and final adjustments are what make Cascade Microphones stand out from the rest. And each microphone receives a final inspection before it leaves our shop. We want our customers to be completely satisfied and comfortable with their purchase. And if for any reason (no questions asked) you choose not to keep your purchase, you are welcome to return it for a full refund within the first 30 days. All you have to do is call or email us and we will promptly handle the rest. Thank you for considering our quality products and we look forward to doing business with you.

When you buy a Cascade microphone, you are buying direct. There is no additional mark-up to cover the usual expenses that are associated with a typical retail sale. Please take a look around our website and feel free to email or call us with questions or feedback.



CASCADE MICROPHONES

3720 Gravelly Beach Loop NW
Olympia, WA 98502
Tel. 360-867-1799
www.cascademicrophones.com



Michael Chiriac - CEO

Michael Joly Edition
MichaelJolyEditions.com

Hand Built
in The USA



GOMEZ

Single Element Ribbon
Fitted w/ Lundahl 2913



FAT HEAD II: \$199.00
Single Element Ribbon



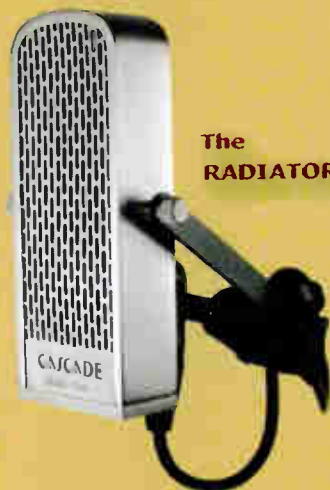
ELROY: \$299.00
Tube Multi-Pattern LC



FAT HEAD: \$159.00
Single Element Ribbon



X-15: \$499.00
Stereo Single Element Ribbons



The RADIATOR

731R: \$299.00
Dual Element Ribbon



VIN-JET: \$199.00
Long Element Ribbon



DR2-S: \$599.00
Stereo Dual Element Ribbons



L2: \$399.00
Stereo Multi-Pattern LC

CASCADE MICROPHONES
Olympia WA

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World Radio History

AURALEX ACOUSTICS

Auralex Acoustics is the industry leader in acoustical treatment products, including Elite ProPanel™ acoustical absorbers, TruTrap™ Broadband Absorption Systems, LENRD™ bass traps, Studiofoam™ panels, the pArtScience™ product line designed by famed studio designer Russ Berger, T-Fusor™ and Q-Fusor™ diffusors, sound barriers & construction materials, MoPAD™ and GRAMMA™ isolation platforms and complete room treatment kits- virtually everything necessary to sound better and achieve world-class acoustics in any room.

Performance Shaped by Experience.

Having been in the acoustics business for over 30 years, we have a great feel for what is needed and, perhaps more importantly, what really works. Drawing upon that experience, we've continued to fine-tune our offerings to the point of having solid, proven products to solve virtually every acoustical problem—regardless of room size shape or function. Auralex offers innovative products combined with solid advice from acoustical experts so you can rest assured that the total solution for your sound dilemma is the best that it can be.

Our Products Offer the Best Performance Regardless of Price

With Auralex, quality is not fixed on a sliding scale that rises or falls depending on the budget. Whatever price you have in mind, Auralex quality is the market's best. This way of doing business has earned us countless loyal customers who in turn spread the word and bring new customers our

way. By sticking to this quality commitment, we get more repeat business and referrals that any business textbook says a company should.

The Golden Rule is Alive and Well at Auralex

It's one thing to say you have your customer's best interest



at heart; it is another thing to prove it every day. For instance, we go above and beyond our competitors by providing you with your own personalized room analysis. Because we spec your room we know exactly what it needs. End result? The most accurate, best sounding acoustics possible.

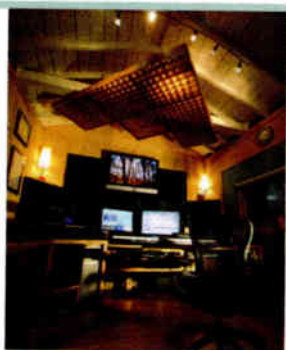
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As part of our ongoing "green" initiative, we are proud to announce the launch of StudioFoam Eco. Now all of our StudioFoam brand products are manufactured using a new soy-based formulation, reducing petroleum-based chemical usage by up to 60% and lessening dependence on fossil fuels, including foreign crude oil. This greener formula helps reduce global warming emissions, yet retains the longevity and acoustical properties that Auralex is known for.

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When it comes to recording and broadcast studios, Houses of Worship, Live Performance Venues or any other critical recording or listening environment, Auralex brings it all together: total sound control with pleasing aesthetics, custom-engineered with your specific room in mind. While others may offer decorative alternatives that may have some effect on the acoustics, Auralex focuses first on making the sound accurate then

incorporates the desired décor in to the design.



AURALEX ACOUSTICS

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Auralex Acoustics is the industry leader in acoustical treatment products, including absorbers, diffusers, sound barriers, construction materials, isolation platforms and complete room treatment kits.



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ARGOSY CONSOLES INC

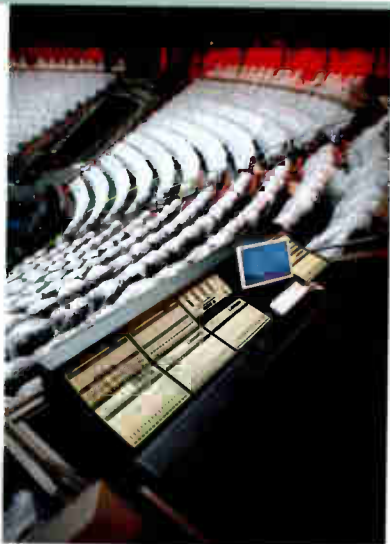
CREATE A POWERFUL PRESENCE FOR INSPIRED CREATIVITY

Form and function combine to create the most technologically advanced console furniture solutions. Powder coated wood and steel components are brought together to give you a solid feel and look with a finish that is as durable as it is beautiful.

In 1994, Argosy invented and patented the Console Enclosure, the world's first mixer-specific furniture solution. The Argosy design allows clients to transform their table top mixer or control surface in to a full featured console and allows ancillary electronics to be integrated directly in the work surface. Ever since, Argosy designs are chosen for the finest facilities in the world.

A unique balance of technology and creativity result in flexible, innovative, and truly inspiring solutions. "The Mirage desk completes the D-Command beautifully with a handsome wood and steel aesthetic to make it a worthy centerpiece

for any studio." - Gannon Kashiwa; Digidesign Market Manager. From the new Opera House in Oslo, Norway to the most luxurious casino resort in Macau - Argosy provides you with the finest furniture solutions for your individual needs.



More than a functional space for your control surface and electronics, Argosy furnishings provide an exciting landscape to enable you to create your very best work. "The Argosy Mirage gives you ideal ergonomics. It has all the right features - perfect for integrating additional SSL signal processing equipment at arms length" - Phil Wagner, President; Solid State Logic.

Custom fit for today's most popular control surfaces, Argosy console enclosures and accessories presents bold, clean designs with a precision fit and finish for the centerpiece of your room. "Argosy is the Rolls Royce of studio styling." - Jon Anderson; YES

Begin by visiting our online catalog (www.ArgosyConsole.com) or by giving us a call and requesting a free product guide. You will find that everyone at Argosy is committed to a philosophy of providing outstanding client service. Please give us a call to discuss your needs, our product specialists are available toll-free (800-315-0878) for personal, in-depth assistance. We look forward to hearing from you, and helping you create your Dream Studio.

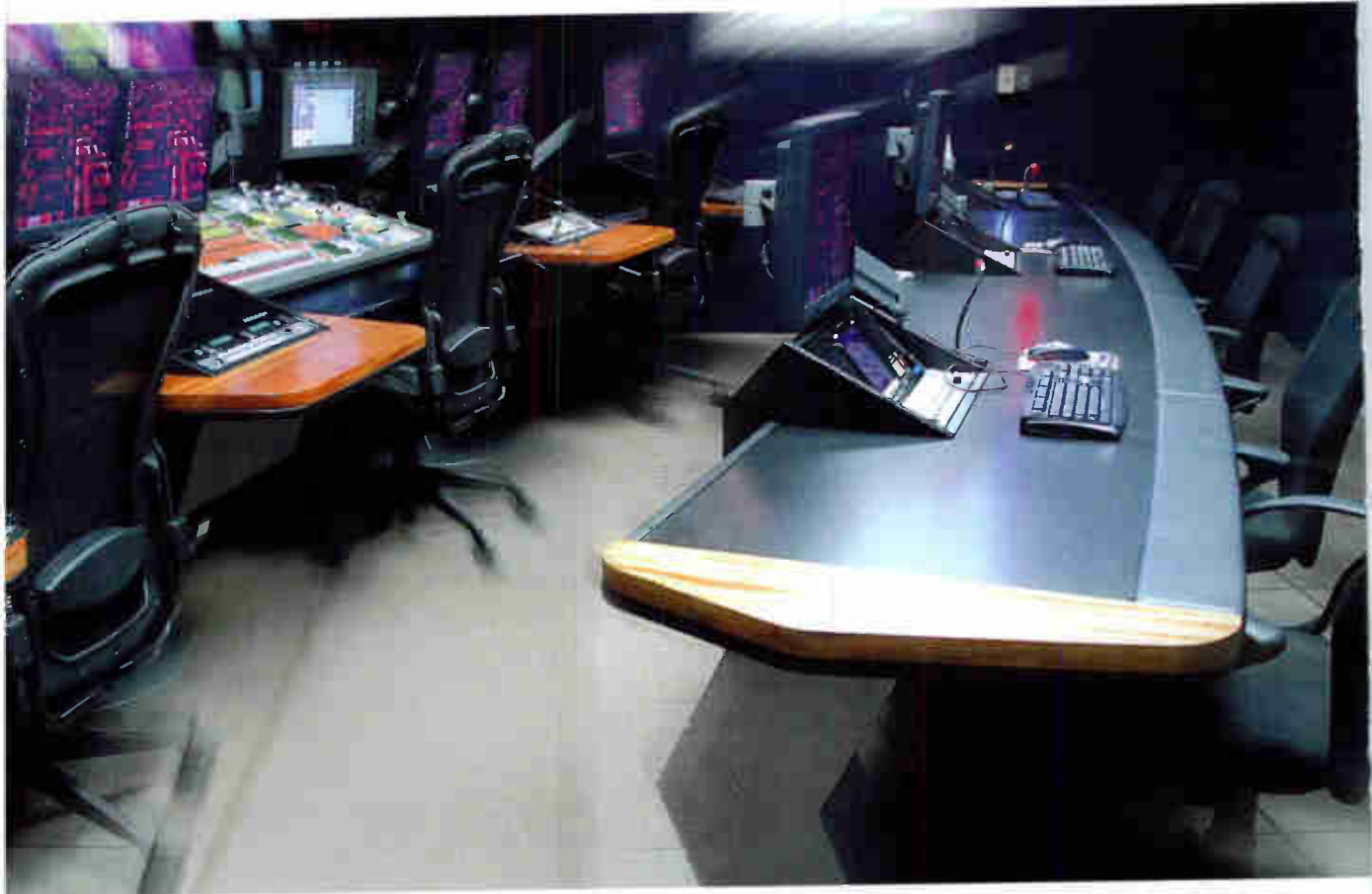
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FOUNDED IN 1977 BY DAVID SCHWARTZ AND PENNY RIKER



Studio Essentials—Today and Tomorrow



It may be hard to believe, but not too long ago there was a time when pro audio *wasn't* dominated by huge corporations. Manufacturers created short runs of products designed for the exact needs of customers rather than a one-size-fits-all mentality. In those days of yore, audio gear was either designed by studio owners themselves or by small companies that took a old-world craft approach to creating well-built, quality products with decent components that were meant to last longer than a year or two. And audio dealers were trusted advisors, offering knowledgeable information that users could rely on.

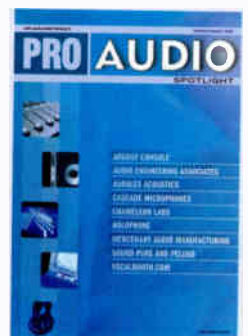
Today, with audio production studios moving into the realm of the digital audio workstation, much of the individuality and personality—vibe, if you will—has been lost to a lot of me-too facilities with the same recording rig, the same plug-in suites and little that sets them apart from every other room. Fortunately, adding a few high-performance items—whether a new mic, a quality preamp, a bit of acoustical treatment and an ergonomically designed housing to keep everything within arm's reach—can set you apart from the rest of the pack. Meanwhile, if this investment improves productivity and makes your tracks sound better, so much the better.

With that in mind, we created this special advertorial supplement to spotlight some niche businesses offering the right combination of quality products with personal attention to individual customer needs—all vital factors to serious pro users. So check it out, enjoy and if you find something here of interest, give them a call and tell 'em you saw it in *Mix*.

George Petersen
 Executive Editor

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ProAudio Review
2007
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CASCADE FAT HEAD II

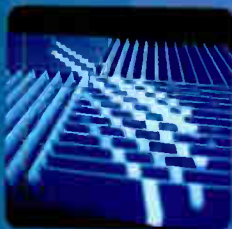
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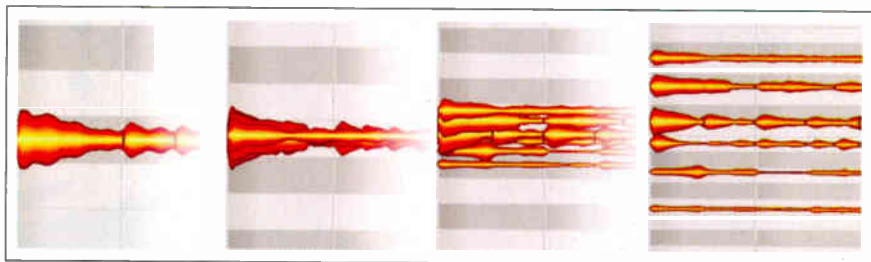


RØDE NTG3 SHOTGUN MIC

For broadcasting and location recording, RØDE (www.rodemic.com) unveils the NTG-3 (street price \$599), its third-generation shotgun mic design. The 10-inch-long, 3/4-inch-diameter body is ideal for on-camera, boom or handheld use; it features low handling noise and ultralow self-noise. (EIN is 13 dBA per IEC 651.) The externally RF-biased, true condenser capsule has a high level of RFI rejection and requires standard 48VDC phantom power. The Aussie-made mic includes a mic clip, windscreens, carry pouch and a nearly indestructible aluminum storage/transport cylinder for maximum protection. Options include mini- and full-sized extendable boom poles, shock-mounts and a fur-style windshield.

with EQ, dynamics and limiting via a second master board. Performance and communication have been improved by using UDP (User Datagram Protocol) rather than TCP. Because UDP avoids the system overhead of checking every

chord displayed at their actual pitches and edit them individually using the familiar Melodyne tools. Users have access to the pitch, position in time and duration of each note, as well as its vibrato, pitch drift, formant spectrum and volume. Practical uses range from pitch-tuning individual notes of a chord, eliminating bad notes or re-voicing a chord and creating new parts long after the player has left the building. The plug-in sup-



last data packet, metering response is faster and provides greater compatibility in networked environments. The VisTools software upgrade lets users display 24 channels simultaneously, with the ability to set EQ parameter and marker colors.

ports VST, Audio Units and RTAS-compatible host apps, and customers purchasing Melodyne will receive the update free of charge.

AKAI MPD32 CONTROLLER

Offering control of popular music-making apps—such as Propellerhead Reason, Ableton Live, Apple GarageBand and more—the fully programmable MPD32 (\$499) controller from Akai Professional (www.akaipro.com) claims to be the only pad controller that can also work as a master clock for MIDI sequencers while offering MPC Note Repeat with swing and gate-time parameters. The MPD32 connects to a PC or Mac via USB, and has 16 velocity/pressure-sensitive MPC pads,



LAWO ZIRKON 2.8

Lawo's (www.lawo.ca) Zirkon on-air radio console now features significant enhancements to its system control and configuration software, as well as its VisTool touchscreen-surface visualization software. A new Sig80 DSP mode supports an additional 40 DSP channels (mono/stereo)

CELEMONY MELODYNE VERSION 2

Fresh from Musikmesse in Frankfurt, Celemony (www.celemony.com) has released a breakthrough version of the Melodyne plug-in. Version 2 features Direct Note Access (DNA), which, for the first time, will "explode" polyphonic material in the Melodyne Editor's window so that the user can see all of the notes of a



eight assignable faders, eight assignable switches and eight assignable 360-degree knobs. Three selectable control banks extend the number of available faders, buttons and knobs to 24 each (72 total controllers) while four pad banks provide 64 total pads. The MPD32's transport controls can interface with DAW/sequencing applications like Cake-walk SONAR, Steinberg Cubase and Apple Logic.

**BLUE MICROPHONES
JOE CONDENSER**

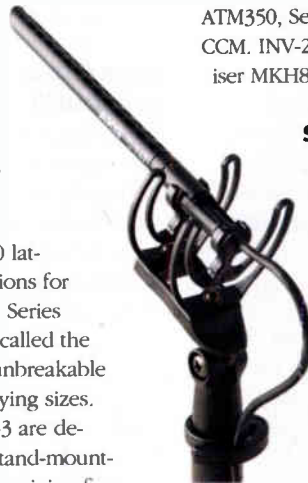
Promising not to be your average Joe, this mic from Blue (www.bluemic.com) is a cardioid, large-diaphragm condenser model that features a copper-toned, anodized-finish, Class-A discrete electronics and hand-tuned/tested capsules built on the pedigree of Blue's Dragonfly, Kiwi and Bottle microphone system. Joe (\$499) ships with an integrated swivel mount and velvet storage bag.



AD (with stereo analog and AES/EBU digital inputs), the AIR 12 Master D6 (with six channels of AES/EBU inputs) and the \$2,095 AIR 12 Slave active monitor (with TC Link input). Each monitor features a 1.1-inch, soft-dome tweeter and 8-inch woofer for a 37-22k Hz response. AIR 12 includes AIR monitor control with central remote control, preset storage and recall, calibrated levels and integrated bass management. Other features include internal precision EQs and delay lines, and the ability to configure the system in stereo, 5.1 monitoring and larger setups using AIR 12 or other AIR Series networked monitors.

RYCOTE INVISION

Rycote's (www.rycote.com) latest noise-reducing suspensions for compact mics, the InVision Series features a patented design called the Lyre, comprising virtually unbreakable dual W-shaped clips of varying sizes. The INV-1, INV-2 and INV-3 are designed for use with desk, stand-mounted or hanging mics. The remaining five sizes in the range, INV-4 to INV-8, are intended for use with boom-mounted mics. The different models use Lyres of varying sizes to fit different length/diameter mics



**DYNAUDIO ACOUSTICS
AIR 12 SERIES MONITORS**

The AIR 12 Series studio monitors from Dynaudio Acoustics (www.dynaudioacoustics.com) includes the \$2,495 AIR 12 Master



from various manufacturers. INV-1, for example, fits the AKG C 747, Audio-Technica ATM350, Sennheiser ME36 and Schoeps CCM. INV-2 fits the RØDE NT6 and Sennheiser MKH8000 Series (remote).

**SYNTHOGY IVORY
UPRIGHT PIANOS**

Synthogy (dist. by Ilio, www.ilio.com) has released Ivory Upright Pianos (\$299), featuring different pianos sampled in up to 10 velocity layers with a separate, selectable "creaks and clunks" layer for added realism. Pianos include Vintage Upright, Honky Tonk Barroom Upright and Tack, among others. This virtual

instrument comprises more than 50 GB and more than 5,000 samples that works stand-alone or as a plug-in with Audio Units, VST (Mac/PC) and RTAS (Mac/PC) hosts. It requires an iLok.



MXL V88 CONDENSER MIC

The V88 (\$349), a general-purpose mic from MXL (www.mxl-mics.com), is a large-diaphragm (32mm), pressure-gradient condenser with a fully balanced transformerless output. Internally wired with Mogami cable, the V88 offers low self-noise, 138dB SPL rating, Class-A electronics, nickel-plated finish and a low-profile form factor—less than six inches in overall height. It ships with an aluminum flight case and shock-mount adapter.



YAMAHA POCKETRAK 2G
 A light, compact pocket recorder featuring 2 GB of built-in memory, the \$449 Pocketrak 2G from Yamaha (www.yamaha.com) offers USB file transfer, Steinberg Cubase AI DAW software and two tracks of CD-quality recording in PCM, MP3 and Windows Media formats. It includes a rechargeable AAA nickel-hydrogen battery, providing 19 hours of MP3 recording. Plugging its sliding USB connector into a powered USB bus simultaneously recharges the

battery and transfers files to a PC or Mac. It also has an onboard speaker, headphone jack, USB extension cable, stereo earphones, leather carry case and stand adapter.

SONTRONICS CHIMERA

This single-channel preamp/DI box from Sontronics (www.sontronics.com) offers two discrete circuits: one solid-state and one tube. Features include 60 dB of gain, a switchable highpass filter (100 or 200 Hz), switchable phantom power, -10/20dB pad, phase invert, master output attenuator, signal-present LED and VU meter. This handsome black desk-top unit also has front panel XLR and ¼-inch instrument inputs. Price: \$1,399.

AUDIOKINETIC WWISE MOTION

Bringing the gift of rumble to audio and motion-designing middleware jockeys, Audiokinetic's (www.audiokinetic.com) Wwise Motion Tool V. 2008.2 allows the game production team to adjust such

properties as volume, pitch or LPF to fine-tune the motion effect. Any motion generated using Wwise Motion can be automatically created and customized for all platforms, including Windows, Sony PlayStation 3, Microsoft Xbox 360 and Nintendo Wii. In addition, the plug-in SDK allows you to support any peripheral that is not yet supported by Wwise Motion. A plug-in for the D-BOX chair is now available for PC. The app is extremely light, causing virtually no impact on CPU or memory usage.

NEURAL-THX SURROUND

Expanding the barriers of broadcast and game audio to 7.1, Neural-THX surround technology (www.neuralsurround.com) lets broadcasters and game developers encode 5.1 content during a live mix or post session, transmit the content in a stereo format over existing channels and decode the original 5.1 mix through a Neural-THX Surround-enabled playback device. For the listener, this offers a consistent surround sound experience, regardless of the compression type. Expanding the game audio experience to 7.1 allows gamers to add two additional rear speakers, creating a 360-degree listening environment. When playing in Neural-THX Surround, sound elements will be placed in front, to the side and behind gamers.

MARANTZ PMD580 RECORDER

The newest addition to its family of rackmount digital recorders, the \$1,399 PMD580 from Marantz (www.d-mpro.com) brings network connectivity to the line. Via its Ethernet port, the PMD580



can be positioned as a network device, allowing users to set menu parameters, schedule recording events, and transfer and archive audio files—all by using a Web-based GUI interface from any PC or Mac in the network. I/O includes balanced XLR inputs and outputs, S/PDIF and AES/EBU digital interfaces, and RS-232 control. The unit offers MP3 and WAV recording formats, and users can select between 16- and 24-bit resolution.

NADY SYSTEMS RSM-8A

The RSM-8A active ribbon mic from Nady (www.nady.com) has a low-tension, 50mm-long, 2-micron-thick aluminum-ribbon (velocity) design. Gain is said to be 40 dB higher than most non-active ribbon mics. Features include 165dB SPL capability, -10dB pad and low-cut filter switches for attenuation and elimination of stage rumble. The figure-8-patterned mic features an integral stand mount.

SHANE WILSON'S GUIDE TO MIXING

Featuring more than four hours of video with top Nashville engineer Shane Wilson, this \$79.95 DVD from Audio-instruction (www.audioinstruction.com) chronicles a mix session from start to finish, preserving every nuance of Wilson's technique. It offers tips on working quickly, along with plug-in settings and documentation of every piece of gear used within the session. Included are the original, separate audio files from the session so users can import the 24-bit WAV files into their own DAW to try their own mix. The DVD also has a discussion and comparison of mixes printed to several different mix paths, including various A/D converters, ½-inch tape, a Neve summing mixer and more. ■



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Sony PCM-D50 Handheld Recorder

Affordable Unit Offers Adjustable Mics, Digital Pitch Control

Sony's new handheld PCM-D50 recorder reprises most of the features and performance of the company's much-higher-priced PCM-D1 in a smaller-sized unit that's also "smaller" in price: \$599 MSRP. The D1's titanium case, rechargeable battery system and round mechanical peak meters have been replaced with an all-aluminum enclosure, four AA battery powering and included AC power supply—but essentially the compact version offers the same peak-reading and backlit LCD.

The D50 is about one-third the weight of the D1, yet it retains the same "point-and-capture" design, using a pair of swiveling electret cardioid condenser mics for either 90-degree X/Y stereo or 120-degree wide positioning. The unit also has a powerful headphone output, external mic input, and both analog and optical digital I/O facilities.

THANKS FOR THE MEMORY

The D50 records PCM audio to internal 4GB Flash memory; additional storage becomes possible when you insert a Sony Memory Stick into a slot on the side—only Pro HG Duo™ sticks work. The unit records and plays WAV-format digital audio at 16- or 24-bit depths at 22.05/44.1/48/96kHz sample rates. Audio files can be on/off-loaded to the unit via USB 2 with PC and Mac support, including Leopard 10.5. Also included are a copy of Sound Forge Audio Studio LE editor and a Windows 2000 driver.

The D50 retains both the D1's stereo limiter—with a choice of three different release times (150 ms, 1 second and 1 minute)—and the great-sounding Digital Pitch Control (DPC), where playback audio speed can be changed from +100 to -75 percent without pitch change. The five-second prerecord buffer function captures audio you'd normally miss if you were late going from Record Pause mode into Record; you'll never miss the beginning of a song or the first words of a speech.

The D50's internal recording folder structure has 10 folders capable of holding up to 99 tracks (recorded files) each—990 total for the internal 4GB Flash memory or any additional Memory Stick. "Pecking" the Menu

button displays the folder that is currently in use. This is the first of only two menu layers; here you can search/delete individual files or select other folders. I used a separate folder as an organizational aid for all recordings made at the same sample rate.

WORKING IN THE FIELD

For sonic evaluation, I transferred all field recordings to my Pro Tools rig. Upon connection to the Mac, the D50 shows up as a hard drive, and the Mac's Image Capture utility allowed off-loading the files right into my Music folder, but you can also drag and drop files anywhere.

For all my recordings, I tried both the X/Y mic position and the wide setting. The former is more mono-compatible and best for single-point source recording such as a lecturer, but for music I found it too narrow sounding. I preferred the wider mic setting in all cases. I recorded an acoustic guitar using close proximity to produce the fattest sound that was not overly bright. The green (-12dB) and red (-1dB) headroom LEDs make it simple to set optimal recording levels; the remaining headroom is always indicated on the LCD screen. The backlit LCD was a bit dim for my taste, but it was perfectly usable in darker rooms.

Without a doubt, the acoustic guitar recording was of studio quality. I used the limiter with 150ms recovery time but not with the -24dB low-cut filter that's adjustable to either a 75- or 150Hz corner frequency. Both of these processors switch in/out via slide switches on the back of the unit—a nice touch. Setting the low-cut filter, the limiter and other parameters requires diving into the second layer of the LCD menu. Holding the Menu button down reveals where you set sample rate/bit depth, DPC, Super-Bit Mapping (SBM), prerecord buffer, clock and more.

My next recording was 25 feet away from a blues band in a noisy bar. I tried the -20dB pad, but it made setting an exact level a little touchy as compared to using no pad. It would make a nice update to illuminate the record-level knob either by allowing light from the display to spill onto it or by just adding a 1-to-10 indicator in the LCD screen.



As with the acoustic guitar recording, I used 96kHz/24-bit, the limiter, wide mics and no pad, as the resultant recordings were more dynamic sounding without it. The limiter is very gentle and unobtrusive, and it allows for higher average recording levels—I would recommend always using it.

My last recording was for an oral history project at 22.05kHz/16-bit with the limiter at 1-minute recovery, low-cut filter at 75 Hz and wide mics. One mic was pointed at me and the other was pointed at my 95-year-old mother. Later, using BIAS Peak 5 XT stereo editor software, I compressed each channel separately before mixing and posting online. While recording and during subsequent playbacks, I used the unit's Divide feature to do on-the-fly file splitting to separate each of my mom's stories into individual files.

AFFORDABLE PORTABLE

Sony's PCM-D50 provides a wonderful path to pristine digital recording in a self-contained, portable package. It's nearly idiot-proof and includes a large complement of accessories. There are few tasks—from casual to fully pro—that this unit cannot easily handle and produce excellent results.

Sony Pro Audio, 800/686-7669, www.sony.com/professional. ■

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

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EastWest PLAY Sample Libraries

New Additions Offer Lush Sounds, 64-Bit Power, Convolution Reverb

Following the model that was established two decades ago, most soft-sample libraries are released in one or more of the day's popular formats. EastWest, which has observed this policy for some time, has broken the mold by releasing four new libraries—Fab Four, Voices of Passion, Ministry of Rock (which was not available when this review was written, but is now) and Gypsy—in its new PLAY format only.

As a sample playback engine, PLAY is well-designed and easy to use, and stands out from the pack with its 64-bit support, the first in the industry. This allows you to load many more instruments and voices, and is limited only by the host system's RAM; 32-bit support is also included. All of this power translates into lush aural landscapes: For instance, the gorgeous convolution reverb's impulse responses, plus the automatic double-tracking (applied most stunningly to the replications of Beatles sounds, but useful throughout), coupled with a silky stereo doubler, puts PLAY in a class of its own.

FAB FOUR

PLAY's browser is standard fare. Assuming you've installed all of your libraries into a single PLAY folder, you'll navigate through and load individual samples, or, more likely, either a Master or Elements patch. The two are essentially identical: Selecting the Master loads and activates all articula-

tions, while choosing the Elements patch loads and activates single articulations to save system resources. I had a hard time understanding why the choice was made to include both, though a call to EastWest principal Doug Rogers showed me that having both options saves load time and efficiency. For example, say you're playing a patch

with release trails and you want to hear a sound without them. You can deactivate release trails and the samples remain loaded. When you activate them, they are right there without any additional load time.

Fab Four sound categories include bass, drums, guitars, keys and a miscellaneous folder that offers screaming girls and sitars. Although the drums and basses were recorded with the same scrupulous attention to detail, I found them to be of less interest than the keyboards and, in particular, the guitars in this library. The "Fixing a Guitar Solo" guitar sound captures its subject so well that after several run-throughs, I was almost unable to tell whether George Harrison's line was coming from the *Sgt. Pepper's Lonely Hearts Club Band* album in the CD tray or the software I was using to play along with it.

PLAY is multitimbral, so when you decide to load in the "Strawberry Flutes," for example, you can choose to replace an existing sound or load it up in a separate slot. However—especially if you're relying on the convolution reverb or other DSP—watch out because PLAY is a resource hog. The company touts PLAY's 64-bit capability, and it's clear that the engine



The Gypsy library features sampled classical guitar with many articulations.

was designed for a time when most users will be using this technology.

Other highlights include spot-on replications of the trippy Lowery organ featured in "Lucy in the Sky," and the Clavioline presets from "Baby You're a Rich Man" and "Within a Sitar." While the Fab Four samples are outstanding accurate reproductions of The Beatles' sounds, I wondered whether they would have any practical value for today's music production. The answer is, yes—they can be turned into aural tapestries that evoke an earlier era without being tethered to it.

VOICES OF PASSION

I almost jumped out of my seat the first time I instantiated this library and played a note—that's how much personality these performances capture. The amount of attitude is the strength of this library and, in a sense, its limitation. Female singers from North America, Bulgaria, India, Syria and Wales were tracked, and EastWest made some very interesting decisions. For starters, the company abandoned Word Builder, the pioneering concept behind its Symphonic Choir library. Although it takes a bit of practice, Word Builder lets you type in text that the "singers" enunciate.

EastWest took a different tack with Voices of Passion. Instead of performing actual words, the Syrian ladies, for example, intone a series of pitched phrases



Voices of Passion features female vocal samples from different countries, including Bulgaria, Syria and Wales.

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The Fab Four offers Beatles-esque bass, drums, guitars, etc.

that “sound” real—at least to my Western ears. The same holds true for the Indian and Bulgarian singers: Load the Bulgarian Master patch, and you’re presented with a series of chromatically pitched phrases that you can switch between. The mod wheel is critical to the execution of convincing performances. It filters the sounds and adds a great deal of nuance to them.

Given their length (roughly five to 10 seconds) and specific melodic content, you must use these performances in context. This may limit you to writing music

that supports them with sustained pedal points and broad harmonies—perfect when you’re tapped to score the sequel to *Black Hawk Down*, but less useful in other styles.

Loading the Elements of the North American singers presents some great possibilities. The “doo” patch may bring out your inner Swingle Singers persona, and the “sigh” made me think Norah Jones had slipped in. These sounds and the other parts of the American Elements patch will work with many musical

styles. All of this library’s sample sets have convincing legato and portamento, and they highlight the beauty of PLAY’s DSP.

GYPSY

Gypsy’s classical guitar is absolutely gorgeous, and I hope that EastWest adds to the articulations with which this instrument currently ships. The Spanish Guitar offers many of the articulations that are missing in the Classical Guitar. Along with the Django Style Guitar, these guitars will help you add authentic color to underscores

and records. The accordions are spot-on, and the Flamenco Dancer is excellent. The solo violin in Gypsy is a standout. Throw in some pizzicato, harmonic and maybe some *col legno* samples, and this exquisitely recorded violin could fit in with any style of music.

LET’S PLAY!

Other sample players—the ubiquitous Kontakt engine in particular—do an admirable job of laying out the contents of a library and allowing you to shape sounds. Foregoing this path and creating a brand-new engine must have seemed a bit risky, considering the resources required. EastWest deserves high praise for the results. The DSP package—the convolution reverb and ADT in particular—is gorgeous.

EastWest is currently porting its entire library into the PLAY format. The company has also announced that it will release PLAY Pro, a 64-bit system that will be able to open other libraries, sometime in 2008. Prices: Voices of Passion, \$495; Gypsy, \$395; and Fab Four, \$395.

EastWest, 800/833-8339, www.soundsonline.com. ■

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Ableton Live 7 Performance-Oriented DAW

Time Signatures, Integrated Synths and More

From its inception, Ableton Live has been a favorite of dance music producers and DJs because of its ability to seamlessly sync up sampled loops. Building on that success, Ableton has upgraded the program aggressively, adding support for virtual instruments, MIDI sequencing and many other features. Live 7 continues the trend, boasting improved automation handling: Each track can now display multiple lanes of automation envelopes. Also new are support for time signature and tempo changes, slick REX file import and, if you buy the Ableton Suite, a rack of great-sounding software instruments.

IT'S ABOUT TIME

Pop and dance musicians are often fine working with a 4/4 time signature and a steady beat, but film composers need to be able to change tempo and time signature at any time. Live 7 integrates the ability to change these at any point in a piece.

In Arrangement view, these features operate much the same way they do in any other DAW: You can insert a new time signature at any beat or automate tempo changes by inserting envelope breakpoints. Live doesn't care if a section ends with a "partial bar," but it shades the partial bar in the time ruler to alert you to the situation, and one-click commands are provided for deleting and completing the partial bar.

The implementation in Session view is more surprising. Each scene in a session can be given a name that includes the relevant information, such as "131 bpm, 5/4." This feature may not get a lot of use on the dancefloor, but I found it quite handy when recording an improvised arrangement from Session view into Arrangement view. The tempo and time-signature changes were included in the recording.

POWER POINTS

A local filmmaker sent me a 10-minute short in QuickTime format and I imported it into Live for scoring. After composing a piece of title music, reading the rather sketchy discussion in the manual and trying a few things, I was able to align the important changes in the music with hit points in the film.

Live aligns audio tracks to video using its existing Warp Markers features, which were originally designed for spotting and adjusting the beats in an audio waveform. The film's soundtrack appears in an audio Edit window along the bottom of the Live window. This clip can be designated the Warp Master. When you move Warp Markers in the Warp Master clip, the clip (which in this case is the video) doesn't warp; instead, the rest of the tracks change

tempo as needed to align themselves to the Warp Markers in the Warp Master clip. This may sound a bit confusing here, but it quickly becomes very intuitive.

I wanted to align the downbeat of bar 15 with the first frame of a new image, so I zoomed in on the film's audio clip until I saw individual bar numbers above the audio, double-clicked on the number 15 to produce a new Warp Marker and then dragged it to the left until the frame I wanted popped into view in the Video window. On playback, bar 15 was in the right place, but the tempo change before the hit point was too drastic. I needed to cut out one beat before the hit point, leaving a 3/4 bar. This took only a couple of seconds. (Editing the music to work in the short bar took a bit longer.)

When the video is the Warp Master, the tempo can change only at a Warp Marker. You can insert as many of these markers as you like, so gradual accelerandi are possible, but the editing process is not likely to be quick or easy. If you're not using a Warp Master, smooth tempo changes can be programmed anywhere in the arrangement using a multi-segment envelope.

NEW INSTRUMENTS

The Ableton Suite bundle includes a multi-sampled library of acoustic drum kits called Session Drums and a barrage of resampled kits from vintage drum machines. Also included are three plug-ins licensed from Applied Acoustics Systems, which were given



Tracks in Live's Arrangement view have their headers at the right. Automation envelopes (red lines) are displayed on top of the track data.

new front panels and new banks of presets: Tension is AAS String Studio VS-1, Electric is AAS Lounge Lizard EP-3 and Analog is AAS Ultra-Analog VA-1. These instruments are great additions to Live. The suite also includes Operator and Sampler, which are not new, but Sampler has been enhanced by adding envelope segment curvature.

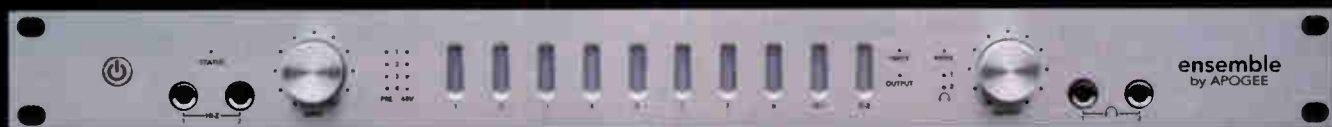
Tension is an amazing resource for plucked and struck sounds. I love this plug-in, but it's not the easiest to program. Learning to edit the sounds will mean grappling with parameters like Excitator Protrusion, Termination Finger Mass and Damper Stiffness. (See the graphic on page 110.) It's the nature of a physical model that it will occasionally fail to sound at all in response to extreme parameter settings. Worse, you might hear a massive noise burst in response to small changes in the settings. Many of Tension's presets have medium to high values for String Inharmonicity, which means the octaves will be too narrow and some notes will be out of tune.

Tension's response to pitch-bend data is somewhat unpredictable, especially in the low register. The last note in the improvised solo heard at mixonline.com under "Mixed Media" is distinctly flat—not because I failed to center the pitch wheel after the note started, but because Tension failed to center its pitch at the end of the bend.

The Electric plug-in is less versatile than Tension, but easier to program. It's a physical model of an electric piano and has parameters for adjusting the mallet, tine,

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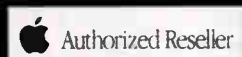
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American Acoustic Development Model 7001

High-End, Transparent Monitors for Mixing and Mastering

From Phil Jones—designer of the Acoustic Energy AE-1, Boston Acoustic's Lynnfield 300 and 500 monitors, and the AAD 2001—comes a new challenger in the near-field of high-end monitoring. The two-way American Acoustic Development (AAD) 7001 has a 5.25-inch woofer and horn-loaded neodymium ribbon tweeter. Power handling is rated at 100 watts minimum, 1,000W maximum, with sensitivity rated at 86 dB, 1W/1m. As an alternative to the more common ported enclosure, a rear-firing, 6.5-inch tuned passive radiator has a neoprene suspension that's capable of excursion in the 2-inch range.

Like most speakers at this performance level, you can bi-amp each driver separately or use the shorting bars to strap both woofer and tweeter together using the built-in crossover (12dB/octave starting at 3 kHz). Standard banana plug connections are suggested, but twist-on connectors will do the job just as well. I used two 4-foot segments of 12-gauge solid-copper wire for my testing with a 700W Phil Jones amp (supplied by AAD for this review).

HEY, GOOD LOOKIN'

Available in aquamarine tiger maple, piano black or cherry finishes, the cabinets alone are a work of art. Their exquisite side panels also have lead dampening, which—along with the half-inch aluminum-slab front/rear baffles and 1.5-inch thick MDF side panels—surely adds to each speaker's 77-pound-per-box heft.

Not for the weak of back, companion speaker stands (included with the 7001s) are also very heavy, although you won't find a safer or more solid means of supporting the speakers than these stands. As a plus, the overall sonic image resulting from such stability is superb.

Although designed and touted as "near-field" monitors, the AAD 7001s have a much wider sweet spot than expected, making them equally desirable in home theater and listening environments, as well as for mastering and critical monitoring apps. My own tests verified the manufacturer's claims of nearly full energy at 90 degrees off-axis. The best results occurred when sitting be-

tween the suggested 40 to 60-degree angle, but they sounded great almost anywhere in the room, and I didn't need to sit quite as close to them at all times either. There were instances when I would "sneak up" on my own mixes from outside of the room, and it was quite startling to hear full details coming from *behind* the speakers and off to the sides.

AAD suggests some burn-in time with the 7001s. In my case, after about a week of use their overall response went from somewhat cold and brittle to a much more rounded, musical sound.

CRITICALLY LISTENING

I was working on several critical projects when the 7001s arrived, so after breaking them in I employed them immediately. With my Lipinski L-505 passive monitors already in use on location, I needed a reliable "second opinion" for audio reference back at home base for sessions ranging from a film score mix and CD mastering to several FM radio broadcasts. I placed the 7001s in a free-field environment in my then-temporary production studio, roughly 10 feet from any walls, ceilings, corners or reflective surfaces, and away from my already-cluttered normal mix position as I wanted to hear them in their most neutral state.

In the studio, they opened up an entirely new, richly detailed sonic landscape for my mixes, including the soundtrack for the new Warner Bros. animation DVD *Tom & Jerry's Nutcracker Tale* with a 60-piece orchestral score, which required daily spot-checks away from the recording venue. For another project—a live recording for FM radio broadcast of Grammy-winning jazz pianist Danilo Perez's band with saxophonist David Sanchez—I relied solely on the



AAD 7001s for my references and mixes, with excellent results all around. Last but not least was the sheer pleasure of a simple piano and solo soprano voice recording/mastering project that left the clients nearly in tears of joy during final playback.

ARE THEY A FIT?

What did they sound like? Absolutely nothing at all, returning exactly what I fed to them with a clarity and depth that I've only heard on the best speakers I've reviewed over the years. Surprisingly, I felt less of a need for a sub-woofer with these speakers than with many other speakers I've auditioned, but I would probably add one for professional use.

Their stated response is 25 to 60k Hz (± 2 dB), so perhaps that explains things a bit. The AAD 7001s were never harsh or fatiguing, and with a sweet spot that's wider—and a bit higher—than one might expect with boxes of this size (16.5x9.8x16.5 inches), they more than deliver on their reputation and promise as an excellent choice for personal or professional monitoring in the near-field.

Every once in a while, you encounter a very special product that leaves little room for doubt as to its potential. The AAD 7001 is one of those pieces of gear, especially where critical listening, mixing and non-fatiguing mastering sessions are required. With their substantial weight and steep pricing at \$12,499.99 per pair, these are serious tools for serious users. Anyone who thinks they've "heard it all" should give these a try—but prepare to be surprised.

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Snapshot Product Reviews



APHEX HEADPOD 454 High-Output Personal Headphone Amp

The HeadPod™ 454 from Apex is a 1-input/4-output headphone amp. Priced at \$249, it works in many situations, including computer-based production, location recording (if AC is available) and live sound, but I found that the 454 excelled in tracking loud instruments (i.e., drums) and providing detail at low levels.

With the 454's "high output" as a prime selling point, Apex provides an output vs. impedance chart that indicates a maximum level for each of the four headphone outs at approximately 1,200 mW (8 ohms) diminishing down to 110 mW (600 ohms). The form factor is small, coming in at 5.5x2x4.25 (WxHxD) inches, about three-quarters the size of a PreSonus HP4, but the 454 isn't rackmountable—it's a tabletop unit.

The 454 is a sturdy box that should stand up to daily use and a lot of moving around. The top-mounted controls are straight-ahead: one master volume and four individual output controls for each output channel, all continuously variable. Inputs are metal TRS jacks (another plus for ruggedness), with a 20k-ohm input impedance and a maximum +24dBu input level. A rear panel switch selects the dual, balanced TRS inputs for left/right signals, or the single, unbalanced TRS input, which can be used

for L/R signals coming from the output of a soundcard, portable computer or any source that needs a kick in volume. Power is provided by a 12VAC wall wart.

I A/B'd the 454 with a PreSonus HP4 using a 250-ohm Beyer DT770 Pro, a 65-ohm Audio-Technica ATH-M30, a 63-ohm Sony MDR7506 and 600-ohm AKG K40M headphones. I referenced mastered, commercially available CDs, as well as 24-bit/96kHz original Pro Tools files, both of which had plenty of punchy drum tracks. The DT770s reached their limits before either headphone amp. The ATH-M30s were a different story: The 454 had more headroom. I reached the limits of the HP4, but the 454 gave that extra kick that started moving the headphone pads away from my head, simply from the SPL. The MDR7506s produced similar results—both amplifiers had more drive than I could stand. With their higher impedance, the AKG K40Ms were definitely better served by the 454. At low levels, I noticed subtle differences in ingredients up front in the mix when

compared to the output of the HP4. Vocal 'esses' have a bit more detail, along with the rest of the vocal range, particularly in the upper-harmonic structure. Reverb tails had a bit more separation from the primary signals.

Bottom line: Clean is the name of the game with the 454. At high and low levels, this box provides plenty of gain and detail at both ends of the SPL scale.

Apex, www.apex.com.

—Bobby Frasier

AUDIX M1250 Micro Series Miniature Microphone

One of the latest trends in microphones is the miniature pencil-style mic. Somewhere between a lavalier and a full-sized, front-address mic, the M1250 transducer-on-a-diet from Audix is great for applications where sneaking in between cymbals to mike a tom or going under a snare can be difficult. Its size is also great for spoken-word applications, in which seeing the person's face on camera or at a podium is important. It also offers total immunity from RFI, making it a winner for use around GSM phones and devices. The phantom-powered Audix M1250 mic certainly fits any of the previously mentioned applications and more.

Although I tested versions with cardioid capsules (\$419), Audix also offers hypercardioid (\$439), omni (\$419) and supercardioid (\$459) capsules, making this one of the most versatile mics in its class. It comes with a 25-foot mini-to full-sized XLR cable, a mic stand adapter, hanging clip, foam windscreen and carrying pouch. Optional accessories include a 50-inch Microboom, stand adapter with rubber shock-mount, lug and drum-rim mounts, and goosenecks in three sizes.

Measuring just two inches long and a half-inch in diameter, this 0.6-ounce wonder has a frequency response of 80 to 20k Hz, and boasts being the smallest 48-volt condenser



mic with an integrated preamp on the market. I tried two M1250s in a number of situations with varying results. I first used them on toms, and due to their size found them a breeze to place just right. The mics advertise a bottom end down to 80 Hz, but they needed some help from a bottom tom mic (flipped out of polarity) to get the sound I was looking for. They handle 150dB maximum SPL, so close proximity to a drum is not a problem. The attack of the stick on the tom was crystal-clear, and transient response was excellent. I did find them lacking as overheads, but these wouldn't be my first choice anyway. These miniature mics are better suited for tight, high-SPL situations—both live and in the studio.

Next, I tried an M1250 under a snare paired with a Shure SM57 on top. It brought out the snap I was looking for and was a perfect companion for the top mic. For spoken word, these mics shined. Their rolled-off bottom and ability to take high SPLs made them a perfect choice when used up close, especially with the included pop screen.

Although I did like using the mic in a variety of applications, I had a few problems with the optional drum-mounting hardware that Audix sent. I'm not big on this style for studio recording, but for live applications it helps to eliminate stage clutter. The clamps were robust, but I found the rubber shock-mounts to be flimsy and they broke easily after minimal use. However, the optional long and elegant Microboom floor stands are exemplary. I could see this mic being ideal for house of worship or other podium applications where you need good spoken-

word coverage but don't want a large mic in someone's face.

Audix, 503/682-6933, www.audixusa.com.

—Kevin Becka

BRAINWORX BX_HYBRID 2 Equalizer Plug-In

The 11-band mono and stereo bx_hybrid 2 (\$349) VST/RTAS EQ plug-in from Brainworx combines unique features with traditional tools. As you'd expect, filter choices include low shelving, high shelving, bell, lowpass, highpass and notch, with sweepable bass and presence-shifting EQs that are joystick-controllable. The extras include Auto-Listen modes; M/S stereo width and M/S "Mono Maker" controls; a dual-mono layout for linked and unlinked control of each individual feature; individual bypass switches for every feature; balance and phase correlation meters; and solo'ing capability for left and right channels, which puts the signal from the individual channel into both speakers. A switchable EQ panel with multimode EQ display ties all these fully automatable functions together.

The old-school core of bx_hybrid results from its creators' understanding of the mysteries of M/S. By applying M/S principles internally to a mixing/mastering EQ, brainworx has made this complex technique foolproof and easily accessible for DAW-based production. The Mono Maker control at the top of bx_hybrid's large and attractive interface allows you to change the low end to mono from 0 Hz up to any desired frequency. It creates a mono mixdown low while auto-

matically compensating for any potential loss of overall bass amount in the mix.

When I applied bx_hybrid to the bass, drums, percussion and synth stems of an electronica mix, the benefits of this capability were immediately apparent. I started by making the bass mono at 44 Hz with a stereo width decreased down slightly from 100 percent (you can take it as high as 400 percent), resulting immediately in a nicely tightened, better-focused bass track. From there I introduced the Mono Maker and stereo-width controls, making incremental increases in those parameters for each stem. The result was a startling increase in control for placing each stem in the stereo field and articulating its presence, in a way that would have been either impossible—or at least extremely time-consuming—without the hybrid on hand.

The software's ability to solo the left or right signal in both speakers was invaluable for judging perspective on the mix, and the Auto-Listen modes—while tricky to comprehend at first—became intuitive with practice, allowing even greater insights as to how each band's Q, gain and frequency adjustment impacted the audio.

The only difficulty I encountered was CPU drain: Putting one across each of four stems on my PC (2.26 GHz, 2GB RAM) in Cubase SX3 affected performance, although I solved the problem by freezing tracks. That issue notwithstanding, I was impressed with bx_hybrid's ability to improve workflow and decision-making, which improved the final results in my mixes.

Brainworx, www.brainworx-music.de.

—David Weiss



GLYPH GT 062 RAID High-Capacity Desktop Storage System

The GT 062 from Glyph is a half-rackspace desktop hard drive system comprising two Seagate SATA drives that run at 7,200 rpm and an Oxford 924 chipset. Available in sizes up to 2 TB, Seagate's SATA drives are faster than traditional parallel ATA drives because SATA drives include a built-in Native Command Queuing (NCQ) algorithm. NCQ increases efficiency because it cuts down on extra arm motion by dynamically rescheduling and reordering commands so that the heads travel less over the platters.



The all-steel GT 062 has an internal power supply and is cooled by a superquiet fan. There are two FireWire 800 ports, along with FW400 and USB 2. The drive comes in a plastic travel case complete with cables for FW400, FW800 and USB, plus AC power, the Glyph Manager (GM) software and a three-year warranty, which includes a free, two-year basic data-recovery service.

Designed for pro A/V, the 062 is capable of a sustained transfer rate of 80 MB per second and supports four RAID drive modes. As Pro Tools and some other DAWs do not support software-based RAIDs, the GM software configures the firmware inside the 062 so it presents itself as JBOD (Just a Bunch of Discs), where the CPU sees two independent drives; "Spanning," where data is writ-

ten sequentially (when the first disc is filled, the remaining data is written to the second disc); RAID 0 (aka "Striping"), the fastest mode because both drives read and write concurrently; and RAID 1, or "Mirroring," where data is written redundantly to both drives—a little slower, but the safest mode with half the total capacity of the two drives. If either drive fails, then the other will operate seamlessly. GM checks the health of each drive in RAID 1 mode and indicates a failure by bouncing in the Mac's Dock.

I mounted my 1TB GT 062 next to my 250GB GT 050Q drive in a single rackspace using the optional dual-rackmount kit and daisy-chained the two to my quad-core Mac using FW800 cables. After installing the GM software, I selected RAID 1 mode. Changing RAID mode at any time neces-

sitates the power cycling and erasing of the entire drive. I used the Mac's Disk Utility to erase and turn the 062 into a Mac OS Extended (Journaled) volume. (Or for Windows PCs, a NTFS volume; Vista is not yet supported.)

I chose RAID 1 mode to offer to my mixing clients the added safety that all of their audio files and mixes would be redundantly stored on the 062. Even though I make a copy after each day's work, it is possible that a read/write error or an actual drive failure could occur during a session.

I got the same speed, quiet operation and track count (as high as 120 with low edit densities) as my 250GB GT 050Q—with all the same performance in my Pro Tools HD3 Accel rig. The big difference was a sense of confidence that all my hard work was stored safely. Until solid-state storage becomes cheap enough, hard drives remain essential in A/V production; it's imperative they always work accurately and reliably. The GT 062 fulfills that imperative. Prices: \$452 (500 GB), \$665 (1 TB), \$1,092 (1.5 GB) and \$1,425 (2 TB).

Glyph, 800/335-0345, www.glyphtech.com.

—Barry Rudolph ■

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JACKIE GREENE

ROOTSY SINGER/SONGWRITER ON THE VERGE OF HITTING MAINSTREAM ACCEPTANCE

By Blair Jackson

While it's undeniable that the record business can be cruel and cold, and it spits out some of its best while lesser talents rise to the top, there are certain artists who just seem destined to make it, who have that elusive, can't-miss X factor. Like Jackie Greene, whose latest release, *Giving Up the Ghost*, has critics and fans alike (again) predicting stardom for the talented Northern California native.

At 27, Greene's no longer the *wunderkind* singer/songwriter who, following a youth spent mostly in the Sierra Gold Rush town of Placerville, moved to Sacramento after high school and immediately took the area by storm. Here was an "old soul," wise beyond his years, who drew from blues, folk, old-time country, Ray Charles, Bob Dylan, The Band and many other influences that he seamlessly integrated into a distinctive, personal style. The musical equivalent of a "five tools" baseball player, he was a strong and confident singer adept at myriad styles; a soulful multi-instrumentalist comfortable playing almost any stringed instrument, keyboards, harmonica, even drums; a magnetic performer either solo or with a band; an outstanding songwriter who easily blended a personal/confessional approach with broader American roots music archetypes; and a knowledgeable home recordist with respectable engineering chops.

He made his first album, *Rusty Nails*, when he was just 20. Shortly after that, he was "discovered" in Sacramento by manager Marty DeAnda, who signed Greene to his indie label, Dig Music. The 2002 disc

Gone Wanderin' was picked as a top album by *Rolling Stone* critics and won a California Music Award for Best Blues/Roots album. On that album and *Sweet Somewhere Bound*, Greene played nearly all of the instruments himself. Meanwhile, as a performer he continued to hone his craft, and increasingly landed prestigious opening slots on shows by established acts. Indeed, the first time I even heard his name was when he opened a 2005 concert by Los Lobos at the Fillmore in San Francisco. Armed with just an acoustic guitar and harmonica, he put on one of the most mesmerizing "warm-up" sets I'd ever seen. I wasn't alone in that opinion: Los Lobos keyboardist, reeds player and producer Steve Berlin also saw Greene for the first time that night, and was so taken by his set that he later struck up a friendship with him, which led to Berlin producing Greene's masterful 2006 opus, *American Myth*, his first effort for the bigger Verve/Forecast label, and my favorite album from that year.

That album marked a change in recording direction. While Greene still maintained a very strong instrumental presence on the disc, Berlin surrounded him with a crack band of Los Angeles players who are known collectively as Jackshit—guitarist Val McCallum, bassist Davey Faragher and drummer Pete Thomas (of Elvis Costello fame)—and such notable colorists as steel guitar ace Greg Leisz, Los Lobos percussionist Cougar Estrada and Berlin himself.

Berlin reflects, "We wanted it to sound like a band that had been together for years. The paradigm in my mind was The Faces before Rod turned into 'Rod Stewart'—when they had a great time and you could hear on every track that they were having a good time. So we tried to build that camaraderie in the process. Then we found this nice, funky studio

—CONTINUED ON PAGE 124

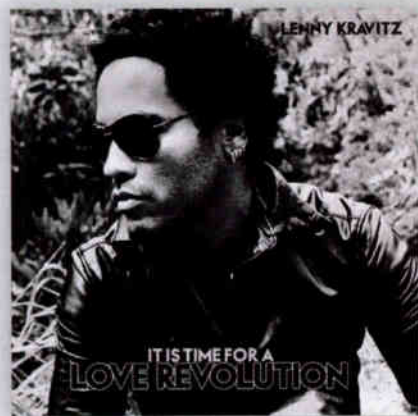
LENNY KRAVITZ AND HENRY HIRSCH

THE POWER OF TWO

By Chris J. Walker

Lenny Kravitz stands alone. On the one hand, he is known for embracing some of the musical ideas of many predecessors he openly admires, from Jimi Hendrix to Led Zeppelin to Prince to Stevie Wonder. Indeed, he has frequently been accused of sounding “retro.” At the same time, Kravitz and his longtime engineer, Henry Hirsch, are also famous for *not* following rules in the studio—for breaking away from established sounds and techniques to create new styles and forms. Kravitz’s latest collaboration with Hirsch, their eighth together, is called *It Is Time for a Love Revolution*, and once again it shows their unmistakable nonconformist tendencies while serving up hard-rocking jams, soulful ballads and other genres that are not exactly mainstream in the current sense of the word, yet have a certain unmistakable commercial appeal. But then, that’s how Kravitz has always rolled.

His 1989 debut CD, *Let Love Rule*, was



a throw-back juggernaut that caught the recording industry off-guard, especially the rock sector, which was then dominated by the aggressive raunchiness of Guns N’ Roses and Def Leppard, the driving yet pensive sounds of U2 and Sting, and the stylized pop of Madonna. Instead, Kravitz’s music had overt similarities to Hendrix, Zeppelin, Humble Pie, even Grand Funk Railroad, as



well as touches of The Beatles and Bob Marley, and early ’70s soul innovators such as Curtis Mayfield, Stevie Wonder and Marvin Gaye. Hirsch says that Kravitz had never heard of the Grand Funk, Humble Pie or some of the other bands to whom critics compared Kravitz. From the beginning, the multitalented musician has played most of the instruments on his albums (though on early albums Hirsch contributed numerous keyboard tracks).

Since his impressive debut, Kravitz has had a quite diverse career. As a songwriter, his resume includes work with Gun N’ Roses guitarist Slash on “Always on the Run” for Kravitz’s second release, *Mama Said*, penning Madonna’s hit “Justify My Love,” and contributing tunes for discs by Mick Jagger and other artists. The 1993 album *Are You Gonna Go My Way* was Kravitz’s blockbuster breakthrough, the record that firmly established him as an arena-rock force, which he remains to this day, despite a series of ups and downs. His next album, *Circus*, was more in the psychedelic oeuvre and didn’t garner the acclaim of his first albums, but *5* (1998) produced his top-selling single “Fly Away,” and the 1999 Austin Powers comedy flick *The Spy Who Shagged Me* featured the hot-rocking soul man’s version of the Guess Who’s “American Woman”—another smash. *Lenny* in 2000

and the introspective *Baptism* in 2004 didn’t produce any huge hits, but by then he had become so well-established that he had a dependable following and his personal celebrity has always remained strong. In 2007, he turned up on the excellent all-star John Lennon tribute album *Instant Karma* (singing a harrowing version of “Cold Turkey”), but *Love Revolution*, his first album release in a few years, marks Kravitz’s return to the charts and airwaves in a big way.

“All of Lenny’s records take a good amount of time to produce because he does different things in between,” Hirsch comments about the making of the new album. “We started on it in late 2006; he called me to work on it for a two to three-week interval. Then he went away for a while. That seems to work pretty well for us because it gives both of us perspective about what we’ve done.” (Kravitz was originally scheduled to be interviewed for this article, but he fell ill in late January and even canceled his entire tour of Europe as a result.)

Hirsch says that all of Kravitz’s albums have been made essentially the same way, though obviously the songs and the sonics within those songs can change radically from album to album, and even from song to song.

“He’ll cut the track, usually starting with

—CONTINUED ON PAGE 125

CLASSICS IV'S "TRACES"

By Gary Eskow

Cover-band mates cum pop stars: As old as rock itself, this dream, born from endless hours spent woodshedding hits of the day, can come true, and in the late 1960s it did for a club band from Florida called the Classics IV. Featuring Dennis Yost's throaty baritone and a tight rhythm section that comprised the group's original guitar player, J.R. Cobb, and session players from Atlanta, the Classics IV scored three major hits, "Spooky," "Stormy" and this month's "Classic Track": from 1969, the Number 2 smash "Traces."

Originally a club band touring the area surrounding Jacksonville, Fla., the Classics IV migrated to Atlanta to take advantage of its greater talent pool. They caught the eye of Joe South, who produced several tracks for them, but South was unavailable for the "Spooky" session, and so Buddy Buie stepped in. "I was a songwriter who would do anything to be around the business before I was able to find success on my own terms," says Buie. "I was a booking agent for Roy Orbison and Bobby Goldsboro. After Tommy Roe hit the charts with a song I co-wrote called 'Party Girl,'

I began to get steady work as a writer.

"Paul Cochran, my booking partner at the time, and I went down to Florida to see the Classics IV, and it was clear that they had something special," he continues. "After they cut 'Pollyanna' with Joe South, J.R. Cobb and I started writing together. We were riding down the road one day and heard a jazzy instrumental tune called 'Spooky.'

We thought we could add lyrics and turn it into a vehicle for the Classics IV. That's how the string of hits started."

Emory Gordy Jr., a first-call bass player and arranger, played on all of the Classics IV sessions and co-wrote "Traces." Buie recalls how the song was written: "We were laying down some other tracks, and during a break Emory went to the piano and kept repeating a phrase that I found extremely catchy. I said, 'Em, would you care if J.R. and I took that piece and worked on it?' He said that was fine, and it became the opening phrase of 'Traces.'"



The Classics IV, l to r: Dennis Yost, Walter Eaton, Auburn Burrell, David Phillips and Kim Venable

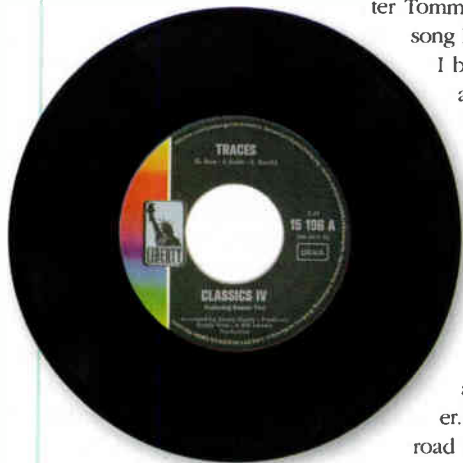
Cobb, who would leave the Classics IV shortly after "Traces" to concentrate on studio work in Atlanta and spend more time with his growing family, would eventually form the Atlanta Rhythm Section with other session aces, a band that scored its own hits with "Imaginary Lover" and "So Into You." He recalls the Classics IV days fondly: "We were just a bar band that got lucky and got a record deal! We'd play rock 'n' roll in clubs, and the owners would tell us that we had to learn 'Misty' or 'Fly Me to the Moon.' Those standards worked their way into our playing and writing, and became part of the Classics IV sound."

"Traces" was recorded and mixed at Master Sound Studios, then one of Atlanta's busiest facilities. Lou Bradley, who engineered the session, remembers it well. "We recorded a lot of major artists at Master Sound," he says, "including Roy Orbison, Billy Joe Royal, James Brown and Major Lance."

The industry was then transitioning from 4- to 8-track technology, and the jump was huge. "We cut 'Traces' on a 3-track Ampex recorder that Jeep Harned, who was the head of MCI, had modified into an 8-track," Bradley remembers. "Harned was a partner in the studio, and the console he built for us was actually the first MCI board. As I recall, it had 12 inputs, two reverb sends and Fairchild equalizers. Jeep later custom-built three EQs into the board, with a midrange that the Fairchilds lacked. As far as outboard gear, we had a Pultec equalizer and an LA-2A. Harned built us a stereo limiter/compressor, and we had a pair of EMT reverbs."

Dennis Yost, originally the group's drummer and lead singer, had relinquished his playing duties by the time the group started to record. The late Mike Clark sat behind the kit during the "Traces" session. "I used a 67 on the snare and on the toms and overheads; maybe with a 57 in there, as well," says Bradley. "I think we put an RE20 on the kick, but I can't be sure. I know we had an AKG in there, as well, but I'm not sure of the model."

"One thing that stands out in my mind is the amount of time we spent getting Dennis' lead vocal on tape," Bradley



continues. "Buddy was extremely particular about phrasing. I'll bet we spent 30 to 40 hours tracking the lead before Buddy was happy. One night, Buddy said, 'That's it, we're done,' but to me, Dennis was still a little off-pitch on the first two or three notes of his entrance. Today you might use pitch correction, but of course that was not available at the time, so I took a filter and rolled a bunch of the bottom out of the first several notes he sang. Don't get me wrong—Dennis was a great singer who did a tremendous job on this track. I just helped a tiny bit in this area. I've been fortunate enough to work on lots of hit records, and I've learned that most of the time they are team efforts, with everybody contributing something to make the product special."

Yost, who suffered a traumatic injury in 2006 that curtailed what was still a thriving touring career, is remembered as a special talent by Buie. "Dennis had one great voice," he says, "a voice that filled up the entire spectrum. It was so round, so full. Dennis was hard to record, though, be-

Buddy was extremely particular about phrasing. I'll bet we spent 30 to 40 hours tracking the lead before Buddy was happy.

—Lou Bradley

cause, believe it or not, he was a James Brown imitator who loved to sing R&B. None of the Classics IV repertoire was in this vein, but I think the passion he had for this music infused his vocals.

"The problem was that he wanted to sing everything hard, and to place the vocal in the context of the material we had to soften him up. During the 'Traces' session, I had tell him to take the R&B out over and over again!"

The writers had all been influenced by the music of Jobim and Burt Bacharach, and were particularly impressed by the way Bacharach was able to assimilate a samba influence into his pop songs. Recording Cobb's lightly inflected nylon-string guitar part, a key element of "Traces," was not

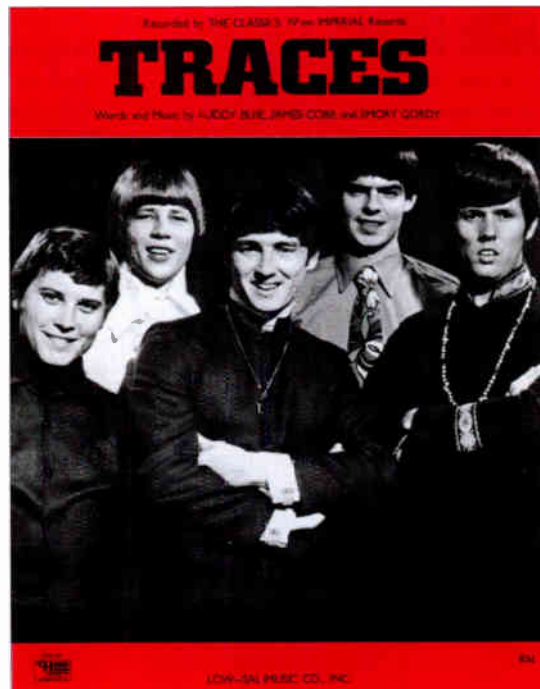
easy. "That gut-string guitar I used was so cheap!" Cobb says with a laugh, "and it played and sounded that way! It was impossible to keep in tune; the nearest I could come to having it stay properly pitched was to use the same voicing for the chords and move that shape up and down the neck. I think the slightly out-of-tune sound of the guitar actually added something to the track."

And Bradley pulled out a roll of masking tape during the guitar overdub session. "J.R. liked to double-track his parts. He augmented the natural out-of-tune quality of the guitar he was playing by detuning it slightly before we tracked the overdub," Bradley says. "This was way before Harmonizers were used to get a similar effect, so to highlight what he was trying to accomplish I wrapped masking tape around the capstan of the recorder to change its speed. Then I'd immediately bounce the two guitar tracks together, again coming off of the playback head."

The recording process that Buie and the Classics IV employed—which started with a basic track laid down with drums, bass and guitar alone, and continued on with multiple overdubs—would later become the norm. Not everyone was working this way at the time. "We spent a lot of time on these productions," says Buie, "and the arrangements Emory came up with were a huge part of what made 'Traces' such a good record.

"The intro, my favorite of all the records I've been involved with, took a while to come together," Buie continues. "Emory brought an English horn player to the session, and that great opening line just kind of evolved. Then there's that string line that leads into the bridge—I hated it at the time! It sounded so schmaltzy. Now it sounds cool to me. Mixing all of the elements together was difficult, and Lou Bradley did a great job."

"These days it's common for an engineer to mix tracks that were recorded at various times," says Bradley. "The principle is simple: The mixer has to make things sound like they all happened at the same time. Back then I used tape machine delay before the chamber to glue things together. We were still making mono records back then and we had to constantly check both our stereo and mono mixes.



"We had a pair of UREI Time Align monitors, and Altec A7s with a 700 crossover. These two made a good combination. Once we were all satisfied with the mixes, we shipped them to Liberty Records in L.A. to be mastered."

They came along at a time when Jimi Hendrix was burning down the universe, The Who were injecting large dramatic structures into the rock vocabulary, and rejecting the forms of the past was the norm for electric bands. The Classics IV offered a kinder, gentler, session-based sound, and their success came as a surprise to its creators. "Me and Buddy would sit around and try to write a standard," says Cobb, "We were overtly trying to write a 'legitimate' song. We had no idea it was going to be a Number 2 hit record—we were astounded! It was a cocktail kind of music; we knew that."

"That's right," Buie adds. "'Traces' was the kind of record that today is called 'easy listening.' The mid-tempo was a problem, we thought, and we never believed that kids would care about it. But we were wrong!"

The Classics IV enjoyed success with one more single, "Every Day With You Girl," before disbanding. Never a super-group, their catalog of hits nonetheless ensures them an honored spot in the history of pop rock.

Thanks to Joe Glickman, the "fifth Classics," for his help with this article. Glickman has shot a documentary on the Classics IV that is currently in post-production. More about the group can be found online at www.classicsiv.com. ■

JACKIE GREENE

FROM PAGE 120

called Sage & Sound in Hollywood, which is like a museum of great 1972 recording gear. There's nothing that tells you anything else. It's even got the shag carpeting!" Mark Johnson engineered that fine disc.

Despite across-the-board critical accolades for *American Myth*, sales were only so-so, in part because the Verve team that had been behind Greene started to unravel shortly after the album's release, so he never received the sort of promotional follow-through that could have taken the album to the next level. Meanwhile, another label came a-courtin'. While he was still signed to Verve, 429 Records—a division of another label, Savoy—gave Greene some money to go into a studio with his band and producer Berlin and cut a song for their exceptional tribute to The Band, *Endless Highway*. "And I said, 'If we're getting together, why do one song when we could do few,'" Berlin recalls. "There's enough money there so let's see what we can do.' So in July 2006, we went into The Hangar [Studios] in Sacramento and cut The Band song 'Lookout Cleveland' and then three of Jackie's tunes:

John Bacciagaluppi's always saying, "Oh, yeah, I just bought this from some dude in Yugoslavia and we had it modded by this guy, so why don't you use it and tell me what you think."

—Ralph Stover

'Prayer for Spanish Harlem,' 'When You Return' and 'Uphill Mountain.' Those songs became the start of the new album."

Berlin says The Hangar has "a funky, old, wonderful vibe, and lots of cool vintage gear. It's run by the guy who publishes *Tape Op* magazine [John Bacciagaluppi] and it's a true boutique studio filled with better-mouse-trap preamps and great, weird audio stuff and weird old instruments."

"The studio is hard to describe," agrees Ralph Stover, who engineered the tracks at The Hangar. "The main room is like this huge gymnasium room with skateboard ramps everywhere, and it's got all these corridors and rooms everywhere. But you walk in the control room and [Bacciagaluppi's] got every piece of gear you could possibly want, so there is always a lot of, 'Let's try this! I've never used this before.'

"John's always saying, 'Oh, yeah, I just bought this from some dude in Yugoslavia and we had it modded by this guy, so why don't you use it and tell me what you think,'" Stover continues. "It's like a little playground. And Steve is not afraid to try anything; he's a lot of fun."

Stover says the sessions at The Hangar were mostly recorded live to 16-track 2-inch, and then later transferred to Pro Tools. This became the M.O. for the rest of the album, too: basic tracking on tape, then migrating that material to Pro Tools for editing and overdubs.

By the summer of 2007, Greene had extricated himself from Verve and signed a deal with 429, and that's when work began in earnest on *Giving Up the Ghost*. There had been a couple of important developments in the interim.

First, Greene had moved from Sacramento to San Francisco—finding a pad just a few blocks from the beach in the Sunset district—and joined forces with his friend Tim Bluhm of the band Mother Hips to take over a funky studio, once called Wide Hive, in the Bernal Heights area of S.F. "I have nothing against Sacramento," Greene points out, sitting in the control room of the

studio now called Mission Bells. "More than a change of scenery, I wanted a change of attitude, and that's a big reason I moved to San Francisco. It seems like I run into a lot of creative people down here, a lot of musicians; there's so much going on. And so far the studio's been really great for us. We haven't even had any electrical problems chasing down hums."

The other big change in Greene's life was that in the summer of 2007, he was tapped by former Grateful Dead bassist Phil Lesh to join his touring jam band, Phil Lesh & Friends, as lead singer and co-lead guitarist (with Larry Campbell). Not bad for a guy who really only heard Dead music through his parents' vinyl record collection when he was a teenager and hadn't played improvisational rock 'n' roll at all. Yet here he was, playing before thousands of Dead Heads

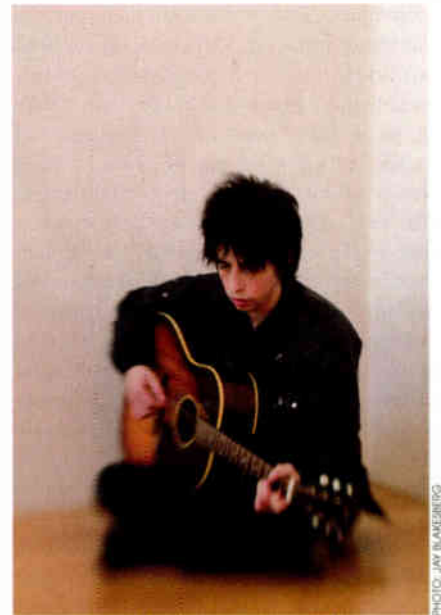


PHOTO: JAY BLANKENBORG

every night, singing classic Dead songs and sprinkling in a smattering of his own tunes, all of which were very well-received by an audience that mostly had never heard of him.

Greene is committed to touring with Lesh's band through the end of 2008, squeezing jaunts by his own band in between. But the first collision of his two musical worlds came this past summer when he and Berlin decided to get serious about completing the new album. "The problem was that Jackie was now doing the Phil tour and Los Lobos were on tour with John Mellencamp," the producer recalls, "so we were looking at our calendars, and we realized that if the record was even going to have a prayer of coming out in March or April [of 2008], we were really going to have to not just bust our ass, but be in two places at once. So I mapped out the next four or five months and there were enough little windows to get it done."

Before the Lesh and Los Lobos tours started, Greene and his band went into Mission Bells for a week and cut basics for a handful of new tunes, with Oz Fritz engineering. A one-time protégé of New York producer/musician Bill Laswell, Fritz moved to California in the early '90s and is perhaps best-known for engineering three albums by Tom Waits, who just happens to be a god to Greene. "I'm like a Tom Waits freak," Greene says with a smile. "I like everything he ever does. I like the weird shit; I like the normal shit. I like the pre-gravelly voice, I like the gravelly voice. He can do no wrong to me."

Of course, Greene pumped Fritz for info about Waits' famously unorthodox record-

ing techniques, and Berlin already had inclinations in those directions, having worked with Tchad Blake on some of Los Lobos' greatest albums. So it's no surprise that the sessions for *Giving Up the Ghost* often featured unusual sonic choices, whether it was using extraordinary amounts of compression for distortion "or going into studios and picking up a guitar you've never seen and an amp you've never heard, and just going for it," Greene says. Or recording to Greene's old Otari MX-70 1-inch 16-track, which has two broken channels. "You only have 14 tracks to work with," he says, "so everything counts. I like to commit things to tape. Committing yourself to a certain thing, like a reverb or effect, is helpful because then you build around that initial color."

"It's limiting having not that many tracks," Fritz agrees, "but it becomes a parameter in how you do stuff, so it becomes a part of the equation. I didn't feel constrained. It just meant maybe I couldn't have stereo room mics; I'd just have mono."

As for the overall sonic approach to the album, "Steve and Jackie just wanted to be really creative; don't worry about trying to go for a commercial sound," Fritz responds. "Go for interesting textures and atmospheres. Don't be afraid to experiment. So every time I did a session with live drums, there would be one mic that I would totally experiment with; maybe mess it up with extreme compression, run it into a mic pre and overdrive it—just see what happened. I did that with vocals, too. I'd always have a clean track and a parallel track that I'd process in different ways. That's something I developed working with Tom Waits."

When I ask Greene how he squares his drive to create a unique-sounding, consciously lo-fi work, with his professed desire to also create a radio-friendly album, he chuckles, and says, "I can't! I guess that's the weirdness of me. Certainly I want to have successful records—who doesn't—but I'm not willing to make anything other than what I want to make it sound like. If this is not considered commercially viable, so be it. But if there's a song on this record that for whatever reason ends up catching the public's attention, I'm totally for it."

And most likely it will be one of the catchy tunes Greene recorded with Jackshit at Sonora Recorders in L.A., the week after the Mission Bells sessions—the infectious rockin' soul tune "Like a Ball and Chain," the ethereal album opener, "Shaken," or the accordion-driven "Love Gone Bad." "That's a great studio," Fritz comments, "with a really nice-sounding board [an API], a great

sounding live room, some really good mics. I fell in love with one of their RCA 77 ribbon mics. And obviously those [Jackshit] guys can really play; they have great chemistry."

Once the tracking sessions were completed, the action shifted to the road, with Greene and Berlin fitting in sessions in between shows on the fall 2007 Phil Lesh tour. "The way the Phil tour works," Berlin explains, "is he goes to a place and stays four or five days, so I was able, between my schedule and his schedule, to be in those places when Jackie was there. So, for instance, he goes to Chicago for five days and Oz and I show up and we record for four of those five days at CRC [Chicago Recording Company]. The tour goes to New York, and I show up for five or six days. Jackie worked at Brooklyn Recording there. We even did a Phil bass overdub for a song backstage at one of their shows on a [Digidesign] Mbox right before they went onstage in New York. Somehow or another, with this insane workload we were able to put the record together in bits and pieces all over the country." Additionally, Val McCallum continued recording various guitar parts in L.A. and sending those along to be added to the stew. Then Fritz would compile it all on a master hard drive.

"It was like being in touring mode while recording," Greene comments, "so when I listen to it there's a certain sense of restlessness, like you're not at home."

Because of budget limitations, Berlin asked "four of my favorite engineers to do a couple of tracks each for the pittance we had. Much to my delight, they all agreed." And so Michael Brauer mixed four tunes at Quad in New York City, Tchad Blake did four at his base in Bath, UK, Mike Fraser handled three songs at The Warehouse in Vancouver and Ross Hogarth one track at Boogie Motel in L.A. With Greene and Berlin on separate tours by this time, they had to keep track of the mixes long distance (in Brauer's case they were able to hear some of his mixes in real time through a piece of broadcast software called Nicecast), confering over the phone or Internet.

But in the end it all came together and Greene says he is thrilled with the final album, which is filled with a typically eclectic mix of Americana styles, plenty of insightful lyrics about the human condition and relationships, and enough strong hooks to make radio programmers happy. Could *Giving Up the Ghost* be Greene's long-predicted breakthrough? Don't bet against it. But either way, Greene has definitely *arrived*. ■

LENNY KRAVITZ

FROM PAGE 121

the drums—on most of this record it was Lenny on drums and Craig Ross [Kravitz's foil since his third album] on guitar. After they finish that, Lenny will pick up a bass and we'll record that, and then he'll continue to add stuff. Usually, we've finished the majority of the recording in six to eight hours, depending on how picky we are with the sounds. We're both quite critical about sounds, so that tends to be the most difficult portion of the whole thing. Then he'll go write the lyric; he'll probably sing it the next day if he's in New York.

"Our style of recording is not based on the traditional idea of, 'Let's go cut our tracks, bounce them to Pro Tools, fix them in Pro Tools, then overdub our vocals, add a bunch more overdubs, sweeten



everything and then book time with an overpriced mixer.' We don't do any of that," Hirsch continues. "We try to get the right sounds when we're recording, and we're really mixing as we go along as the instruments are being put down. If you've got everything recorded the way you want to hear it, then later on what you're doing is more just balancing than fixing and mixing. We're not that finicky about little details, you could do in Pro Tools; we don't stack a hundred guitars, and we don't trigger snares and kicks and do all that nonsense."

That said, they *do* record to Pro Tools these days, though Hirsch adds, "I don't think there's any question that my 3M 79 tape machine blows away Pro Tools in

terms of sound, but if Lenny's more comfortable dealing with Pro Tools, that's the priority and it's okay with me." Hirsch's Pro Tools engineers on the album were Chris Theis and Cyrille Taillandier.

According to Hirsch, 95 percent of *Love Revolution* was recorded at Hirsch's usual haunt inside Edison Studios in Manhattan; most of the remaining 5 percent was recorded remotely by Kravitz in his home studios in Miami and France, "but 100 percent of it was mixed and worked on by me," Hirsch notes. The engineer's studio at Edison is impressive: "I have a 2,500-square-foot live room with an 18-foot ceiling attached to a 500-square-foot control room," he says. "Having the room with the high ceiling is so important for the recordings. The room assists in everything, from the first drum and guitar recordings—because the type of spill it creates is really easy to control and sounds quite good—to vocals and everything else, simply because, in essence, it's a very clean- and clear-sounding room."

Hirsch is completely devoted to his studio's 26-input Helios board, originally manufactured in Britain in the '70s and used for both tracking and mixing. The room's ATC SCM-200 monitors are also

British-made. Some of the mic preamps in the control room were custom-made by Dave Amels, who also built a variable-phase pot for the console and a custom bass DI. Among Hirsch's favorite mics

People often harp about us sounding "retro," but if people really listen, they will hear that the melody and song construction is all Lenny.

—Henry Hirsch

are a Neumann U47 that he uses on vocals (sometimes through a Fairchild 660 compressor), RCA 10001s and 44s (great for strings and brass), Sony C-38s (guitars) and Neumann U67s and KM-56s (various other instruments). He still likes plate reverb best and has been known to use a

Focusrite limiter and a rare Motown custom EQ. "We don't use a lot of choruses, effects, delays, sequences or tricks; not a lot of processing," Hirsch says. "I've always been based on a very simple approach: using the vocal as the center of the track and building on it from there. Basically, we just concentrate on the sound of each specific instrument as we're doing them."

Given the sort of equipment Kravitz and Hirsch favor, and the fact that musically Kravitz occasionally wears his influences on his sleeve, is it any wonder that the sound of Kravitz's records sometimes seems to harken back to the pre-digital days of his musical heroes? Hirsch bristles at the constant comparisons between Kravitz and great acts from the '60s and '70s, but he acknowledges that many of those artists did make great-sounding records.

"People often harp about us sounding 'retro,'" he says. "But if people really listen, they will hear that the melody and song construction is all Lenny. We're just trying to make good-sounding records. It's just opinion out there saying the records sound like Led Zeppelin. Like the first single [on *Love Revolution*], 'I'll Be Waiting': Led Zeppelin would never have done a song like that. If



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~ Al Schmitt
Engineer/producer - Barbara Streisand, Steely Dan, Ray Charles, Quincy Jones



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~ Joe Chiccarelli
Engineer/producer - Boni Jovi, Frank Zappa, Tori Amos, Chicago, Poco, Annie Lennox



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~ Elliot Scheiner
Engineer/producer - Steely Dan, Fleetwood Mac, Sting, The Eagles, Queen, REM, Faith Hill



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~ Donal Hodgson
Engineer/Producer - Sting, Tina Turner, Jeff Beck, Counting Crows, Primal Scream



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~ Mick Glossop
Engineer/Producer - Van Morrison, Sinead O'Connor, The Waterboys, Frank Zappa, Tangerine Dream, Mike Oldfield, Revolver



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~ Dave Bottrill
Engineer/producer - King Crimson, Silverchair, Tool, Godsmack, Staind, Mother Earth, Dream Theatre

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Kravitz and Hirsch have been working together for nearly 20 years. They are seen here mixing *Baptism* in 2004.

the drum sounds to someone like Led Zeppelin, it's not because I'm trying to be Led Zeppelin: I'm just trying to support the song the best I can. Lenny would *never* sit down, and say, 'Let's make this sound like a Led Zeppelin song,' because how would you do

that? It's soul ballad. It's his song, his melody, his feel. It doesn't sound like Led Zeppelin or Jimi Hendrix or any of those people. It sounds like Lenny." If there are certain sonic similarities, though, Hirsch believes it has to do with their recording process, with empha-

sis on the "front end" (good performances and clean recordings) rather than the "back end" (technological enhancement and mixing). But, he says, "The choices other studios and engineers made to do a Beatles or Zeppelin record are not relevant to me. I couldn't care less about what gear made such and such record back in the day."

Kravitz's albums are famously eclectic both because he is a restless and creative spirit, and because he and Hirsch like to treat every song differently. "The process of getting sounds is brand-new every time it happens, and in each song because we don't do the same setup for a whole album," Hirsch says. "We're always experimenting and discovering new things together."

And that seems to suit Kravitz fans just fine. "Lenny has a good sense of what his fans will like," Hirsch offers. "We do make records a lot differently from most commercial pop records, but that's something they like about him. Whether it goes on the radio is always an issue, because some black people don't think it's black enough and some white people don't think it's white enough, so he sometimes gets caught in between. But the fans have been supporting him for 20 years, so he must be doing something right." ■



"The Recoil Stabilizers improve the low end and tightness of my monitors, increase the punch and bring the mids into better focus. They've really facilitated more accurate panning and better depth of field in my mixes."

~ Peter Wade
Engineer/Producer - Jennifer Lopez, Santana, Rihanna, Taylor Dayne, Lindsay Lohan, Yoko Ono



"With Recoils in place, the speakers seem to sonically float, the low-end is more defined, and I hear fundamentals that I never thought were there. The Recoils brought new life to my nearfields - they have never sounded so good!"

~ Bill VomDick
Engineer/producer - Alison Krauss, Jerry Douglas, Bela Fleck, Marty Robbins, Mark O'Connor



"The Recoils really seemed to focus up the low mids on everything...the thud of the kick, roundness of the bass, and the low strings on the guitar seemed more solid and defined, thus clearing up the mix and making the stereo image more detailed."

~ Joe Barresi
Engineer/producer - Tool, Queens Of The Stone Age, Bad Religion



"As soon as I replaced the foam wedges I had under my speakers, I heard a noticeable difference: The Recoils instantly sounded and looked way cooler. F...ing Awesome!"

~ Butch Walker
Engineer/producer - Avril Lavigne, Fall Out Boy, Pink, Sevendust, Hot Hot Heat, Simple Plan, The Donnas



"My nearfield speakers sound better on the Recoil Stabilizers than they did without them. The bottom is solid, the vocals are clear and my speakers don't fall down. It's a great product."

~ Daniel Lanois
Engineer/producer - U2, Bob Dylan, Peter Gabriel, Emmylou Harris, Ron Sexsmith, Robbie Robertson



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~ Chuck Ainlay
Engineer/producer - Dire Straits, Vince Gill, Lyle Lovett, Sheryl Crow, Dixie Chicks

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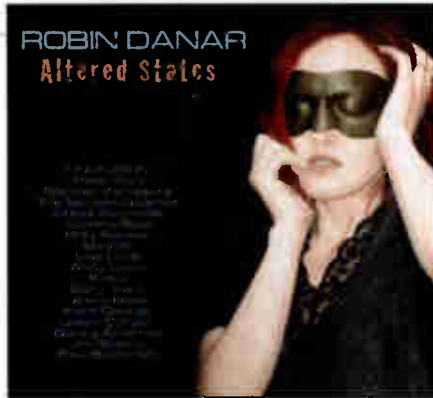
World Radio History

Robin Danar

Altered States
(Shanachie)

Though this bears the name of well-traveled engineer/producer/live sound mixer Danar, he is not the artist per se; rather, he is the architect and producer of an amazing aural adventure he calls "sonic revisions for the soundtrack of a dream," a compilation of 13 diverse tracks he recorded by mostly up-and-coming L.A.-based artists performing a wide range of deconstructed/reconstructed cover tunes. So here's Inara George (of The Bird & The Bee) giving a modern folk slant to Johnny Mathis' signature tune, "Chances Are"; Rachel Yamagata brilliantly carrying the Stones' underrated 1967 gem "2000 Light Years From Home" firmly into the 21st century; Jim Bianco (who is new to me) giving a gruff Tom Waits-ish treatment to the Talking Heads' "Life During Wartime," really bringing the lyrics to the foreground; Quincy Coleman (again, new to me) giving a harmony-heavy '40s vocal feel to one of my favorite semi-obscure Pink Floyd songs, "Fearless"; Blue Nile's Paul Buchanan making The Pretenders' "Message of Love" completely his own; Julianna Raye transforming Dr. John's "Such a Night" into a charming ukulele-propelled folk number; and so on. Jessica Hoop's "Yell" is one of just two originals—it's a wonderful tune that makes me want to check out her own recently released album. Despite the many styles represented, there's definitely a unifying aesthetic: Danar puts lots of space around the vocals and instruments, and keeps the arrangements spare and classy, with nice blends of electronics and beautifully recorded electric and acoustic guitars. This is a perfect addition to the age of mix tapes and iPods set on Shuffle.

Produced and engineered by Danar in a whole bunch of home studios, living rooms, etc. Mastering: Michael Fossenkemper and Domenick Maita. —Blair Jackson



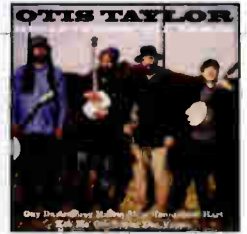
Otis Taylor

Recapturing the Banjo
(Telarc)

David Weissman's liner notes for the new Otis Taylor acoustic album, *Recapturing the Banjo*, offer a history of the banjo: its origins in Africa, integration into the jazz and mountain music of the American South, its denigration on minstrel show stages and on into the folk revival that began in the 1950s. Taylor's aim with this album is to reclaim the banjo's true African-American heritage by bringing it forward with a collection of mostly original songs rooted in modern blues. He's joined by some of today's most soulful blues artists, including Keb' Mo' and Alvin Youngblood Hart—an impressive amount of talent to squeeze onto one CD. This thoughtful package resurrects an "old-time" instrument with great respect and some great new music.

Producer: Taylor. Engineers: Matt Sandoski and Mark Johnson. Studios: Immersive Studios (Boulder, Colo.) and StuStu Studio (L.A.). Mastering: David Glasser/Airshow (Boulder, Colo.).

—Barbara Schultz



Barry Adamson

Back to the Cat
(Central Control)

When I close my eyes and listen to Barry Adamson's seventh release, *Back to the Cat*, I imagine a predatory feline skulking behind empty crates in a very dimly lit back alley. Adamson's smokey vocals slither around a soulful, melodic brass line in the opening number, "The Beaten Side of Town." But there's more to Adamson (a founding member and bassist of Magazine and Nick Cave's Bad Seeds) than channeling Barry White. He deftly fuses fuzzed guitars with blaring trombone lines, or adds a bit of '70s funk to a head-bobbing hi-hat downbeat. There are also hints of Adamson's film composing work in such tracks as "Shadow of a Death Hotel," which would be a great addition to any film noir's film soundtrack. However, while you're shaking yourself up a martini, skip over "Straight 'Til Sunrise"—it's a bit too much like Bill Murray's *SNL* "Star Wars" lounge singer skit for my taste.

Producer: Adamson. Full production credits unavailable as of press time. —Sarah Benzuly



MGMT

Oracular Spectacular
(Red Ink/
Columbia)

Not being familiar with MGMT (pronounced "management") until now, it's hard to tell exactly how much of the sonic wonderland this East Coast duo—Andrew Van Wyngarden and Ben Goldwasser—has created is theirs, and how much of it is the work of the always intriguing and innovative producer Dave Fridmann (of Flaming Lips fame). No matter. Marvelously retro but still unmistakably contempo, it's a pastiche of analog synths, electronically altered vocals and drum tracks, off-kilter harmonies and irresistible hooks, all put together in novel, unpredictable ways. The occasional riff or electronic bass line sounds familiar—is that copped from Dwight Twilley? Is that from The Eurythmics?—but it's clever theft. Where else can you hear updated raga-rock and Low-era Bowie synths on the same disc? I love these guys!

Producers: Dave Fridmann, MGMT. Engineer/mixer: Fridmann. Studios: Tarbox Road (Cassadaga, N.Y.), Context (Brooklyn, N.Y.). Mastering: Greg Calbi/Sterling (New York City). —Blair Jackson



Paul Manouso

Common Thread
(Self-Released)

Surely there's room on this weary old planet for one more talented rock 'n' roll songwriter. Produced by Steve Fisk (Nirvana, Soundgarden, Screaming Trees), Paul Manouso's new nine-song CD applies any old-school recording technique that works to making a great-for-2008 collection of cool rock tunes. His strong, distinctive lead vocals positively shimmer on "Don't Cry," while the drums ring through with a satisfying, thudding crispness. In "Spell I'm Under," dig the hard-panned percussion touches that scrape softly under the intentionally unsettling chorus. The slow "Silver Wings" somehow brings the playing style and recording techniques of the '50s fully up to speed for our millennium. And the emotional mover "Real World," with its winding six-string layers, just might send chills up your spine; a real treat for guitar lovers.

Producer/mixer: Fisk. Recording studio: Tiny Telephone (San Francisco). Mixing studio: Philosophy of the World (Seattle). Mastering: Ed Brooks/RFI (Seattle). —David Weiss



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L.A. GRAPEVINE

by Bud Scoppa

The technological revolution has given rise to an entrepreneurial revolution. As proof, I offer you my own 'hood in Studio City, a name that, I'm discovering, describes this stretch of the Valley better than it did when the town was established in the 1920s, when Max Sennett was making Keystone Kops films on his lot off Radford Avenue (now CBS Studio Center).

A mere five blocks away from me, right

standing guard in front of one of two LCD TVs, is a pair of miniature robots from the animated series *Futurama*. Cole did post for the show, and he's presently working on the second of four direct-to-DVD features. He's also worked on such shows as *The Simpsons*, *Northern Exposure* and VH1's *Behind the Music*, as well as a number of feature films, and he did time at Sunwest, the Post Group, Skywalker Sound and Post Logic before going solo in the early '90s.

When he'd finished construction of the space, Cole brought in Bob Hodas to tune it with a Meyer SIM system. It was Hodas who suggested the Bag End bass trap that's sitting on the JL Audio woofer in the right corner, the two serious-looking black pieces separated by three whimsical tennis balls. With Hodas' expert help, the proud owner got the room "totally dialed in."

Cole's studio is the physical manifestation of his recently formed company, Before Noon Post (www.beforenoonpost.com). But Before Noon's borders extend far beyond the dimensions of this one-room space—in a conceptual or, okay, a *virtual* sense, as Cole variously characterizes it, Before Noon is a *community*, an interconnecting series of "strategic relationships" and, less formally, "friends and family."

"Before Noon can be this room, it could be me ghost-mixing for another facility, it could be me corraling some of the major talent in town to do a feature film," he explains. "I've been doing this for 30 years; I know technically how it all works and I have friends who are also very experienced."

Here, in a nutshell, is the recipe Cole has come up with: "You take a bunch of self-motivated people, many of them with their own equipment, you put them to

—CONTINUED ON PAGE 134



Peter Cole at home with his Emmy Awards

on my primary jogging route of the past 25 years, Peter Cole is working on a variety of projects in his high-end post-production studio, which just happens to be a 20-foot walk from the back door of his house. Yes, it's a converted garage, like so many others in this neck of the woods.

"This is the extent of my client services," Cole quips, placing a mug of well-brewed coffee on the table in front of the client couch where I'm sitting. He takes his usual station in a rolling ergonomic chair that sits in front of the studio's hub, a 24-fader Digidesign ICON D-Command. He's wearing his own variation of the SoCal independent contractor's year-round wardrobe: cargo shorts, high-mileage running shoes and a T-shirt bearing a drawing of a glass above the legend, "Half Full."

To the left and just behind the board are his three Emmy statuettes; to the right,

NASHVILLE SKYLINE

by Peter Cooper

Asked to close the door, I'm having trouble.

"Heavy, isn't it?" asks Kevin Kritch, the Great American Country cable network's VP of studio operations. Uh, yes, it's heavy.

"See, the weakest point in the studio is right here, where these doors are," he says. "They lead to our loading dock, and the back alley is here and you can hear traffic noise. This being the weakest spot, we had to put some money in it."

Money is not normally this cumbersome. But when GAC moved into this Music Row building, it was clear that the best studio space for live taping was located right near the back door, and it was clear that the back door let in a bunch of noise. So Scripps Networks—the group that owns GAC—evaluated the situation and determined that the best thing to do would be to install two massive, sound-dampening doors in the corner. If sound somehow makes it through one of the doors (we're talking car alarm or street preacher sound levels), then it will be trapped in between and won't make its way in.

"Make the world go away," sang Nashville great Eddy Arnold, and that's one of the goals of any good studio for television or otherwise. You don't want honks or voices or anything like that bleeding into the audio. But GAC had more than that to overcome when it opened its new television studio on Music Row. With Country Music Television occupying a building near the Cumberland River and away from the Row, GAC becomes the Row's first full-service television studio and first HD-ready television facility. The new operation opened up on February 18, and an Alan Jackson special was the first live performance captured at GAC.

GAC began as a confirmed second-tier country music cable network. CMT had (and has) corporate connections to MTV and parent company Viacom that helped immensely, and it also had (and, again, has) a propensity for delivering sound and video that are sharp and smart. For a few years, GAC looked and sounded like

NEW YORK METRO

by David Weiss

a cable access channel: muddy, indistinct, etc. When E.W. Scripps Co. bought GAC from Jones Media Networks Ltd. in 2004, the network was an iffy proposition. Since then, Scripps has invested in sound and video technology that allows GAC to compete with CMT, and suddenly the country music cable television world is akin to some old two-newspaper town. Currently seen in 53 million cable-viewing homes, GAC now has a facility that enables a file-based workflow, from taping (what do we call "taping" now that there's no tape?) to delivery of the programming.

All of this is of significance to a country music industry that's in dire need of outlets for exposure. Country radio playlists often feature fewer than 20 current songs in rotation, most all-genre awards shows ignore or downplay country performers and slots on the three country awards shows—the CMA, ACM and CMT Awards—are precious. Plus, the sound quality of the country awards shows tends to be wildly uneven, leaving labels to wonder if it's an advantage to get their artist on television if the sound doesn't reflect the artist's talents. Is being on television worth sounding like a bad karaoke mix (which is exactly what we're some-

—CONTINUED ON PAGE 134

The year 2006 is just a couple of notches back on the calendar, but in the lightning-fast world of New York City audio post, it's more than enough time for a then-new facility to have come of age. With a writer's strike (since settled), volatility in the national economy and the ever-present fast technological turnover, this segment of the entertainment industry is enough to put gray hairs on the heads of at least two members of New York City post's Class of 2006.

Way back in July '06, Color (www.color-ny.com) had just opened its doors, and for executive producer/partner Jeff Rosner and his then two-man crew of mixers Josh Abbey and Kevin Halpin, the business of audio post represented a fresh new adventure. "These guys were looking to do something different," says Rosner, who himself would be going in a new direction after founding the renowned JSM Music and Sacred Noise music houses in prior decades. "They were great friends, two great music engineers I had always hired for orchestral or rock dates that my music company was doing. The music industry had changed for them a little, as well, and their particular talents seemed to be perfectly suited for the audio post mixing industry."

"I thought this was a perfect opportunity because of my connections and their reputations," Rosner continues. "Even though we had never done this business before, we thought we could somehow pull it off and come in at a very high level, without having had clients that had

worked with us in that capacity. It was sort of a gamble."

Meanwhile, across town, Hobo Audio Company (www.hoboaudio.com) would be digging into its own mixes starting in October of that year—only in this case, gambling was not in the business plan. Founded by Howard Bowler—a former executive at Grey Advertising who managed its in-house post division, The Tape Center, for 10-plus years—Hobo was born out of the intense experience of answering daily to one extremely demanding megacient. "It was an enormously useful training ground," says Bowler. "There were so many different types of work that were thrown my way. In that type of environment, you learn to think very quickly and professionally—you do stuff fast, but it has to be right."

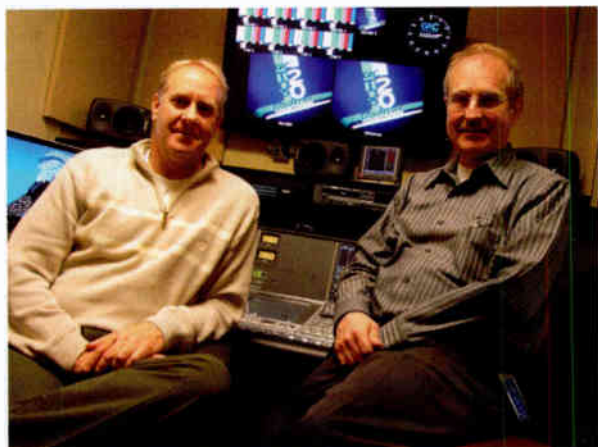
"By starting my own shop, I could mold a business in a way that I'm comfortable with. I don't have a bureaucracy and the approvals I would have to go through in a company like this to make big decisions. So while we move quickly, we also move extremely carefully."

While Rosner may never have run an audio post facility before Color, his experience from the music-house side taught him what areas to concentrate on at his current shop, which has hosted sessions for clients

—CONTINUED ON PAGE 135



At Color: executive producer Jeff Rosner (left) and Josh Abbey



Kevin Kritch (left), VP of studio operations, and Mike Nichols, chief engineer, of the Great American Country network

STEVE GABOURY'S LIVEWIRE NEW STUDIO HAS ROOM FOR KEYBOARDS, CREATIVITY

by David Weiss

When is a project studio not a project studio? When the studio you're talking about is Livewire Production & Recording (New York City, www.livewirenyc.com), the audio headquarters of Steve Gaboury.

The keyboardist for Cyndi Lauper, prolific arranger, producer and highly seasoned engineer, Gaboury may refer to his 1,600-square-foot facility in the deep south of Manhattan as a "project studio," but for him and his clients, it's actually an expansive artists-first womb for the incubation of world-class pop, jazz, soundtracks and beyond. "I really like to have the studio represent a place where the music and the musicians come first," says the easygoing Gaboury. "I always want my engineers to take on the mindset of the musician: What's going to inspire them and facilitate them coming up with the best music they possibly can? That's versus what I see in other studios, where a producer will spend two-and-a-half hours putting up a mic, focusing on the technical aspects and burning the music out."

Burnout seems next to impossible at Livewire, with its casually Zen atmosphere that reflects the lower-key Tribeca environs where it was established by Gaboury in 1995. A studio operator of some sort or another since his first East Village fling in 1981 ("My old space was kind of a loft bed that expanded into a studio," he says.), the Grammy-nominated Gaboury won the right to own a real New York City recording home through persistence and an always-keen ear. The result is a skylight-kissed facility with a main live room, drum booth, two vocal booths and—most important to Gaboury—a control room with plenty of space for ideas and stretching out.

"Every studio that I had in the past, I ended up enlarging the control room three times!" he says with a laugh. "But so much of the work is in the control room that I designed Livewire around it. I'm a keyboard player, but before this I never had room to have my organ—my dream for this place was to have a full keyboard studio that could hold my 7-foot Steinway Grand,



Producer/engineer/arranger/
musician Steve Gaboury



Livewire houses Gaboury's 7-foot Steinway and multiple keyboards—a necessity for the musician/producer.

Hammond C3, Wurlitzer, Fender Rhodes, Clavinets...so that I and other keyboard players, composers and singer/songwriters could do their thing."

Before the music—for a client roster that has included Gato Barbieri, Lauper, Medeski, Martin & Wood, Bobby Previte and Lenny White—hits the Digidesign Pro Tools HD3 system (with a 192 I/O interface), it

usually passes through Livewire's Trident Series 70 28x52x16 console. "The Series 70 is the little brother of the classic 80 board, but it has the same electronics and it's a little smaller," says Gaboury. "I love it because it's kind of the workingman's Neve: It's warm, definitely not thin or transistory sounding; it's got a lot of meat to it.

"I only have eight [stereo] outputs, so I'm mixing more and more in the box. One advantage of that is if I go out for three weeks with Cyndi, I can leave the mix here, and when I come back it's right where I left off. But the other thing I've loved about working in Pro Tools is that when I go on the road and my chief engineer, Chris Agosto, is working here with a client, they can come in and do vocals, and I know I've left the mix for them exactly the way I want them to hear it."

To Gaboury, one of the keys to his musicians-first philosophy comes via a headphone mix on the Furman HRM-16 headphone/audio remote mixer that offers maximum flexibility during tracking. "The Furman gives you eight individual outs and can send effects back," notes Gaboury. "Before this system, I had so many problems over the years with monitoring—the most difficult part of the sessions was really straightening the headphone mixes. The HRM-16 just speeds the whole thing up because each musician custom-mixes exactly what they want to hear, and the engineer can focus that much more on the other 9 million things he has to think about."

So a project studio Livewire isn't. Instead, for Gaboury and the artists who seek him out, it's something much bigger. "I love playing live and I love recording," he says. "To me, recording is the opportunity to photograph music. If you've got the patience, you can get it as you dreamed and—with any luck—get it better." ■



Vocal booth with "borrowed light" windows

BEHIND THE GLASS

BRASS WITH GADD CAPTURING DRUMS 'N' HORNS



Drummer Steve Gadd (front, left) with Clarke Rigsby (center), Son Pilafian (producer, second from right) and members of the Boston Brass

Engineer/owner Clarke Rigsby of Tempest Recording (Phoenix) has been working on a new album with horn ensemble the Boston Brass, featuring Steve Gadd on drums. Rigsby's studio features a modified Trident Series 70 console and a wide assortment of mics, outboard and instruments.

ACOUSTIK MUSIK MASTERING IN OHIO



Media director Philip Snodgrass (left) and promotions director James Pearson

Recent projects at mastering studio Acoustik Musik Ltd. (Oberlin, Ohio) include the Northern Ohio Youth Chorus, Kendal at Home and the Oberlin College and Conservatory of Music. The studio regularly serves clients ranging from acoustic folk to hip-hop artists, and remasters/restores older analog material.

SOUTHEAST

NPALL Audio (Nashville) completed the editing, sweetening and 5.1 surround mix for *Class C*, a documentary about girls' high school basketball in Montana...Independent label Archer Records (Memphis) opened its own studio, Music & Arts. The facility centers around an API 48-channel analog console and PMC surround monitoring.

NORTHEAST

Recent sessions at Avatar (NYC) include Mark Ronson producing Daniel Merriweather & The Dap-Kings, working with engineer Tim Conklin and assistant Rick Kwan; and vibes player Dan McCarthy recording a self-produced upcoming release in Studio C with engineer Anthony Ruotolo and assistant Justin Gerrish...At Range Recording Studios (Ardmore, PA), the band Refurb worked with co-producer/engineers Michael McCarthy and Brian Ritrovato.

MIDWEST

Eric Benet was in The Laboratory Recording (Milwaukee, WI), mixing with producer/engineer Kevin Sucher and assistant Michael Bliesner...Chris Bell recorded and mixed the debut album for Cas Hailey. Tracking was done on the Neve 8058 at Panhandle House (Denton, TX); mixing was on the SSL 90803 at Luminous Sound (Dallas)...Ladyfingers tracked and mixed their debut EP with engineer/producer Brad McGrath at Brick City Sound (Chicago).



GREENHAM JOINS ANNEX

Mixing/mastering engineer John Greenham (above) has moved his production operations to Studio C at The Annex Recording Studios (Menlo Park, Calif.). Since moving to the San Francisco Bay Area from the UK in 1983, Greenham has worked on recordings by local and national acts, including Kelly Rowland, John Vanderslice, Two Gallants, Queensryche and Bettye Lavette. Since joining The Annex in January, he has tracked two bands, Carne Cruda and Maldita Vecinidad.



From left: studio manager Bart Iannucci, studio owner Anthony Iannucci, engineer Chad Zuchegno, drummer Steve Luongo, engineer Charlie Lukes and guitarist Mark Hitt

ROCKERS UNITE

AC/DC, ENTWISTLE BAND SESSIONS

At Unity Gain Studios (Fort Myers, Fla.), Brian Johnson and Cliff Williams of AC/DC, along with Steve Luongo and Mark Hitt of the John Entwistle Band, have been tracking new songs for a spring iTunes release. Studio owner Anthony Iannucci says, "Brian Johnson is singing in the control room through a Shure SM7B patched into a Manley SLAM!, as Cliff Williams plays his signature Music Man Bass through an Avalon DI and an Ampeg SVT classic 810E Pro cabinet."

NORTHWEST

At Bear Creek Studio (Seattle), Johnny Flynn recorded and mixed a new album with producer/engineer Ryan Hadlock and assistant Matt Doctor. Also in was Sub Pop's Fleet Foxes tracking an EP with producer/engineer Phil Ek and assistant Doctor...Rudy's Studio (Denver; profiled in last month's "Project Studio" column) hosted album sessions with Sublingual. The project is being recorded and mixed by Mark Obermeyer, Justin G. Preston and the bandmembers.

SOUTHWEST

Kyle Harris has been working on tracks for Michael Garrah and Linda Bilque in his PlayR Recording Studios (Phoenix), using a newly acquired pair of Crowley and Tripp Naked Eye ribbon mics.

SOUTHERN CALIFORNIA

Post facility SonicPool is expanding and upgrading its Hollywood headquarters. The studio has already added three new editorial suites, including Avid DS and Symphony systems...Southern California Public Radio, the West Coast arm of MPR (Minnesota Public Radio), has opened new on-air studios at L.A. flagship station KPCC-FM. The new facilities feature Axia mixing consoles and routers. ■

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gether with sole providers with really high-end studios, and, 'Let's make a TV show.' It's all done extremely well, the producers are really happy, the price point's decent and the bonus is I'm a union signator, so I can package it all."

Cole is a self-described "total gear slut," and his studio bears out his assertion. "I use a CEDAR DNS 2000 for noise reduction; it's a great piece of hardware that's controlled by a plug-in inside of Pro Tools. I have more plug-ins than any human should be allowed to have. I recently picked up a plug-in that emulates what's referred to as 'futz.' Called Speakerphone by Audio Ease, this software can emulate all kinds of devices with funky-sounding speakers and place them in any acoustical environment; it's a great little tool. There's another company I work with called McDSP that makes great plug-ins. I've got every tool I could possibly need right here."

He discovered Pro Tools—or Sound Tools as it was called when Digidesign first released the system in 1989—while working at the Post Group, and, unlike many of his peers, Cole "got it right away," he says. "When I was doing *Max Headroom* back in the mid-'80s, we had four 24 tracks locked up with another mixing console in the back of the room, and it was like a big to-do," he remembers. "Today, I have 192 tracks going in succession, it's all being done in 5.1, I can push a button and feed it to that TV speaker and emulate a broadcast chain. I mean, I can do these insane things, I can give the producers anything they want and I'm at home."

"At Pro Logic, I had my own 16-channel Pro Tools system that I'd use in all my sessions," Cole recalls. "I knew this was a better tool, and I learned the power of this thing. Then I took the leap of faith: I had an opportunity to do a series, and I rented space in Burbank and set up a little office, put Sonex on the walls, got my Mackie HUI out, updated my Pro Tools to 32 channels and mixed this little kids' show. That's where this experiment started. The next year I took it all home and mixed four TV series in what is now my daughter's bedroom before building the room you're sitting in."

Cole wound up getting three Enmys for his work on *Pee-Wee's Playhouse*. In keeping with his maverick character, he named his company Pirate Post. Before Noon represents a naturally expanding evolution of that early adoptive, entrepreneurial impulse.

While so many of his friends were brutalized by the recently settled WGA strike, Cole found himself busier than ever. "I've

always believed that my job security comes from my skills, my people skills and my ability to do the job well. And when these strikes happen, those of my friends who have the entrepreneurial spirit are figuring out that if the clients at these big audio facilities are directly interfacing with them, then they don't necessarily need the facility; the facility needs them. That's what the transition is here. The talent goes to these major facilities, and says, 'We have a major project, and we might want to use your facility.' So the client that belonged to the facility now belongs to the talent."

On this point, Cole is a signatory of IATSE Local 700, and the health insurance offered by the union is excellent, which makes the old entrepreneurial spirit a lot easier to adopt.

"It's about getting off the grid," Cole says of the path he's chosen, "because I don't necessarily subscribe to the way things are being done in Hollywood as the most efficient or the best way—or the best way for me. I've sat on dub stages and in front of million-dollar consoles, and I thought, 'This stuff's history.' This was years ago. So I've always tried to stay in front of it. What I'm doing is nothing revolutionary. Anyone can do the exact same thing that I'm doing, and they will. I just hope to be one of the first kids on the block to do something like this and to pull it off." ■

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NASHVILLE SKYLINE FROM PAGE 131

times dealing with as they're usually singing live over pre-recorded band tracks on those awards shows?)

So GAC's newfound seat at the country-television grownups' table accomplishes a couple of seemingly simple but undeniably important things: It puts people on television and assures them that they'll be able to sound like professionals. The 7,200-square-foot GAC building also houses a studio dedicated to the *GAC Nights* syndicated radio show, which doubles as a high-definition-ready television studio, with a Wheatstone Evolution 6 console and cameras around to capture what Kritch calls a "Johnny Carson-meets-Don Imus" atmosphere.



The set of GAC's Top 20 Country Countdown program

Sound for the television network is routed through a Solid State Logic C100 digital console, currently configured for 48-channel operation. "On the SSL board, the tool sets are laid out so you can go in and find what you need, quickly," says chief engineer Mike Nichols. "It's extremely versatile."

The SSL sits in a small room just to the left of a production studio. When Nichols and Kritch sit for a photograph, it's difficult for them both to squeeze into the room. But the C100's size belies its flexibility. It's a little delegation monster, with a DSP rack and a back panel that can handle more than 500 inputs and outputs. GAC runs Pro Tools, and if an artist or label wants to hear a mix before something hits the air, then Nichols can send the file over and it can be altered and re-input with ease.

"If we have a performance-based project, we'll multitrack that with video," says Kritch, who took charge of the new studio's technical space and technical integration. "If the artist or label wants to sign off on that mix, we get them the individual multitrack. They can mix it the way they want. It's timecode-generated so we can marry it back up with the video. So if they like our mix, fine. If they want to remix it, that's fine, too."

Nichols began working in television 25 years ago, in the analog days. While good, thick analog tape can still sound wonderful as a means of capturing music in a recording studio, it's tough to argue that going digital hasn't been a huge leap forward for television studios.

"The whole gamut changes," Nichols says. "The transmission medium is tolerant of different mixes now and you just don't have to worry as much. Oh, and there are fewer cables, which is much better."

In the main studio, Kritch points out that the doors aren't the only substantial elements. Sound-dampening was a major issue all over the studio. They've dressed the walls in more layers than would be worn at a late-December Green Bay Packers game. "We spared no expense making sure that whatever walls we have in this environment are acoustically sound," Kritch says. "So with these walls, there's concrete, then metal studs, then insulation between the studs, then plywood, then fiberboard, then another layer of plywood and then Sheetrock on top of that."

All along Music Row, a perceptible nervousness has taken hold. Record-label executives are fretting over the decline of physical album sales and the inability of digital sales to make up for the losses. Studio owners are fretting over the decline of record labels and the inevitable shrinking of recording budgets that goes along with that. The music television business, though, doesn't seem to be waning. Either that or Kritch has a heck of a poker face.

"I'm not a bean counter, but I believe we're fine," he says. "Scripps tends to be a conservative company. They're not necessarily the first to jump in the water: They might be second or third. This building is a huge investment, and I doubt very much that we would have invested in this kind of a facility if the powers that be didn't think it would make business sense. This was a business decision, strategically and economically."

And so a couple of mammoth, heavy doors have opened for country music. ■

Send Nashville news to Peter Cooper at skyninemix@live.com.

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such as Toyota, the Marines, and PlayStation 3. "We didn't want to jam things in here so that our clients wouldn't feel that they have to get out the minute a session is done—instead, we created a buffer so that even if something was booked next, they wouldn't feel like they were being dragged out of the room," he explains. "Also, we made sure that we had a very tight after-session scenario. The mix coming out is crucial, and it needs to be handled by people we could have a lot of faith in; that's what we found in Warrick Marais, who became the central hub to our situation here. There's so many different methods of distribution, whether it's cinema, HD, surround, stereo, etc. With so many complicated results that this can become, you want to make sure you can

handle each one."

Bowler agrees that the fast-growing choice of formats that post houses need to be prepared for has been an issue that's on the top of his staff's minds at all times. "It's not that clients want their mixes executed in a new or different way, but for different formats the delivery is changing, with many different types of files and file sizes," notes Bowler. "For example, we're working on audio for an interactive educational Website, and they've got different requirements for the size and volume of the files a broadcast spot would have. We may have to normalize the files to a certain spec for the Website to make it blend it with what the current audio files are. The MP3 formats are ridiculously popular now, as well."

Anyone opening an audio post house in 2006 also had some unique machine-room decisions to make when plotting the studio's infrastructure. "The big decision was whether to be tapeless or not," Bowler says. "We decided not to invest in any tape technology, not even DATs, because we felt that the trend is toward file sharing and digital technology. We wired the rooms for tape decks so if we had to relay to a DigiBeta, we could—I think once in the past year we rented a ¼-inch deck to do relays."

At Hobo, whose clients include Verizon, Food Network and, yes, Grey Advertising, two mix suites (a third is in the works) are running Digidesign Pro Tools HD 7.3 connected to D-Command worksurfaces. "It's funny how engineers are going full-circle, especially the younger ones," says Bowler. "At the agency, I was basically mixing with a mouse, but it's much faster and much more elegant to mix with a D-Command. It's easier to write fader automation, and you can access the plug-ins off of a tactile surface. So it's very much like a traditional console, and the guys are really fast on it."

Everything old is also new again at the spaciouly stylish headquarters of Color, where their mixers' deep experience with recording and mixing orchestral music remains a major asset, according to Rosner. "Kevin mixed a classically scored Coke spot for Super Bowl XXII and the composer, Robert Miller, who I had worked with for years, knew of our strength with orchestral music," he says. "He had recorded hundreds of spots where Kevin was the engineer on those dates, and he



Hobo Audio's Howard Bowler—part of post's "Class of 2006"

trusted Kevin's ability to work with orchestral music. It turned out to be a complicated project, with extra stems and elements that Kevin mixed in. His ability to understand that made it incredibly important to have him there. It can never be a negative to feel comfortable with that genre, along with using other elements and voice-over. That's why we thought we had a unique twist to add."

Coming on two years of experience in the mean city streets under their tassels, New York City's 2006 grads are clearly growing up fast as they survey the near future for local and national audio post. "I think that, as always, the great companies will emerge and maintain their status," Rosner states. "There's a lot in the viral world that needs to come up to speed—it's like the stepchild of advertising where the budgets are smaller. But as clients understand how important it is—the campaign is on your computer and on your TV through your computer—it will expand the amount of work. I think the business will continue to grow, and the better companies will be the ones to go into the different media that agencies find themselves in."

"The post scene right now is very competitive," Bowler adds. "It's very important to distinguish yourself, in a sense almost like a brand, but I don't believe it has to be defined overnight. It's a journey, defined by the choices you make and the clients you take on, and that under the umbrella of a terrific experience is what we have to offer our clients right now. We feel very strongly that clients enjoy the experience here, and maybe I'd say we're kind of conventional here, except we don't think along conventions. We go wherever the muse takes us, and we're fearless in that regard." ■

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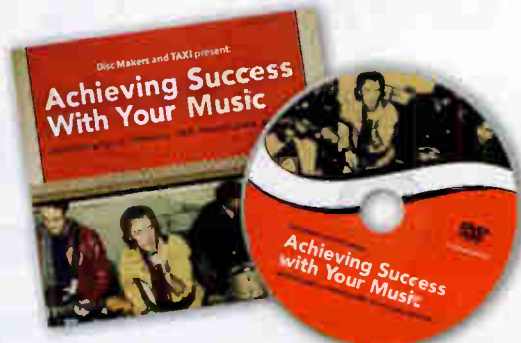
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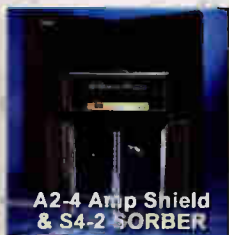


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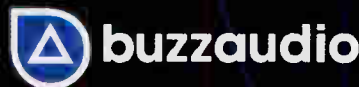
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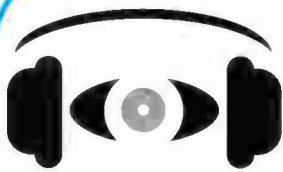
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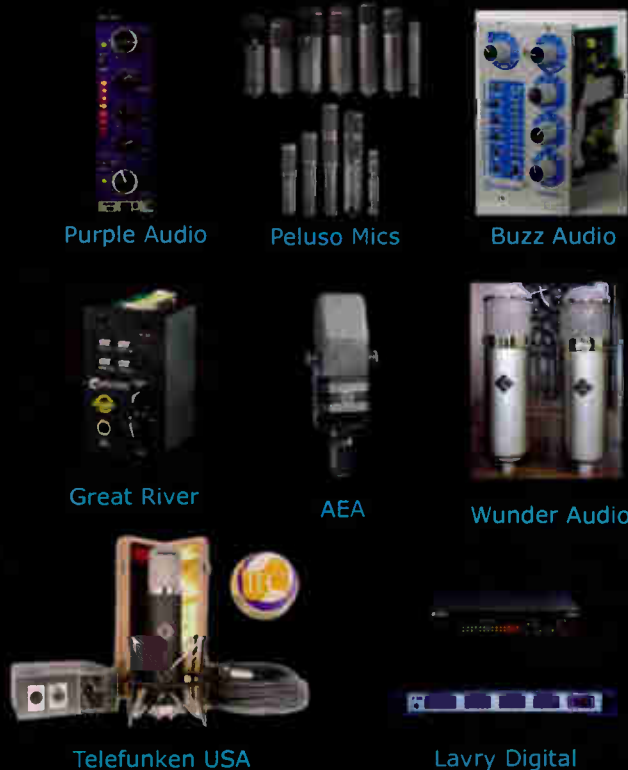
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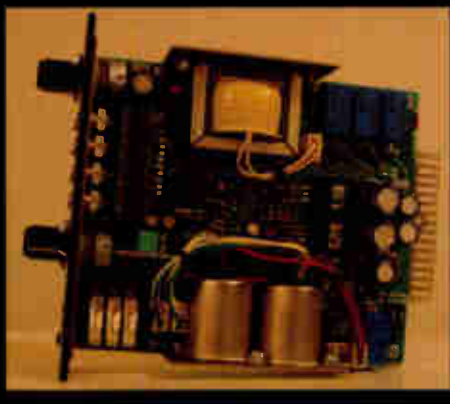


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Featuring Novation's exclusive Automap Universal 2.0 software, Nocturn provides automatic, instant and intelligent control of all automatable plug-ins within Digital Performer, including "speed dial" — a unique touch-sensitive rotary encoder that instantly takes control of whatever your mouse is focused on.



Focusrite Liquid Mix

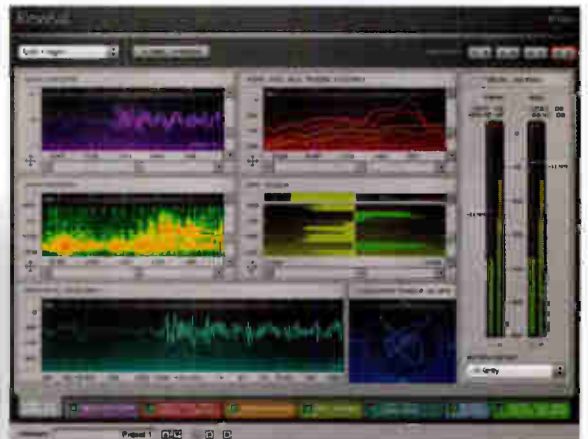
Get \$150 back on legendary EQ/compression

Liquid Mix gives you tens of thousands of dollars worth of vintage and modern classic compressors and EQs, faithfully reproduced in your DP mix. Purchase before April 30th and get a \$150 rebate. Call your Sweetwater Sales Engineer right away for details.

BIAS Master Perfection Suite

Mastering at its finest

Six stunning new plug-ins for Digital Performer: unparalleled spectral matching, linear-phase multi-band dynamics processing, super natural pitch correction/transposition, comprehensive analysis, 10-band paragrahic mastering EQ, and high-quality gating — all at a breakthrough price.



KOMPLETE 5



NI KOMPLETE 5 and KORE 2

Legendary virtual instruments with hands-on control

For Digital Performer users who want it all: 11 legendary instruments including KONTAKT 3 and the award-winning MASSIVE, combined with instant hands-on control. Choose from 7,500 presets in seconds and instantly tweak with real knobs.

The native MOTU studio — more power to you

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Mackie HR824mk2

Active studio reference monitors

These high-resolution monitors sound as smooth as they look. The new Zero Edge Baffle™ minimizes diffraction for a crystal clear image and controls sound waves for wide, even dispersion. Acoustic Space, LF roll-off and HF controls let you tailor the sound to suit your MOTU studio space — and your taste.

Mackie Control Universal Pro

Automated control surface

The ultimate hands-on control for Digital Performer. Nine motorized, touch-sensitive Penny + Giles faders, eight V-Pots and more than 50 master buttons let you tweak to your heart's content. Apply the included custom overlay for Digital Performer for dedicated labeling of DP-specific functions.

Presonus Central Station

Control room monitoring with remote

The missing link between your MOTU recording interface, studio monitors, input sources and the artist. Monitor from among 5 sets of stereo inputs (3 analog and 2 digital) and manage your sessions with hands-on control room features like talkback and listenback.



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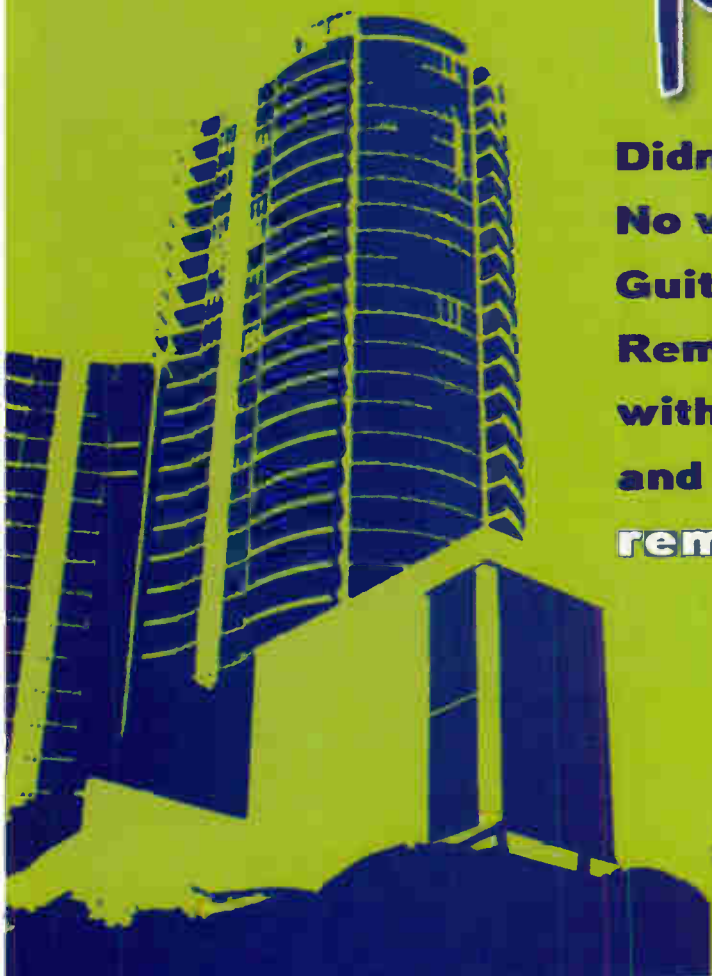


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Sound Devices 744T 4-Track Recorder

Shortcuts and Tips for Fast Location Production

Sound Devices' flagship 744T 4-channel recorder offers timecode in every imaginable format, sampling rate and depth. It's my choice for single-camera dramatic film and video projects. Here are some tips for using the 744, including a few contributions from my fellow mixers.

EASY MENU'ING AND SHORTCUTS

What's really handy are the 744's onboard shortcuts. For instance, if you need to jam timecode from an external source (video camera in a run-and-gun environment), rather than use the push-and-scroll menu method, a simple push of two keys will take you to the same menu entry point (press Menu and HDD simultaneously). Other very handy shortcuts include Stop and HDD, which will wake up the 744 as a FireWire drive while it's connected to an outboard computer; pushing Stop and << will delete the last recorded take (and the one before that, and before that) and simultaneously reset the "take number" metadata to the correct entry; and pressing Stop and >> will restore the takes that you've mistakenly deleted.

EASY ROUTING/TRACK SELECTION

Sometimes you need to quickly alter the selection of the number of tracks recorded and their sources from the four available inputs. Scott Farr offers this shortcut: Simultaneously pressing Input and any one of the four buttons around the display enables—or disables—the selected audio/track by muting the input and its assigned tracks. This is especially useful in a multiple-mic setup if you've built a matrix of inputs to tracks.

For instance, let's say track A is a mono mix of three inputs (Nigel Tufnel + stereo audience), track B is Tufnel's mic, and tracks C and D are stereo audience. If you want to suddenly mute his mic without having easy access to the mix position, then just press Input and the icon next to Menu (input 1). Tufnel's mic and its associated track B are then muted until you decide that Tufnel's conversation has returned to something more appropriate for a PG-13 crowd.

Another version of this track selection is



available in your Setup mode using the Stop and Input keys; all variations of four inputs-to-four tracks are then displayed on the 4x4 LED matrix, and the world is your oyster.

METADATA IN THE FAST LANE

The 744's metadata and file-naming procedures are simple and are improved with each revision. I often take advantage of the "Add New Entry" line of both the scene name/number (menu item 7) and track names (item 8) directories by pre-entering the scene numbers we're scheduled to shoot that day, as well as my expected character-name track assignments. Then, when I'm deep in the thick of it, I don't spend any time entering this info; I just choose from my existing list. All entries can be made directly on the machine (for those *River Wild*-style location shoots) or an external keyboard using the optional CL-1 interface. Using a keyboard offers several advantages, such as ease of typing and access to many more menu shortcuts (via key combinations and assignable function keys).

MORE THAN FOUR

For the Oxygen Network's dramatic/improv comedy *Campus Ladies*, we had to accommodate some specific parameters with our location audio. The client's older Avid systems didn't like importing polyphonic files larger than four channels. I was already a fan of the 744, so I was quite happy to roll two recorders for eight channels. An optional C Link RS-232 cable (looks like a telephone line cord) provided shared transport control, distributing timecode and word clock from the selected master machine to all others down the line, for up to 32 decks or 128 tracks. My delivery media was DVD-R, so I combined the audio files of each day's work through a combination of file naming and internal clock synchronization.

My "A" 744 (tracks 1 to 4) carried a mono mix track, an isolated track of the boom mic and isolated tracks of the two principal actresses. The "B" machine (tracks 5 to 8) carried additional isolated tracks of mics on actors or strategically placed "plant" mics. To bring the day's files together on a single DVD, I periodically offloaded the data via FireWire from both 744s to my Mac PowerBook. At the end of the day, I burned the DVD.

But then we needed to differentiate the "A" machine's four tracks from the "B" machine's four tracks and line them up in common groups, take by take. Solution: The files are time-stamped by "date modified" (time/date of creation) and the possessing of their integral timecode stamps. I set the internal clock of the "B" unit two minutes before that of the "A," so that when the files were sorted by the date modified they would line up in groups of the "A" file for a take followed by its "B" file. I also altered the take name/number data of each 744 so that "A" tracks were designated "T.1" (take 1) and "B" tracks as "Q.1." And, of course, each track was tagged with the name of the character or audio source that it held.

MORE, MORE, MORE

A friend of mine has recorded single-channel mono audio files while using the unrecorded inputs as mic preamps to route signal and timecode to an offstage cueing monitor/display. This versatile recorder offers many more applications and techniques. Did I mention its built-in "flashlight" mode? ■

Glenn Berkovitz, C.A.S., is an L.A.-based film/video production sound mixer. After enjoying Nagras, PCM-F1s, DASH and DAT recorders, he's happy that high-quality sound now comes in small, lightweight packages.

M101

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With its impressive list of new features, the m101 is ready to give any mic preamplifier a run for its money. Consider the new audio signal path with 0.5% precision metal film resistors, 12 position gold plated rotary gain switch, a built-in universal AC input module, or our exclusive RIBBON mic mode - and the picture becomes clear: This is now a fully professional, state of the art precision mic preamp that roundly outperforms anything in its class. All this at the same affordable price of the original model 101.

From podcast to concert hall, the m101 brings the build quality, refinement and performance to revolutionize any recording facility.



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- 12 position gold plated rotary gain switch
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