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LIVE SOUND ISSUE

Bruce Springsteen

Ozomatli

Kelly Clarkson

The Donnas

Billy Joel

INSIDE TRACK
RECORDING
THE SHOW



GUIDE TO
IN-EAR
MONITORS

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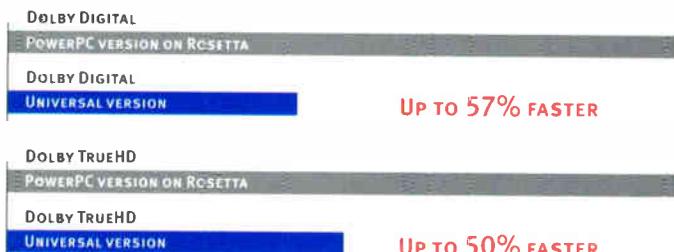
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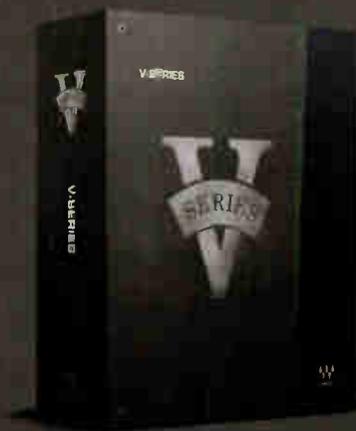
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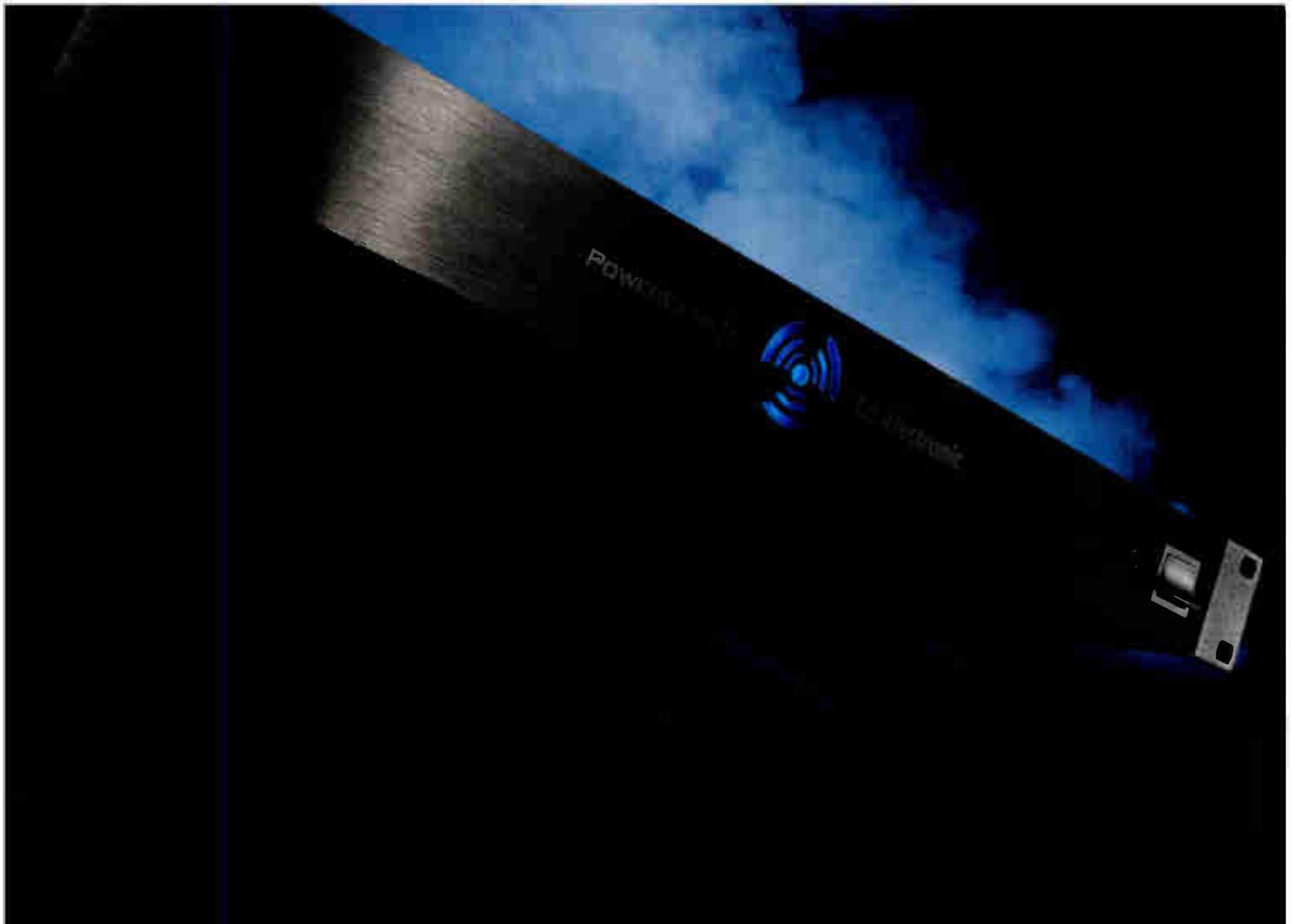
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PROFESSIONAL AUDIO AND MUSIC PRODUCTION

JANUARY 2008, VOLUME 32, NUMBER 1



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On the Cover: Ozomatli is currently touring the U.S. with tour manager/front-of-house engineer Patrick Murray and monitor engineer/back-line tech Brian Simakis. Check out the jumpin' fusion of Latin heat, percussion and straight-ahead good times. Photo: Steve Jennings.



features

20 The Inside Track: Mixing Concert Recordings

Recording live concerts used to be an expensive and risky venture that required hiring a remote studio-in-a-truck. But affordable, portable digital recording gear has made it easier to capture these performances. As part of our bi-monthly "Inside Track" Series, *Mix* technical editor Kevin Becka and top live sound pros share their tips on getting a great performance on disk.

30 Tube Mic Preamps and Channel Strips

No matter the recording medium or location, projects demand the best audio quality from miked sources. The good news is that high-quality, tube-based mic preamps and channel strips are versatile tools capable of coloring a signal as desired or reproducing it transparently, and they're available in abundance.

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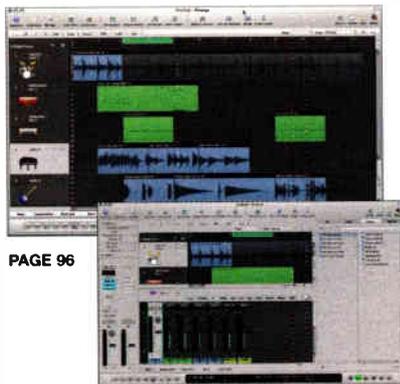
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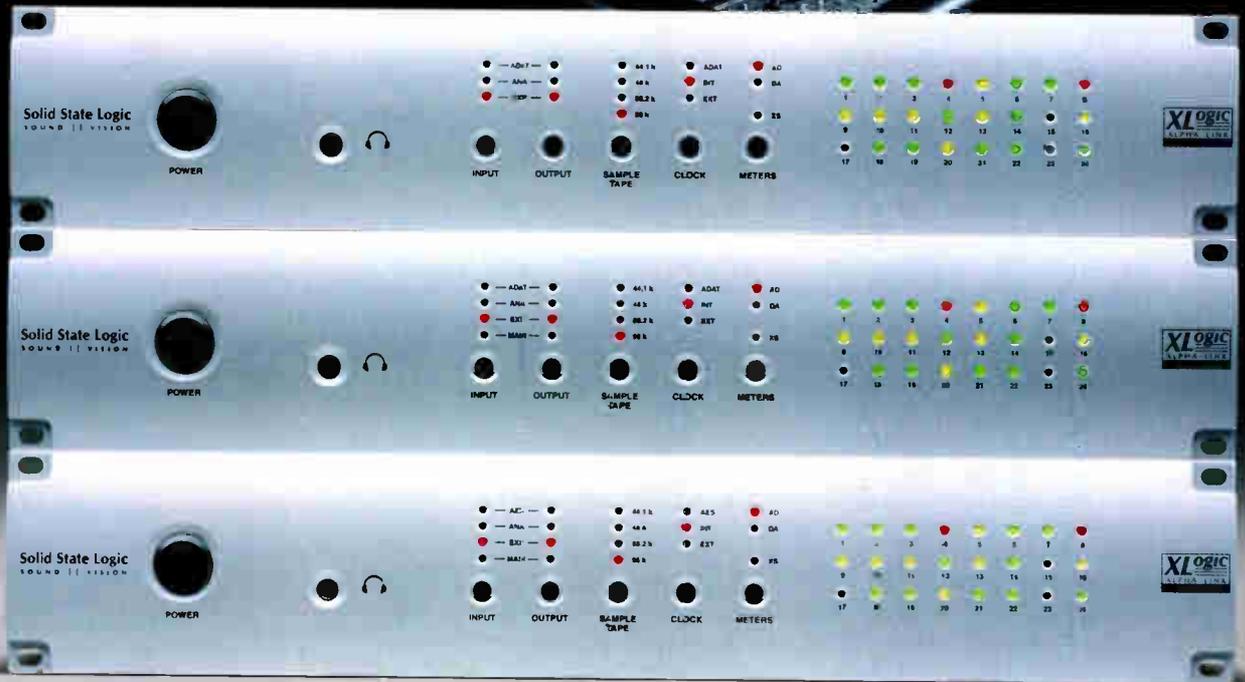
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Learning to Speak the Language

The doors to NAMM won't open for another couple of weeks, but I can let you in on a (not-too) secret: Gear for audio creation will continue to become more affordable and easier-to-use, expanding the market for people who want to express themselves and make cool sounds. By nature, musicians are creative types, as are audio engineers, and today both deal in separate—yet occasionally overlapping—disciplines.

It's often said that the best engineers in the industry started out as musicians, and that their experience in the fishbowl—on the other side of the glass—helped them become fluent in the language of music. At the same time, many talented musicians learn to dabble with recording, picking up some basic skills and even becoming excellent engineers in their own right. While they continue to play, they learn the language of recording to better inform their creative process. The cross-pollination makes sense: Music and engineering are both art and science, although technology has blurred the lines between the two. Today, with serious recording tools available to nearly anyone, musicians need to understand that learning some audio fundamentals is an essential step in taking their projects from demo quality to master quality.

Musicians, here are a few suggestions to record your masterpiece. Know your limitations—it is possible to get a great drum sound in a living room, but it's not easy, requiring the right mics and special attention to mic placement. If that's not possible, a trip to the local studio is one alternative, as is using samples and/or loop libraries—many of which are excellent. If you want top results, watching your gain structure is critical, both for avoiding overload distortion (which, once done, is uncorrectable) and optimizing levels to create a punchy, dynamic sound. With digital recording, it's a fine line between "not" and too hot, and one trick is routing a signal to two inputs set at different levels (one conservative, one on the edge) to provide a backup that can be edited later in case one track overloads. It's a technique often used for capturing sound effects, especially when you're not sure exactly how loud that rocket launch or huge explosion will be and you only get one take.

Speaking of takes, tracks are cheap, so when overdubbing, experiment and try variations using different mics and different mic placements, which provide more options to select from in the mix. Everyone wants a louder, richer-sounding mix, and a simple highpass (bass roll-off) filter can remove the un-reproducible low-end crud from your mix, leaving more room for the musical bass you can perceive. The overall mix appears louder and more dynamic—without anything being squashed. A little bit of the right knowledge can be a powerful thing.

But perhaps most important, realize when you should seek professional help. After spending so much time writing, creating and tracking your project, cutting corners on critical elements such as vocal recording, mixing or mastering doesn't make much sense—and here, a relatively small investment can yield big dividends in your final production.

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George Petersen
 Executive Editor

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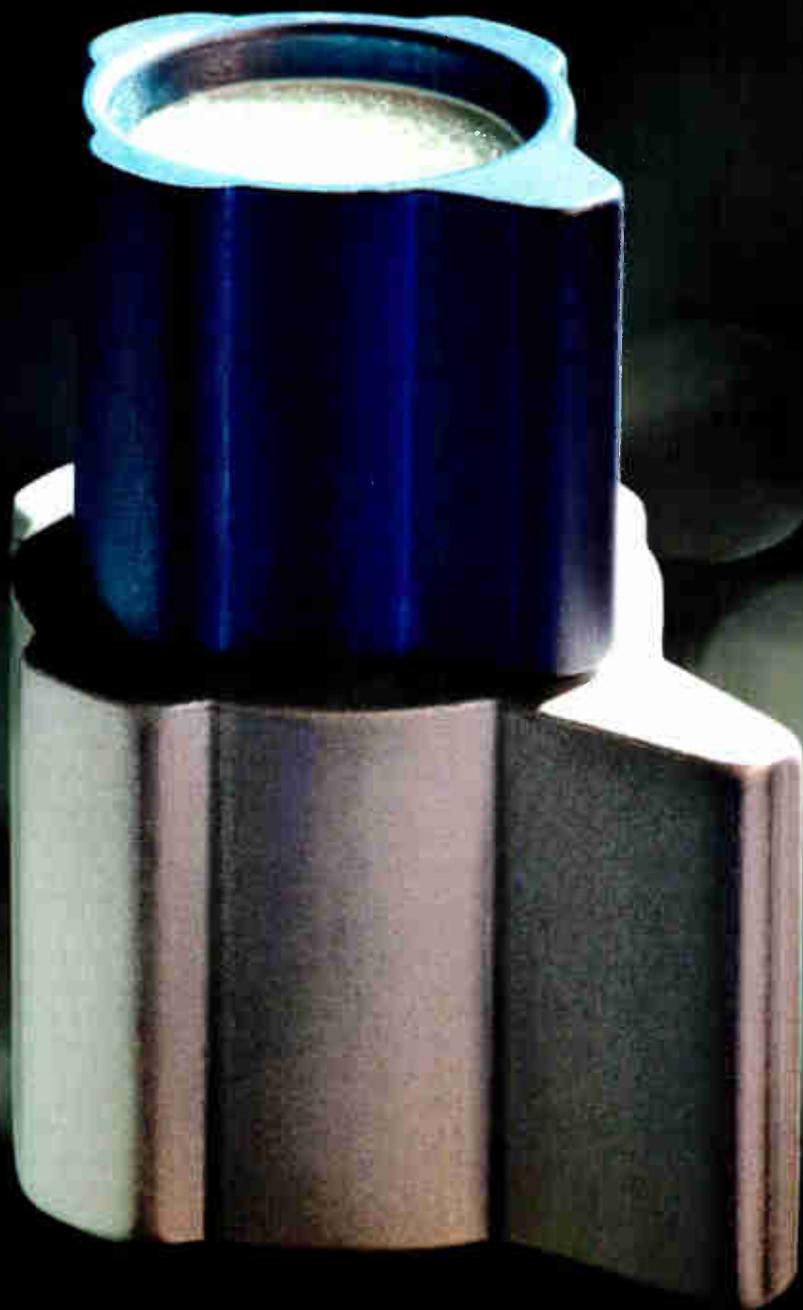


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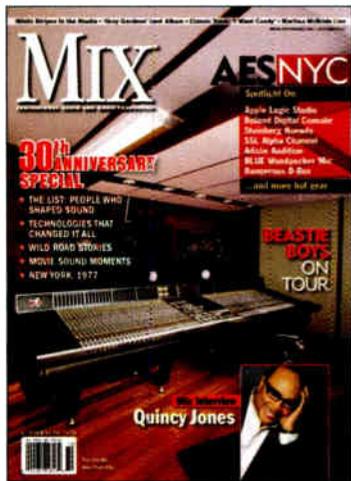
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Letters to Mix



HOUSE OF WONDER

Your October 2007 [30th Anniversary Special] issue is a keeper. History—I love it!

Back in the summer of 1977, I was a drummer touring with a rehash of Blues Image. I've been recording and writing ever since. Here are some obscure thoughts that the articles in that issue dredged up.

It was 1973; I can't remember the month. Bob Kenson, the lead singer for our band, Burnt Toast, connected with a fellow classmate from Los Altos High School in Hacienda Heights, Calif., a suburb of Los Angeles. The classmate was Gary Olazabal (aka Gary O), who was working at the Record Plant in L.A. and had been the tape operator on the hit Stevie Wonder album *Innervisions*. Gary went on to work with Stevie as his personal engineer for years. Gary invited the band over to record at night so that he could sharpen his recording chops.

From the way the Record Plant was described to me, I thought that it literally was a manufacturing facility where records were pressed. I envisioned Gary packing records into cardboard cartons. I was wrong.

Late one night, we pulled into the parking lot of a dingy industrial building, walked past the reception desk and into the control room of Studio B at the Record Plant. My jaw dropped as I glanced at the massive API console and the 24-track 3M recorder. I then gazed into the studio where I saw a silhouette of a grand piano, and beyond that I saw sliding glass doors—the typical aluminum sliding doors you see in houses.

There sat TONTO, The Original New Timbral Orchestra, a custom synthesizer designed by Malcolm Cecil and Bob Margouloff. I'm told

that Stevie had been using it since [recording] *Music of My Mind* through *Innervisions* at that time.

I was told that Studio B had been configured specifically for Stevie Wonder. The studio was not very large, as I recall. I used to have many pictures from those days, but alas, I have lost them over time. I only have the memories and some melancholy as I recall the indelible images cast back then. There was truly romance in the recording process back then.

Dan Titus

PERFORMANCE IS KEY

I'm a singer/songwriter and voice-over artist in New York City. I'm just putting my home studio together and *Mix* continues to be a valuable resource for me.

I wanted to say thanks for doing the piece in "Classic Tracks" on the Traveling Wilburys' "Handle With Care" (November 2007). Learning about the gear that was used and the way in which it was used—old, ear-aligned tape machines, blankets on the walls, tape marks on the floor and those five guys in a semicircle in a kitchen around just a couple of mics—was not only inspiring, but it made me think of what my drummer and co-producer, Graham Hawthorne, said to me when I was setting up my studio and what should be tattooed to the forehead of any artist shelling out his/her own money to put a room together: "A great performance in front of a mediocre signal chain will always blow away a mediocre performance in front of a great signal chain!"

Chris Orbach

MISSING PERSONS DEPARTMENT

Where is Daniel Lanois on your list ("30 People Who Shaped Sound," October 2007)? He took ambience beyond [Brian] Eno because of his great knowledge as a writer and arranger, and made Emmylou Harris' and Bob Dylan's best records of the last 20 years. Where is Phil Spector? Where is Jeff Lynne, who shaped the sound of George Harrison, the Traveling Wilburys and Tom Petty through the '80s and '90s?

Thomas Matheson

AND WHAT ABOUT...?

I'm sure the editorial board is bound to get a metric buttload of music snobs chiming in their two cents' worth, but I thought it odd to exclude Frank Zappa from the list of "30 People Who Shaped Sound." If everyone agonized for months about it, how could Frank Zappa have been excluded, yet Dr. Dre made it? (No stab

at Dre; I think he's worthy.) I know I'm part of a small and vociferous group of Zappa fiends, but come on!

I forgive you nonetheless. You included Elliot Scheiner.

Derek Ashworth

IN THE BEGINNING, THERE WAS LES

The man who shaped sound was Les Paul! Without him we would not have multitrack recording or the electric guitar. He should always be recognized *first* in any list attributing anything about recording or sound, even if it's 211 years later.

That's my opinion, anyway.

Cedric Williams

Derivative Acoustics

Tupelo, Miss.

THOSE WERE THE DAYS

I wanted to drop you a note to thank Blair Jackson for the mention in your fabulous article ("New York '77," October 2007).

Thanks for reminding me of Bob Lifting, who introduced me to the concept of sync SMPTE timecode—rather than 60-cycle—phase lock. Your piece was so on the money that there was this feeling of friendly competition and respect for those trailblazing engineers like Phil Ramone and Tom Dowd, who was still working at Atlantic up on 60th and Broadway, Jay Messina and Shelly Yakus at Record Plant, and, of course, Eddie Kramer at Electric Lady.

These masters recorded timeless pieces of music. Phil had mixed Elton John's *11-17-70* live for WNEW. Tom, among his many accomplishments, had produced the Allman Brothers Band's *At Fillmore East*. [Jimmy] Iovine was working with [Bruce] Springsteen, and Bob Ezrin [with] Alice Cooper. Kramer, besides KISS, was producing and engineering Led Zeppelin and the Rolling Stones.

I've been in Los Angeles for so long now that I'd nearly forgotten that incredible period in New York City's recording history. New York City was the place to be. I'm very grateful to have been part of such a rich time.

Again, thanks for capturing the spirit of the time. I look forward to your next piece.

Michael Frondelli

MF Enterprises

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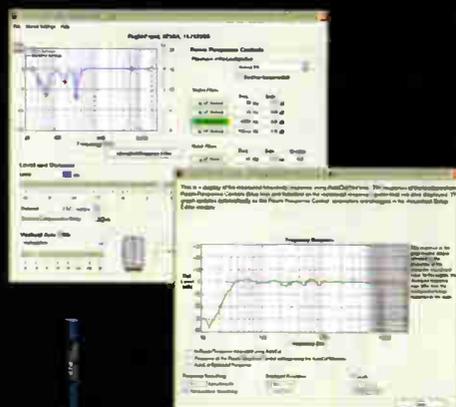
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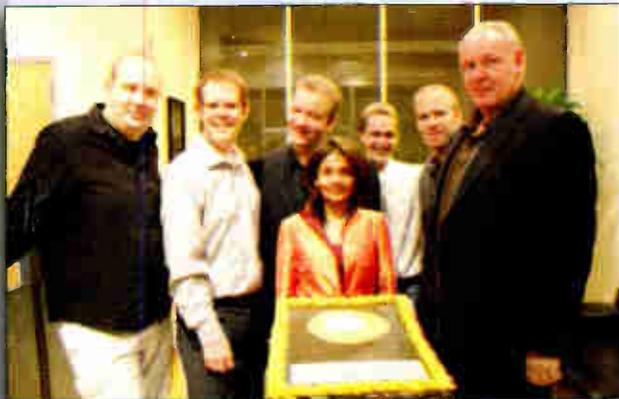
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SAE ATLANTA OPENS



At SAE Atlanta's (www.sae-atl.com) grand opening, held October 12, are, from left: Institute Liverpool director Xander Snell, SAE Atlanta director Chris Davie, SAE New York director Udo Hoppenworth, SAE Nashville director Prema Thiagarajah, SAE Los Angeles director Paul Hughes, SAE Miami director Einar Johnson and SAE Institute founder Dr. Tom Misner.

TEC CALL FOR ENTRIES

The Technical Excellence & Creativity Awards (TEC) nominating panel is now accepting product nominations for the 24th Annual TEC Awards to be held in San Francisco in October 2008. To be eligible, products must have been released and in commercial use during the period from April 1, 2007, to March 31, 2008.



Technical categories are Ancillary Equipment, Digital Converter Technology, Mic Preamplifier Technology, Microphone Technology/Sound Reinforcement, Microphone Technology/Recording, Wireless Technology, Sound Reinforcement Loudspeaker Technology, Studio Monitor Technology, Musical Instrument Technology, Recording Devices, Signal Processing Technology (Hardware), Signal Processing Technology (Software), Workstation Technology, Sound Reinforcement Console Technology, Small Format Console Technology and Large Format Console Technology. Creative categories are Studio Design Project, Television Sound Production, Film Sound Production, Remote Production/Recording or Broadcast, Tour Sound Production, Surround Sound Production, Record Production/Single or Track, Record Production/Album and Interactive Entertainment Sound Production. Nominations must include complete product/project name and qualifying category, and a contact name and telephone number; for products, also include date first commercially available (proof of shipment may be required; beta test sites do not qualify).

For Outstanding Studio Design Project, entries must be new studios or rooms, or major renovations completed and in use during the eligibility year of April 1, 2007, to March 31, 2008. Nominations should be sent with the studio name and location, date completed and name/phone number of the architect(s) or studio designer(s), the acoustician(s) and the studio owner(s).

All entries must be returned by Friday, February 29, 2008. Send all information to TEC Awards, 1547 Palos Verdes Mall #294, Walnut Creek, CA 94597. Forms can also be downloaded from www.mixfoundation.org.

SHURE MIKES STUDENTS



Left: A musician from the Northwestern University School of Music plays bass while being recorded with a Shure Beta 52. Right: A Shure technician adjusts an SM57 in front of a traditional Chinese pipa.

Students and faculty from The School of Music at Northwestern University (Evanston, IL) performed at Shure's Personal Listening Center, where Shure will use the recordings to demonstrate the tonal differences between different microphones and to show the effects of microphone placement on sound quality. Each performer or group was surrounded by an array of Shure microphones. To ensure consistency, duplicates of each model were placed in three or four different positions. Each microphone was recorded individually so that it could be used to build a reference library of sounds. The recordings will soon be released as an album.

WHITE MARK CELEBRATES

Sound designer Arge and unidentified person in Studio C



Acoustic and technical design company White Mark Ltd. (www.whitemark.com) celebrated its tenth anniversary by completing its 100th audio post-production control room, Envy's Studio D (in London's Soho neighborhood).

The studio, which is the sixth audio room at the White Mark-designed six-floor complex, is configured to work in surround sound with a separate booth for voice-over; other rooms in the facility include a 2-track laying room and the Dolby-licensed Studio A. All are equipped with White Mark woven screens and full surround monitor systems by Exigy.

CRF PERFORMS

At the Classical Recording Foundation's Sixth Annual Awards Ceremony, held in the beautifully intimate setting of Weill Recital Hall at Carnegie Hall in New York City, attendees were treated to majestic performances from award recipients. The winners of the 2007 Samuel Sanders Collaborative Artist Award, Zuill Bailey and Simone Dinnerstein, displayed brilliant and spirited teamwork throughout their cello/piano duet of Beethoven's Sonata in A Major, Op. 69. Pianist Garrick Ohlsson was stirring in his delivery of Sonata for Piano by Justin Dello Joio, the latter being the winner of the 2007 Composer of the Year Award. The 2007 Young Artist of the Year Award winner, Vassily Primakov, was fluid on piano as he played Beethoven's Piano Sonata N. 32 in C Minor, Op. 111. An engaging rendition of multiple Goldberg Variations from Dinnerstein capped off a memorable evening.



One of the great performances held at the Sixth Annual Awards Ceremony at Carnegie Hall

—David Weiss

OVERZEALOUS RED PEN

In our October 2007 issue, front-of-house engineer Robert Scovill's "memory" was erased a bit too much in the editing process. Here's what he originally submitted for our "Memories From the Road" article:



THE SHINING MOMENT

After touring for nearly 30 years, you see and experience a lot of pretty cool moments. But if I had to pick one, I think my memorable moment—one that left a lasting imprint on

me—was a run of shows I did with Tom Petty and The Heartbreakers pretty early in my tenure with him at the infamous Fillmore in San Francisco. We parked up there for a 22-night stand. Each of the 22 shows had its own character and feel to it, and nearly every show offered a different opening act, most of them legends or legends-to-be in the business—people like the late Carl Perkins, Bo Diddley, Roger McGuinn, Jakob Dylan and on and on. At a certain point in each of the shows, the guest artist would join Tom and The Heartbreakers onstage and perform some of the guest's classic material. They would simply launch into a called-out song, and it was like witnessing a kind of moment in history. It was rarely if ever rehearsed, and it really crystallized just how great of a band Tom and The Heartbreakers had become in their 25 or so years together. But when it was all said and done, I also realized something about myself: I identified this really pure place in me as a mixer and felt a rare connection to it musically that required very little conscious thought and effort on my part to mix those songs. I can't think of too many other instances like it over my time as a concert mixer. It felt like I knew every move that was coming just before it would happen. There was just this beautiful connection to it all. The Heartbreakers made the whole thing look so easy, and it was all of a sudden apparent what kind of DNA was at the core of them as musicians and me as their mixer. I don't think I ever viewed the band the same again after those shows and realized I was indeed working with what Jackson Browne commonly referred to as "America's greatest rock 'n' roll band." I used to think that comment was just one of those artist-to-artist "niceties," but after that run of shows was over I knew first-hand that it was not a passing comment and I knew exactly what he meant. I knew I was right where I belonged at that point in time.

—Robert Scovill

USS GOES GAMING

Universal Studios Sound (www.filmakersdestination.com) has hired supervising sound editor Michael Geisler, expanding the department's services in animation and gaming. The facility offers sound editorial and design, mixing, Foley, ADR and transfer for features, television, commercials and trailers, along with animation and gaming.

The company also added mixers Jon Taylor and Christian P. Minkler, who will be mixing on Feature Mixing Stage 6 on the Universal lot.



Jon Taylor (left) and Christian P. Minkler

NL ADDS AUDIO

New York City-based Northern Lights' new audio division is being headed by mixer/sound designer/composer Ted Gannon (pictured), who is currently working on a commercial campaign for Centrum, episodic promos for USA Network's *Law & Order* and a game

open for the NHL with video effects/design company Mr. Wonderful. Gannon was most recently with Bionic Media. The new audio room is equipped with Pro Tools, a Digidesign Command board and a voice-over sound booth. Music composition is via Apple Logic software.



LISTEN...PLAY

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:



READ: "In-Ear Monitoring"

So you know what's out there, but now what do you do with that shiny pair of in-ear monitors? Take a cue from top touring engineers, who offer tips to use IEMs correctly—and get those artists on the same page.



LISTEN: Youth Without Youth

Before you head over to the movieplex, make sure you listen to audio clips from re-recording mixer Walter Murch on his thoughts about working on this movie.



LISTEN: "Recording Notes"

Put on the headphones and listen to these audio clips from H.I.M.: Mickey Hart, "Copacabana" and "Cool Spins."



LISTEN: "Field Test: Apple Logic Pro 8"

Exclusive MP3 of a vintage funk kit recorded through Apple's latest upgrade.

CURRENT

NOTES FROM THE NET

AFA GOES ONLINE

AFA Music Group will launch a full-service digital music label early this year, available online at www.afamusic.com. The label will encompass all aspects of a traditional record label, including music distribution, marketing, publishing and merchandising. Artists currently on the company roster include the Audio Club, Braidy, Brooks Buford and Taxi Doll.

"We feel this is the best way to maximize revenue, as opposed to going through the old traditional model," says Jon Goldwater, president and CEO of AFA Music Group Ltd. "We no longer are constrained by the old-school distribution system that the major labels controlled. Every company now has the ability to establish its own brand."

RPSE PARTIES AT BENNETT

To celebrate the opening of a satellite sales office of Universal City, Calif.-based RSPE Audio Solutions at West L.A.'s top HD video and 5.1 surround facility Bennett Productions, a two-day open-house called "End to End" took place on November 16 to 17. Co-sponsored by Digidesign, audio engineers, post-production supervisors, live sound mixers and artists were invited to observe a real-time demonstration of the Bennett Group's capability to capture live music events using HD video and Pro Tools HD audio. Attendees witnessed the (simulated) remote A/V recording of several local artists in one of Bennett's plush soundstages using Digidesign's latest D-Show system. The live recording was immediately followed by its surround mixdown in an adjoining suite equipped with a Digidesign ICON console.



Gary Lux—multi-award-winning 5.1 music mixer and producer, and Bennett's senior VP of music development and audio production (pictured, left, with RSPE president Russ Belttary)—carefully explained and engineered both the live capture and mixdown steps. Once the mix was completed, the track was compressed into an AAC stream and made available to all attendees via Digidesign's DigiDelivery online system. —Barry Rudolph

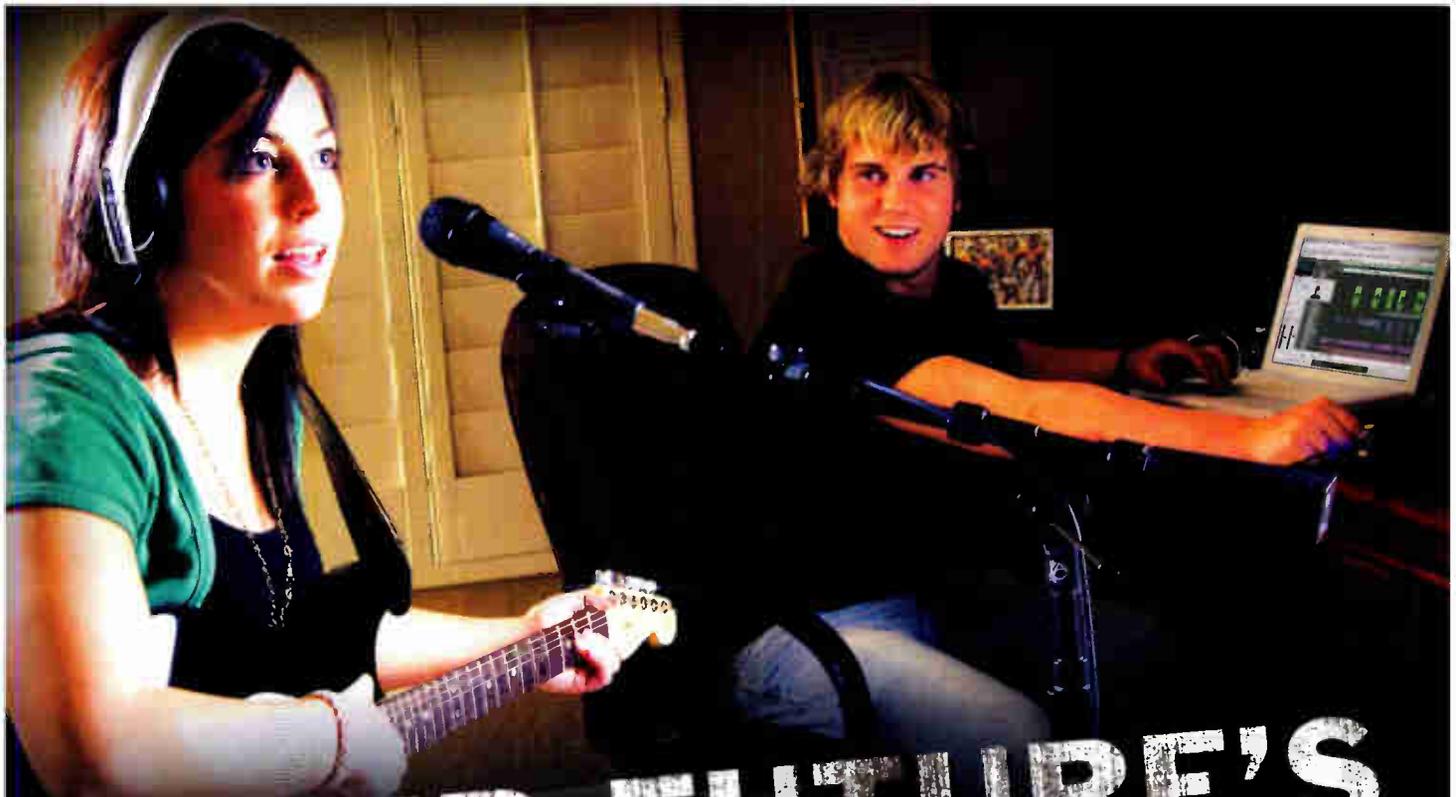
INDUSTRY NEWS

At Sterling Sound (NYC), mastering engineer **Will Quinnell** has been promoted to full time... Hollywood-based **SonicPool** promoted **Daniel Stuart** to audio editor and **Kristina Allison** to production coordinator...**Stanton Group** (Hollywood, FL) announcements: **Alan Zak**, VP of engineering; **Mark DeCaterino**, international sales manager; and **Cerwin Vega**! direct product distribution to the UK...**Dan Gillett** joined **Ascent Media Creative Sound Services** (Santa Monica, CA) as director of television services...New division manager of the music instrument division at **American Music & Sound** (Agoura Hills, CA) is **Richard Markus**...News at **Meyer Sound** (Berkeley, CA): **Bob McCarthy**, senior design consultant on Constellation, and **Miguel Lourtie**, European technical services group...**Dan Craik** is **Yamaha Commercial Audio Systems'** (Buena Park, CA) house of worship specialist, and **Mike Eiseman** is the company's district manager for Illinois, Indiana and Wisconsin...New distribution deals:



Will Quinnell

DiGiCo (Surrey, UK) named **Marketing Concepts** (Dallas) for Texas, Oklahoma, Louisiana and Arkansas; **Hedom** (Helsinki) will represent **Alcons Audio** (The Netherlands) in Finland; **Allen & Heath** (Agoura Hills, CA) will be represented in India by **SunInfonet** (New Delhi); and **InnovaSon** (Nashville) appointed **Live Sound LDA** for Portugal.



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Mixing concert

RECORDING IN A DAW WORLD

BY KEVIN BECKA

THERE'S A PERFECT STORM IN LIVE SOUND RECORDING TECHNOLOGY: THE POWER OF COMPUTERS COMBINED WITH THE EASE AND PORTABILITY OF DIGITAL RECORDING GEAR HAVE MADE IT EASIER TO RECORD ON THE ROAD. AND ON TOP OF THAT, THE ABILITY TO DISSEMINATE THOSE RECORDINGS QUICKLY ON THE WEB BENEFITS THE ENTIRE CHAIN—ALL THE WAY FROM PRODUCER TO CONSUMER.

We've been spoiled by the convenience technology has afforded us in the past 10 years, but it wasn't so long ago that recording on tour was an expensive proposition: You had to hire a full-fledged remote truck and hope that you captured what you needed in a night or two. This scenario made live recording rare and expensive, and to support it you needed to produce a highly sellable product to recoup cash. Now, the fact that rigs are portable and integrated directly into the front-of-house position across a range of live sound mixing products makes the prospect of recording every night both affordable and essential to the modern live engineer's touring routine.

In this feature, we won't be focusing on how remote trucks integrate into live recording—that's a whole other topic. What we will discuss is how new live recording methods have changed the way live sound professionals work and how the technology applies to setup, soundcheck, release for broadcast, DVD and CD.

THE EVOLUTION OF LIVE RECORDING

Live recording started to depart from the remote truck model slowly, beginning around 15 years ago with the advent of Modular Digital Multitrack (MDM) recorders such as the Alesis ADAT and Tascam DA-88. Early adopting sound reinforcement engineers wanting to record nightly found these devices far from roadworthy and were frustrated by their idiosyncratic operation. Yes, these early and groundbreaking devices were both affordable and portable, but the fragility of the tape-based

format and "iffy" synchronization resulted in as many failed attempts as usable takes. Because track counts needed to be high, it took a stack of MDMs to make a single pass, and it wasn't unusual for tapes to be eaten and/or units to stop and drop out of record, leaving you with a hole in your take.

As with all things promising and new, despite the problems the push was on to improve technology and make things work better. Enter the DAW, laptop and digital console. This technological trifecta has changed the face of audio, both in the studio and in live recording, affording engineers the ability to record reliably, cheaply and easily almost anywhere. This affordability and ease of use have inspired a new model of release and distribution. You can now produce product at the venue and mix it for later release.

The concept was first tried by bands like The Pixies, who in 2005 released 1,000 units onsite at their concerts and more later from their Website. The model was picked up by the classical world when in February of 2006, Sir John Eliot Gardiner and the English Baroque Soloists released what became the fastest classical CD release of Mozart's Symphonies No.s 39 and 41, available to patrons as they left the concert. Another popular model involves archiving concerts and releasing them via the Web at a later date. Artists such as Bruce Hornsby, Metallica, Amy Winehouse, James Blunt, Little Feat and the Allman Brothers have jumped on this bandwagon, offering live concert recordings dating back to 2002 on sites like munckmusic.com, LiveMetallica.com or iTunes live. And for local bands, there's monkrat.com, which offers a free system to sell your digital downloads.

ILLUSTRATION: CHUCK DAHMER

Of course, the ability to support the back end with an easy-to-implement distribution model is just one part of the formula. The key is the quality and quantity of the material available. In this regard, the new tech improves on the "truck" model tenfold: In the past, you'd pick from a select few nights of recordings. Now, you gather audio from nightly recordings, ensuring a much larger pool of performances from which to choose. Also, when you're recording nightly, the band won't suffer from "red light fever" when the truck shows up. Longtime FOH engineer Robert Scovill (Rush, Tom Petty & The Heartbreakers) says it best: "There's an advantage to being able to record a lot of shows. I don't care who the artist is or if they've been around for 20 years; the night that the recording truck shows up, they become a different band." The pressure to perform perfectly is enhanced greatly when you know there's someone in the parking lot in a truck whom you're paying to record every move you make—but the impact is greatly reduced if recording is commonplace.

VIRTUAL SOUNDCHECK

Tuning the system and wringing out any difficulties prior to the show is an essential part of the lives of touring pros. Traditionally, the drill has been for the band to show up after load-in and run through a few tunes before

Another Approach

QUICK AND DIRTY, HD-STYLE

One of the goals of this feature is to give different live recording perspectives, and we couldn't leave out the quick-and-dirty approach. In truth, sometimes in a small club setting where space is dear and budgets are small, capturing the band using a two-mic approach is just the ticket. To see how we could accomplish this at the highest possible sampling rate, we dispatched engineer Brandon Hickey to the Wise Fools pub in Chicago to record the Gunslinger's Dream band using the Korg MR1000 stereo recorder and a RØDE NT4 microphone. The RØDE is a great choice for low-profile situations where space is tight because it offers two coincident capsules in the footprint of one microphone that can be placed on a single stand. The venue seats 300 people in a room where ceilings are 25 feet high and FOH position is 40 feet from the stage, which is where the mics were parked at eye level.

The mics were plugged directly into the Korg, which was set at the highest possible sampling rate: 1-bit, 5.6MHz. The Korg supplied the phantom power directly from the battery, which got through the 1-hour, 45-minute

show with juice to spare. As "insurance" for overs, Hickey used the onboard limiter but pulled the level back, never hitting the unit harder than -6 dBfs. At this level, the limiters were only in evidence during surprisingly high-SPL situations, always a possibility in a small venue.

The nice thing about the format is that it is already supported by software such as SonicStage Mastering Studio Version 2, DSD Direct and Korg's AudioGate software for Mac and PC. AudioGate can convert 1-bit recordings into WAV and AIFF formats at various bit rates (and vice versa) and offers real-time conversion and playback of 1-bit files using your computer's audio hardware. It also does essential functions like DC offset removal, gain control and fade in/out. (You can hear a knocked down version of the recording at mixonline.com's "Mixed Media" page.) The knockdown is in real time, and no matter what resolution your soundcard allows the software will let you monitor at the highest level during editing because you listen straight off the hard drive of the MR1000 while editing.

—Kevin Becka

taking off for dinner and getting ready for that night's performance. The downside is that the band is not at its best and is playing full-throttle right after getting off the bus after traveling all night from the previous

gig. Enter the virtual soundcheck, the ability to play an actual multitrack performance through the console and tune up the system that way. The advantage is having a fresh, full-powered "performance" from the previ-

K.I.S.S.

RECORDING THE UCLA MARCHING BAND

Recording engineer, forensic audio expert and ribbon mic manufacturer Wes Dooley has been recording remotely since the early 1960s. He's schlepped gear to such remote places as Zambia and New Zealand, so he knows the importance of traveling light and getting it right when recording in the field. A week before Thanksgiving last year, he recorded the 250-piece UCLA Marching Band in windy conditions 100 yards from Sunset Boulevard at rush hour—a challenge that he tackled with just five mics. Dooley's rig started with a Digidesign 002 Rack modded by Black Lion Audio. The company has provided upgrades for the rigs of engineer/author Ron Streicher and engineer Jeff Peters, who told Dooley about the mod. Black Lion upgrades the 002 (rack or console) clock, power supply, analog stages and mic preamps, essentially giving you a new unit that is portable and in a format that is ubiquitous and compatible with Pro Tools. For a backup, Dooley brought along a Tascam DA-88.

The mics were split of the preamps to the 002 recording at 24-bit/44.1kHz, with the Tascam operating at 16-bit/44.1kHz. The preamps were Dooley's AEA TRP ribbon mic preamps for the R84s and a Soundcraft Spirit Protracker for the condenser microphones. The mics were split into two distinct rigs flown high above the field 20 feet above ground and just behind the conductor, who was 30 feet back from the front of the band. The band was set in an arc focusing themselves at the raised podium, prompting Dooley to use a Decca Tree configuration for one perspective; for a second option, a stereo pair of near-coincident ribbon mics were set in a Blumlein pair. For the Tree, which was suspended on AEA 27-foot stands, he employed three Schoeps CMC6 bodies fitted with MK2H capsules; for the Blumlein, he used a pair of AEA R84 DJV mics developed with an acoustical highpass filter for users who want to employ it at close proximity or in windy conditions. To help alleviate any problems from the blustery weather, the Schoeps mics were fitted with Shure A81WS windscreens while the DJV mics' internal HPF offered the needed help electronically.



AEA R84 DJV mics in a Blumlein pair



The recording gear included a laptop running Pro Tools through a modified Digidesign 002 Rack.

The mics were split at line-level right out

—Kevin Becka

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— Brad Wood
(Smashing Pumpkins, Liz Phair, Better Than Ezra, ...)

"The KSM44 is a remarkable achievement. I am especially impressed with the versatility of this microphone and have yet to find its limits."

— Steve Albini
(Nirvana, Page and Plant, PJ Harvey, ...)

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— Joe Chiccarelli
(Beck, U2, Elton John, ...)

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Groove Tubes Glory Comp

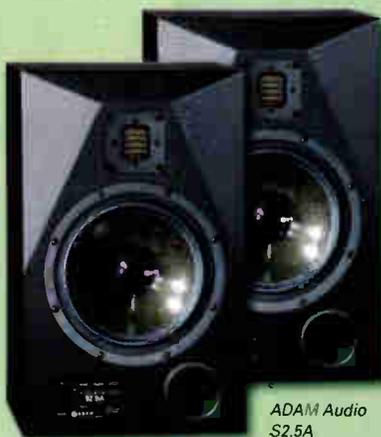
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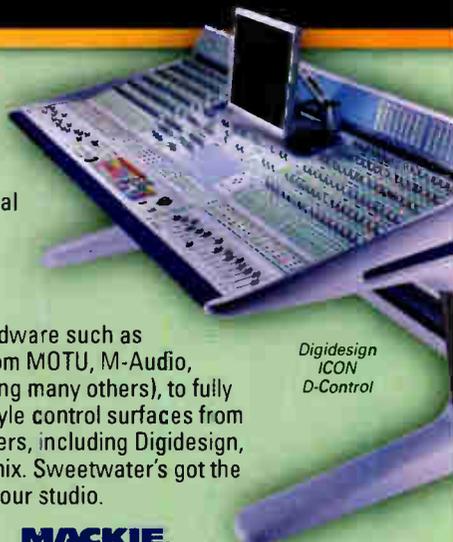


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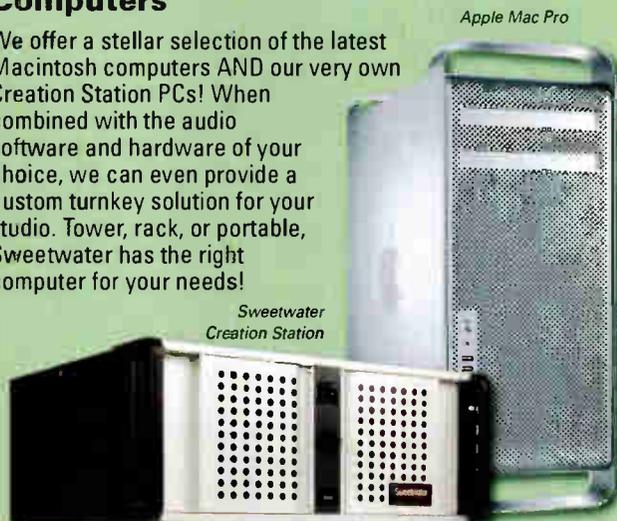


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ous night, bringing energy to the rig that a pre-show band performance cannot. The best possible way to set up this scenario is to have the P.A. "not know" if the feed is coming from mics or the recording, so it is critical to split the signal to the recorder in the proper spot.

In the past, the split would come from a direct output or an insert send. The problem is that this feed was post-preamp and -highpass filter, so if you had to adjust those processes during playback, that signal went to print. For a clean recording that exactly matches what you're getting from the stage, you don't want to print any

post-preamp processing.

Newer live digital consoles have addressed these issues, but manufacturers differ on how they achieve a solution. An array of desks, including the Digidesign VENUE, DiGiCo D1/D5, Yamaha PM1D/PM5D and Soundcraft Vi Series consoles allow you to tap from a number of points, including directly after the preamp/digital conversion. This way, when playing back from the recorder you can control the entire channel strip and the console feels exactly like the mics are online. Digidesign's VENUE uniquely addresses the soundcheck model in their design by allowing the user

to trim the level of a playback track with the preamp gain knob, and then automatically apply those changes back to the mic pre's when the mics come back online.

Another advantage of having a multi-channel recording on hand to play back throughout the system is testing the cue system to the talent. Bernie Becker, an engineer who has recorded live since 1977 and has worked with Neil Diamond since 1989, uses this setup to check the feeds to the stage's four discrete Aviom multichannel headphone systems before the 15 players in the band even arrive. His setup starts with 100 channels of Yamaha's HR mic preamps onstage, which is sent to a Yamaha DME64N router, which splits to two PM5D consoles and a Pro Tools system. The recorder gets the feed directly from the DME64N right after the preamp. With the push of a button, he can feed the entire system from Pro Tools instead of the mics from the stage and check every headphone feed.

RECORDING THE ROOM

Some of the most challenging things to capture live are good ambience and crowd recordings. These elements are best viewed as two separate tasks. According to Scovill, "I try to find some audience hot spots where you have little P.A. or backline sound in the track, which will smear your mix. You have to pay very close attention to the off-axis response of the microphone and where they're placed in regard to the P.A. system." At the other end, when trying to record ambience of the room, you want your mics to have *some* of the P.A.

"I'm using the Holophone H13-D to capture the crowd at front of house," says FOH engineer Eddie Mapp (Evanescence, P.O.D., Zakk Wylde). Because the mic's position is 80 to 90 feet back from the stage, when he's mixing the tracks Mapp slides the Holophone up in time and lines it up with the loudest thing from the stage. This negates the 80- or 90ms delay created by the mic's placement. "It cleans it up and gives me a more realistic idea of what's going on in the room," he says.

Sometimes the band is actually playing back in surround in the venue, which brings another dimension not only to the live mix, but also for recording. "On some of the Rush recordings," Scovill recalls, "we had microphones hanging from the surround speakers in the back of the room. I had them on microphone positioners, where



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GETTING IT THERE AND RECORDING IT

We sampled a group of live digital consoles to find out how they transport and record a large number of channels of audio. Yamaha's digital live consoles use the company's proprietary MY cards to transport audio in formats including analog, AES, ADAT, TDIF, MADI, Ethersound and CobraNet. For recording, the company has created a turnkey recording device with ADK Computer called LyveTracker, which runs Cubase or Nuendo software and has optional interfaces for MADI, AES, ADAT or Ethersound. LyveTracker is capable of recording 192 simultaneous tracks.

Digidesign's VENUE allows you to record or play back up to 128 channels of audio using the console as the interface via two optional HDx cards interfaced to a Pro Tools HD system.

DiGiCo's consoles use RME's MADI card to make 160-channel recordings compatible with Pro Tools, Nuendo, Cubase, Logic and Pyramix. To get MADI into Pro Tools, the company recommends the Soundscape iBox MADI2-HD2 converter that takes the place of the HD interface.

Soundcraft's Vi4 and Vi6 come with an optical MADI card as standard, offering 64 channels of I/O in addition to the stagebox connection. The company also recommends the RME MADI card and Soundscape iBox to record tracks to virtually any DAW.

Roland's M-400 V Mixing System can record in stereo locally via a USB Memory Drive (8 GB equals 10 hours) or can transport up to 32 channels and eight buses over Cat-5 cable to a Gigabit port on a PC to record on Cakewalk's SONAR. Cakewalk has written a custom driver supporting Roland's REAC Ethernet audio protocol.

—Kevin Becka

you could move them remotely, both laterally and vertically." Scovill would solo these mics during the opening act and move them using the positioner until he got the sound he wanted. Using directional mics for this is important. "I'd get some back-corner ambi-

ence using shotguns that would isolate it from the band into the corners of the venue," he adds. "This would put the listener where I was sitting."

Becker uses precise mic placement to keep his audience mics in phase. "We'll use

the front of the stage as an imaginary plane," he explains. "I've used boundary mics to get the first five rows and we'll put up shotgun mics to pick up the far-away audience and point it in different directions to get the ambience of the crowd. Within reason, no matter where the mics are pointing, all the sound arrives at the mics at the same time."

IN THE CAN—NIGHTLY

There's no question that the line between the worlds of live sound and recording is quickly becoming nonexistent. The use of multichannel recordings at FOH has made the engineer's job more efficient, bringing better results from the soundcheck, setup and his/her ability to archive a band's body of work.

What does the future hold? Perhaps live mixing offsite via the Internet? With the live sound desk as the capture device, engineers could send tracks offsite, have a mixer in a studio work the mix and then send it back to the venue where it would be processed on a mirror system and distributed onsite. It will be interesting to see how the technology develops and how it changes all of our jobs. ■

Kevin Becka is Mix's technical editor.

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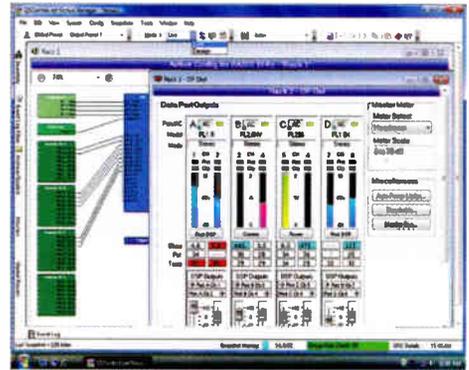
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World Radio History

Tube Mic Preamps and Channel Strips

PUTTING WARMTH INTO THE FRONT END OF AUDIO

By Tony Nunes



Groove Tubes ViPRE



Pendulum Audio ES-8



Universal Audio 6176

With the DAW-centric nature of production today, more recordings are being made without a console in remote locations and workstation-based studios. But whether your audio is patched into a mixer or directly feeding a computer interface, the need for quality mic preamps is unchanged. From a convenience standpoint, as a replacement for inferior interface preamps or as an alternative to console pre's, outboard preamplifiers with tubes and/or transformers can add a different flavor to a recording.

Engineers tracking in traditional rooms are accustomed to the luxuries of console dynamics/EQ and staple outboard gear. Channel strips provide a one-stop tracking solution, combining one or more preamps with EQ, dynamics or even digital I/O for simple integration with digital gear. And with a huge variety of outboard preamps and channel strips available, the art of microphone preamplification has truly come of age.

COLD...WARM, WARMER...

All preamps are capable of raising a mic's weak output to match a line-level input. Yet some situations require a transparent

translation of the source (such as orchestral recording) while others may call for a degree of coloration or distortion of the source (i.e., rock guitars/drums). Some would assume that a tube-based pre would be "warm," colorful and even fuzzy while transistors are "cold" and harsh. But on the contrary, a tube pre can be very transparent and exhibit clarity and definition with the proper tube selection and circuit design. Equally, solid-state pre's can be very dimensional and colorful—the perfect examples are API and Neve preamps. The right combination of tubes, transformers, transistors or op amps can create a vast array of different sounding preamps.

Every preamp can be driven to the point of overload (distortion). As amplifiers reach this threshold, various preamp designs react differently. Certain harmonic information proportional to the source is amplified or changed, adding character or color. Generally, a single-ended, triode tube amp heavily enhances second and third harmonics along with fourth and fifth harmonics. Some designers consider this "musical." Also, when driven hard, unsymmetrical clipping also results. While transistor amps induce strong third harmonic information, overdriving a transistor amp emphasizes other harmonics, yet clipping with symmetrical square waves will result. As tube preamps enter their overload region, they add the pleasant harmonic distortion, but as a side effect, the input-to-output signal is not proportional, resulting in a limiter effect.

Some preamp designs have adopted a dual topology. Manley's TNT and Millennia Media's STT-1 include tube and discrete solid-state pre's, all in one package.

ATTENTION TO DETAIL

A tube channel strip doesn't always mean the entire signal chain is all-tube. As an example, Universal Audio's LA-610 includes a tube

preamp and T4 opto compressor much like the LA-2A. On the other hand, UA's model 6176 combines the same 610 tube pre, but with an 1176LN solid-state compressor.

Preamps and channel strips—whether tube, solid-state or hybrid designs—share many features in common. These include phantom power (besides 48 volts, a few also include options for powering +130V B&K/DPA mics), polarity inversion, input pads and a ¼-inch high-impedance DI input for interfacing electric guitar and bass. High-pass filters can play a big role in preventing obtrusive low-frequencies (adjacent instruments, air conditioners, traffic rumble, etc.) from eating up headroom. Metering can vary from a simple clip LED to LED segment and/or VU metering displaying the pre's input/output as well as compressor gain reduction. One feature that's becoming more popular is variable input impedance, which can play a big role in a mic's sound.

Digital outputs provide easy connectivity to DAW interfaces, while offering an alternative to the inferior A/D converters on some soundcards and interfaces. More sophisticated tube channel strips, like Pendulum Audio's Quartet, provide separate inserts for their EQ and compressor, allowing them to be used independently during mixdown. As found on the Drawmer 1960, another channel strip feature is sidechain access points, where an external EQ can be patched for using the compressor as a de-esser.

The variables between mic selection, mic placement and preamps used are endless. Experience and understanding which preamp is best suited for a given application can save you time and frustration. In the pages that follow, we've provided charts with information on dozens of tube preamps for pro applications. A tube mic preamp may provide the clarity you have always dreamed about, or it can serve as the sonic paintbrush in the trenches of tracking. Happy hunting. ■

Tony wishes to thank Dale Epperson for his help with this feature. Tony is a daddy to Brooklyn and Luc, and a husband, engineer, educator and writer.

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TUBE MIC PREAMPS

Product/Website	Channels	Polarity Reverse	Pad	Analog I/O	Digital Out (max sample rate)	Meters Type	Extras	Price (USD)
A-Designs MP-1A www.audiosigns.com	1	yes	20 dB	XLR I/O, DI	none	VU	Tone switches offer four variations	\$1,825
A-Designs MP-2A	2	yes	20 dB	XLR I/O, DI	none	VU	Tone switches offer four variations	\$2,695
Alto Alpha MICube www.altoaudio.com	2	yes	20dB	XLR & TS I/O, DI	none	LED output	drive control	\$119
Aphex Systems 207D www.aphex.com	2	yes	20 dB	XLR & TRS I/O, TRS insert, DI	AES/EBU, S/PDIF (96 kHz)	LED output	70Hz HP filter, miclim circuit	\$599
Aphex Systems 1100 MkII	2	yes	20 dB	XLR I/O, TRS insert, DI	AES/EBU, S/PDIF co-ax/optical (96 kHz)	LED output	Variable HP filter, miclim circuit	\$2,495
ART Tube MP www.artproaudio.com	1	yes	20 dB	XLR & TS I/O, DI	none	none		\$55
ART Tube MP Studio V3	1	yes	20 dB	XLR & TS I/O, DI	none	Output VU	Variable valve voicing, OPL output protection limiting	\$89
ART Tube MP Project Series	1	yes	20 dB	XLR & TS I/O, DI	none	Input gain LED	Impedance switch, HP filter, limiter	\$89
ART Tube MP Project Series W/USB	1	yes	20 dB	XLR & TS I/O, DI	USB 1.1 & 2.0 (16-bit/48 kHz)	Input gain LED	Low/Hi-Z switch, HP filter, switchable FET limiter	\$129
ART TPS II	2	yes	20 dB	XLR I/O, TRS input, TS out, DI	none	Input LED, Output VU	Variable valve voicing, output protection limiting, variable impedance	\$229
ART DPS II	2	yes	20 dB	XLR I/O, TRS in, TS out, TRS inserts, DI	S/PDIF optical or ADAT, (96 kHz)	Input LED, output VU	Variable valve voicing, output protection limiting, variable impedance	\$329
ART MPA Gold	2	yes	20 dB	XLR I/O, 1/4" TRS out, DI	none	Output VU, tube warmth LED	Variable impedance, HP filter, plate voltage switch	\$379
ART Digital MPA	2	yes	20 dB	XLR I/O, TRS out, TRS inserts, DI	AES/EBU, S/PDIF co-ax/opt & ADAT (192 kHz)	Tube/output level VU A/O level LED	Variable impedance, HP filter, plate voltage switch, dithering capable	\$539
ART TubeFire 8	8	yes	10 dB	Combo XLR-1/4" ins, TS outs, DI	FireWire 400 (96 kHz)	Output LED	HP filter, Mac/PC interface, headphone out	\$669
Behringer Tube Ultragain T1953 www.behringer.com	2	yes	none	XLR & TRS I/O, DI	none	Output VU, tube warmth VU	Variable HP filter, warmth control	\$189.99
Behringer Tube Ultragain MIC20G	1	yes	20 dB	XLR & TRS I/O, DI	none	Output LED	HP filter, 16 preamp voicings, limiter	\$64.99
Behringer Tube Ultragain Mic100	1	yes	20 dB	XLR & TRS I/O, DI	none	Output LED	Output limiter	\$49.99
Bellari MP105 www.rollis.com	1	yes	20 dB	XLR & TS I/O, DI	none	none	Easy tube access for replacement	\$150
Bellari RP220	2	yes	30 dB	XLR I/O, TS out, DI	none	Output LED		\$500
Blue Microphones Robbie The Mic Pre www.bluemic.com	1	yes	20 dB	XLR I/O, DI	none	none		\$1,299
dbx 386 www.dbx.com	2	yes	20 dB	XLR & TRS I/O, TRS insert, DI	AES/EBU, S/PDIF (96 kHz)	Output LED	75Hz HP filter, selectable dither/noise shaping	\$599.95
Demeter VTMP-2C www.demeteramps.com	2	yes	20 dB	XLR I/O, TRS & TS out, DI	none	Output LED	Jensen input xformer, 6-12 dB/octave HP filter	\$2,599
Demeter HXM-1	2	yes	20 dB	XLR & TRS I/O, DI	none	Output LED	200Hz HP filter, Jensen input xformer	\$1,599
D.W. Fearn VT-1 www.dwfearn.com	1	yes	20 dB	XLR I/O, line-level input optional	none	Output VU	Jensen I/O xformers, impedance switch	\$2,400
D.W. Fearn VT-2	2	yes	20 dB	XLR I/O, line-level input optional	none	Output VU	Jensen I/O xformers, impedance switch	\$3,900
EAR 824M www.independentaudi.com	2	none	10 dB	XLR I/O	none	none	M/S decoder, optional 130V phantom	\$7,099
Groove Tubes SuPRE www.groovetubes.com	2	yes	15/30 dB	XLR & TRS I/O, DI	none	Output VU	75Hz HP filter, impedance switching, xformer I/O	\$1,999
Groove Tubes ViPRE	1	yes	none	XLR & TRS I/O, DI	none	Output VU	100Hz HP filter, variable impedance	\$3,499
Groove Tubes The Brick	1	none	none	XLR I/O, DI	none	none	I/O xformers, ground lift	\$499
Hamplone HVT2 www.hamplone.com	2	yes	14-24 dB	XLR I/O, DI	none	none	*Available assembled (\$1,099) or as \$799 kit	* see note
LaChapell Audio 583s www.lachapellaudio.com	1	yes	20 dB	500 series form-factor socket, DI	none	none	CineMag or Jensen input xformer option	\$1,249
LaChapell Audio 992EG	2	yes	20 dB	XLR I/O, DI	none	Output VU	Jensen I/O xformer	\$3,900
LaChapell Audio 992TLS	2	yes	20 dB	XLR I/O, DI	none	Output VU	Transformer-less balanced differential input	\$3,500
Manley TNT www.manleylabs.com	2	yes	none	XLR I/O, TS out, DI	none	none	Tube and non-tube preamp in one rack, impedance switch, 80Hz HP filter	\$3,000
Manley Mono Mic Pre	1	yes	none	XLR I/O, TS out, DI	none	none	Feedback/gain adjusts in 5 dB steps	\$1,600
Manley Dual Mono Mic Pre	2	yes	none	XLR I/O, TS out, DI	none	none	Feedback/gain adjusts in 5 dB steps	\$2,400
Mercury M72s www.mercuryrecordingequipment.com	2	yes	16/28 dB	XLR I/O, DI	none	none	I/O xformers	\$3,500
Mercury M72s/1	1	yes	16/28 dB	XLR I/O, DI	none	none	I/O xformers	\$1,900
Mercury M76m	2	yes	10 dB	XLR I/O, DI	none	none	High voltage Class-A design, impedance switch, I/O xformers	\$5,000
Mercury M76m/1	1	yes	10 dB	XLR I/O, DI	none	none	Impedance switch, I/O xformers	\$2,500
Milennia Media M-2b www.milenniamedia.com	2	yes	none	XLR I/O	none	none	130V phantom option	\$3,649
Pendulum Audio MDP-1 www.pendulumaudio.com	2	yes	20 dB	XLR & TS I/O, DI	none	VU output/gain	20-180 Hz HP filter	\$2,495
Presonus ADL 600 www.presonus.com	2	yes	20 dB	XLR I/O, DI	none	Output VU, output LED	Variable mic impedance, 40/80/120 Hz HP filter	\$2,295.95
Presonus BlueTube DP	2	yes	20 dB	XLR & 1/4" in, XLR & TS out, DI	none	Input level VU	Dual path (tube/solid state) gain stage, 80Hz HP filter, tube drive control	\$229.95
Presonus TubePRE	1	yes	20 dB	XLR & TS I/O, DI	none	Input level VU	80Hz HP filter, tube drive control	\$129.95
SPL GoldMike MK2 www.spl-usa.com	2	yes	20 dB	XLR I/O, TS in, TRS inserts, TRS outs, DI	optional (96 kHz)	Internal gain VU	Hybrid solid-state/tube design, Lundahl xformer opt., 50Hz HP filter, limiter	\$1,649
SPL GainStation 1	1	yes	none	XLR I/O, TRS out, DI	optional (96 kHz)	none	Class-A 60-volt op amps, opt. Lundahl xformers, impedance switch, 50Hz HP filter, limiter	\$1,449
SPL GainStation 8	8	yes	none	XLR I/O, TRS out, DI	none	Output LED	Class-A 60-volt op amps, opt. Lundahl xformers, 50Hz HP filter, impedance switch, limiter	\$7,999
Studio Projects VTB1 www.studioprojects.com	1	yes	none	XLR I/O, TRS out, TRS inserts, DI	none	LED output/gain	75Hz HP filter, solid-state/tube blend control	\$219
Summit Audio TPA-200B www.summitaudio.com	2	yes	15/25 dB	XLR I/O, TRS out, DI	none	none	Jensen input xformer	\$2,790
Summit Audio 2BA-221	1	yes	20 dB	XLR & TRS I/O, TRS inserts, DI	none	Tube output LED	Variable HP filter & mic impedance	\$695
Sytek MPT-1 www.sytek-audio-systems.com	1	yes	20dB	XLR I/O	none	none		\$2,780
Thermionic Culture The Earlybird 1.2 www.thermioniculture.com	2	yes	20 dB	XLR I/O, DI	none	Output VU	Switchable HP filter & input impedance, balanced push-pull all valve circuit	\$3,550
TL Audio A1 www.tludio.co.uk	2	yes	30 dB	XLR I/O, DI	optional (96 kHz)	VU output/GR	100dB switch for DAW metering	\$1,085
TL Audio PA-1	2	yes	±12dB variable	XLR I/O, TS out, DI	none	Drive LED, output VU	Switchable HP and LP filters	\$1,735
TL Audio 5001 Quad Valve Preamp	4	yes	30 dB	XLR I/O, TS out, DI	optional (48 kHz)	Drive LED, output LED	90Hz HP filter	\$1,079
Tube Tech MP-1A	2	none	20 dB	XLR I/O, DI	none	none	20/40 Hz HP filter	\$3,025
Universal Audio Solo 610 www.uaudio.com	1	yes	none	XLR I/O, DI	none	none	100Hz HP filter, switchable impedance	\$949
Universal Audio 2-610	2	yes	15 dB	XLR I/O, DI	none	none	Switchable mic impedance, low/high shelving EQ	\$2,399

Note: All offer phantom powering.

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TUBE MIC CHANNEL STRIPS

Product/Website	Channels	Polarity Reverse	Pad	Analog I/O	Digital I/O (max sample rate)	Meter Type	EQ	Compressor	Extras	Price (USD)
Aphex Systems 230 Master Voice www.aphex.com	1	yes	20 dB	XLR I/O, TRS out, DI	AES/EBU, S/PDIF (co-ax and opt) outs	LED output/GR	Parametric, 70 Hz HP filter, Big Bottom EQ	yes	Aural Exciter, gate, de-esser, insert	\$799
ART Tube PAC www.artproaudio.com	1	yes	20 dB	XLR & TS I/O, DI	none	LED GR, LED tube drive	none	yes (opto-tube)		\$159
ART Pro Channel	1	yes	20 dB	XLR & TS I/O, 1/4" inserts, DI	none	VU output, LED tube character/GR	Parametric, variable HP filter	yes (variable MU/opto)	Two inserts between comp and EQ	\$390
Avalon VT-737sp www.avalondesign.com	1	yes	10 dB	XLR I/O, DI	none	VU output/GR	30-140Hz HP filter, 4-band shelf EQ with peak mids	Optical w/stereo link input	Xformer input	\$2,500
Behringer Ultragain Pro MIC2200 www.behringer.com	2	yes	none	XLR & TRS I/O, DI	none	LED output	Parametric, variable HP filter	none		\$129.99
Bellari RP533 www.rolls.com	1	yes	30 dB	XLR & TS I/O, sidechain, DI	none	VU output/GR	LF & HF Exciter	yes	Input transformer	\$700
dbx 376 www.dbxpro.com	1	yes	20 dB	XLR & 1/4" I/O, TRS insert, DI	AES/EBU, S/PDIF (96 kHz)	LED output, LED drive, LED GR	3 band parametric, 75Hz HP filter	yes Overeasy setting	Selectable di/ter/noise shaping algorithms, de-esser	\$599.95
D W Fearn VT-15 www.dwfearn.com	1	yes	20 dB	XLR I/O, DI	none	VU output/GR	LF & HF boost/cut, HF boost with variable Q	Same as VT-7 compressor, HP filter in sidechain	Jensen I/O transformers, Lo-Z input switch	\$4,950
Drawmer 1960 www.drawmer.com	2	none	none	XLR I/O, TRS inserts, line/DI input	none	VU output/GR, LED source into comp	50/100 Hz HP filter, 40Hz LF EQ, 16kHz HF EQ, 2kHz Bright switch	Soft-knee w/stereo link	Aux input can route into comp, sidechain listen	\$2,999
Drawmer 1969 Mercenary Edition	2	yes	none	XLR I/O, TRS inserts, line/DI input	none	VU output/GR, LED source into comp	50/100 Hz HP filter, 40Hz LF EQ, 16kHz HF EQ, 2kHz Bright switch	Soft-knee w/stereo link, "Big" switch puts 100 Hz in detector path	Aux input can route into comp, sidechain listen	\$3,525
Manley Mic/EQ 500 Combo www.manleylabs.com	1	yes	none	XLR I/O	none	VU output	LF shelf/peak, HF shelf/peak	none	EQ switchable to mic, pre or line input	\$2,900
Manley VoxBox	1	yes	none	XLR & TS I/O, XLR & TS insert, XLR & TS EO out, stereo link	none	VU 5-way switchable (line in, pre out, main out, GR, de-ess)	80/120 Hz HP filter, 3-band passive Pultec MEQ	Opto-isolator approach of the ELOP Limiter, link switch	Feedback/gain adjusts in 5 dB steps from 40-60 dB, de-esser	\$4,000
Manley SLAM	1	yes	none	XLR input, TRS out, TS out, banlam jack limiter inserts, link jacks, DI	192kHz AES/EBU I/O option	VU switchable (in/out/opto GR), LED switchable (in/out/FET GR)	100 Hz HP filter	Independent opto & FET limiters, HP filter for opto sidechain	Switchable DAC/ADC filters	\$6,600
Millennia Media STT-1 www.mil-media.com	1	yes	none	XLR I/O, TRS input, XLR & TS out, pre-processor XLR out, sidechain, DI	none	VU output/GR	N5EQ four-band parametric EQ	TCL opto comp/limiter	Twin topology with solid state or tube pre/DI, de-esser	\$3,149
Pendulum Audio Quartet www.pendulumaudio.com	1	yes	20 dB	XLR I/O, TS out, 1/4" I/O for EQ/comp, stereo link (comp), DI	none	VU output/GR	75/100Hz HP filter, 3-band EO with shelf LF/HF and peaking MF	Opto comp (OCL-2) with proprietary optoelectronic cell	De-esser, switchable xformer balanced main output	\$3,250
Pendulum Audio Quartet II Mercenary Edition	1	yes	20 dB	XLR I/O, TS out, 1/4" I/O for EQ/comp, stereo link (comp), DI, 1/4" mic/DI insert	none	VU output/GR, LED limiter ceiling	75/100 Hz HP filter, passive EQ with HF peak, MF dip and LF boost/cut	Delta-mu (ES-8) with sidechain mode, brickwall limiter with JFET or MOS-FET mode	Switchable mic input transformers, variable mic impedance	\$5,250
Requisite PAL Plus www.requisiteaudio.com	1	none	20 dB	XLR I/O, XLR line in, stereo link (limiter), DI	none	VU output/GR	none	L1 optical limiter	Negative feedback adjust in mic/DI gain stage	\$3,000
Samson C-Valve www.samson-tech.com	1	yes	none	XLR in, 1/4" inserts, TRS out, TRS link jacks, DI	S/PDIF out (96 kHz)	VU output, LED input	18-300 Hz HP filter, 10kHz shelf vocal EQ	Switchable auto limiter	Saturation control	\$124.99
SM Pro Audio TB101 www.smpaudio.com	1	yes	20 dB	XLR & TRS I/O, DI	none	LED output	3-band shelf EQ (80/1.8k/8k Hz)	Optical compressor	Half-rackspace	\$199
SM Pro TB202	2	yes	20 dB	XLR & TRS I/O, DI	none	LED output	3-band shelf EQ (80/1.8k/8k Hz)	Optical compressor		\$319
SM Pro TC01	1	yes	20 dB	XLR & TRS I/O, DI	none	VU output	80 Hz HP filter	Optical compressor		\$259
SM Pro TC02	2	yes	20 dB	XLR & TRS I/O, DI	none	VU output	80 Hz HP filter	Optical compressor		\$349
SPL Channel One www.spl-usa.com	1	yes	none	XLR & TRS I/O, TRS inserts, TRS A/D input, headphone monitor in/out, DI	AD/DA option (96 kHz)	LED PPM output, LED GR	50Hz HP filter, 3-band EO w/17.5kHz air band	Soft-knee compressor, limiter, switch	De-esser, gate, distortion, headphone monitor section, Lundahl xformer option	\$1,699
Summit Audio MPC-100A www.summitaudio.com	1	yes	20 dB	XLR I/O, 1/4" TRS out, TRS sidechain, stereo link, DI	none	VU output/GR	none	none	Jensen input xformer, variable impedance	\$2,290
Thermionic Culture The Earlybird 2.2 www.thermioniculture.com	2	yes	none	XLR I/O (mic and line), direct XLR in to Pultec EQ	none	VU output	40/100/800 Hz HP filter, 3-band EO, 60/100 Hz LF, 800/2.8k Hz MF, 10 kHz HF	none	Switchable impedance	\$4,550
TL Audio A3 www.tludio.co.uk	2	yes	30 dB	XLR I/O, 1/4" inserts, DI	96kHz A/D option	VU output/GR, +10 dB switch for DAW metering	90Hz HP filter, 3-band sweep mid EQ	Comp with knee control	Variable tube drive	\$1,299
TL Audio VP-1	1	yes	30 dB	XLR & TS I/O, TRS insert, DI	96kHz A/D option	VU input/output/GR, LED digital out, LED gate GR, LED de-ess GR	25-1k Hz HP filter, 4-band EO with parametric mid bands	Comp with transconductance and optical modes	De-esser, expander/gate	\$3,255
TL Audio 5050	1	none	30 dB	XLR I/O, TS out, DI	48kHz A/D option	LED output, LED GR	HP filter @ 90 Hz	Transconductance amplifier, knee control		\$699
TL Audio 5051	1	none	30 dB	XLR & TS I/O, TRS insert, 1/4" link, DI	48kHz A/D option	VU input/output/GR, LED Drive	90Hz HP filter, 4 band EO with peaking MF bands	Transconductance amplifier, knee control	Optical gate	\$1,079
TL Audio 5052	2	yes	30 dB	XLR I/O (mic and line), TS I/O, TRS insert, stereo link, DI	48kHz A/D option	VU input/output/GR, LED Drive, +10dB DAW metering switch	90Hz HP filter, 4-band EO with peaking MF bands, EO can feed sidechain	Transconductance amplifier, knee control, peak limiter after output level control	Comp/EQ/limiter sections can operate dual mono or stereo linked	\$2,599
Tube-Tech MEC 1A www.tube-tech.com	1	yes	20 dB	XLR I/O, sidechain jacks, DI	none	VU output/GR	20/40Hz HP filter, EQ 1A 3-band equalizer with peaking MF	CL 1B comp is pre-EQ capable stereo link input		\$4,400
Tube-Tech MMC 1A	1	yes	20 dB	XLR I/O, DI	none	Gain reduction segment LED	Switchable HP filter (20/40 Hz)	3-band optical comp with variable x-over	Switchable impedance (600/1200/2400 ohms)	\$4,400
Universal Audio 6176 www.uaudio.com	1	yes	15 dB	XLR (mic/line) I/O, direct XLR I/O to 1176L, DI	none	VU preamp out/1176LN GR/1176LN out	Shelf LF and HF	1176LN FET limiter with British Mode control	Switchable mic and Hi-Z input impedance, preamp and limiter can be used separately	\$2,899
Universal Audio LA-610	1	yes	15 dB	XLR (mic/line) I/O	none	VU preamp out/ comp/ GR/output	Shelf LF and HF	Teletronix LA-2A-style T4 opto compressor	Switchable mic, preamp and limiter can be used separately	\$1,749

Note: All offer phantom powering.

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(Green Day, Kid Rock, My Chemical Romance)

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Studio 401

Andy Scott Builds a Home for Local Artists, Indie Labels

Drummer Andy Scott has built a thriving studio business during the past 10 years in large part by capturing a wide variety of music from local indie artists and bands, many of whom are decidedly noncommercial. His Studio 401 (www.thestudio401.com) in San Francisco hosts an eclectic clientele that directly reflects the cultural diversity and adventurous creativity of the surrounding San Francisco Bay Area.

Scott records, mixes and masters live and studio projects that range from rock, blues, jazz and Latin jazz to avant-garde and improvisational music performed on homemade instruments. "I do everything, from classical to hip hop to spoken word," he says. One of Scott's key clients is local indie label Edgetone Records, founded by experimental jazz saxophonist Rent Romus. "I think I've recorded 10 of his artists in the last year," Scott remembers. "It's great for a studio to work with record companies. Everything is about the relationships you build with people and companies."

Scott brought his family to San Francisco from England in late 1980, intending to stay for one year, but instead planted new roots. "I was involved with that whole world-beat boom in the '80s here in the Bay Area," he says. "I played with a band called The Rhyth-o-Matics." Scott originally purchased recording gear to evaluate his own drumming. "I had one of those [Tascam] Portastudios first, and then a DAT recorder and a Mackie 1604 mixer," he says. He then began recording his bands, and before long other musicians approached him with projects. "Then I started recording gigs on a [Sony] MiniDisc," he says. "Over time, the gear evolved with the need."

Scott's studio expanded into his 12x11-foot garage and other rooms on his property. "We opened up as much space as we could grab downstairs," he says. "It's not a completely floated type of studio, but we did a lot of work with insulating the walls and ceilings, and built in a floor." Studio 401 includes an 11x10-foot control room with a wooden floor and a 15x9-foot carpeted tracking space that includes a vocal booth. "I have Auralex foam and diffusers, and some bass trapping in the control room." Scott uses Auralex's mobile Max-Wall panels and gobos for isolation, and distributes headphone mixes with a Furman system. An upright acoustic piano resides in an 11x11-foot upstairs room. "We've recorded [the piano] by dropping a snake down and sending a headphone feed up there. I also have a video production area sectioned off the garage.

"The studio has lots of natural light," he continues. "We have a window that looks out over the backyard—people can go out there and relax between takes. We have a nice lounge upstairs, too, with a big-screen TV." For convenience, Scott keeps a number of instruments

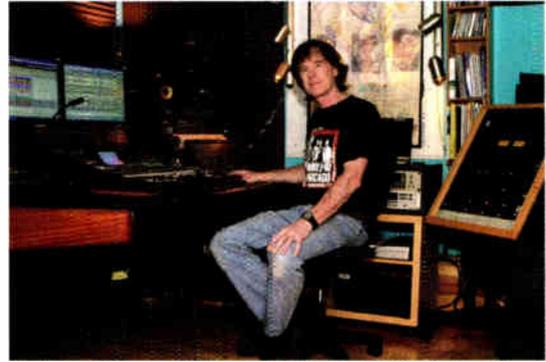


PHOTO: PAULINE CROWHER-SCOTT

Studio 401 is rapidly expanding thanks to personal referrals from clients, a full range of services and a comfortable atmosphere.

in-house, including Gretsch and Sonor drum sets, various percussion instruments, a Fender Precision Bass and an Alesis QS8 keyboard synth.

Studio 401 is based around a custom-built PC that houses two TC Electronic PowerCore cards and runs a Digidesign Pro Tools HDI system fed by 96 I/O and 888/24 audio interfaces. Scott patches all audio through his Yamaha 02R96 digital mixer and uses it as a control surface for Pro Tools software. He monitors with Mackie HR824s and KRK V4s, and his ample microphone collection comprises models from Neumann, RØDE, AKG, Audio-Technica, Audix, Shure and Sennheiser. As for outboard gear, Scott often relies on his True Systems Precision 8 mic preamp, ART PRO VLA tube compressor and TC Electronic M3000 reverb unit, and regards the SPL Transient Designer as his secret weapon for sculpting drum sounds.

The mastering side of Scott's business has likewise grown organically. "I've had more people coming to me needing projects to be finished off," he says. "When I'm mastering, I try to listen as a musician." Scott masters in Steinberg's WaveLab and uses both hardware and software, including Waves Diamond Suite plug-ins, Sonnox Oxford plug-ins, Waves L2 Ultramaximizer and dbx Quantum digital mastering processor. "If I get what I need in the box, I'm fine; if not, I'll patch it out to the [Sonnox] Transient Modulator [plug-in] or the Transient Designer."

Studio 401's operation has become more of a family affair in recent years. Scott's son, Jody, a trumpet player in Bay Area hip hop band Bayonics, is his assistant engineer, while daughter Chloe contributes as a flutist, composer and arranger. Above all, Scott felt that establishing a good working atmosphere was essential to his success. "The whole recording thing can be so stressful," he says. "The most important thing for me is that you feel good about being here and get on with the music." ■

Matt Gallagher is an assistant editor at Mix.

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ON THE MAP

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Live Sound Special



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Billy Joel



Photos and Text by Steve Jennings

Following an extended North American tour last year, piano man Billy Joel made a few select stops across the U.S., including Oakland, Calif.'s Oracle Arena, where *Mix* caught up with the artist and crew. Front-of-house engineer Brian Ruggles, who's been working with Joel for the past 35 years, is mixing on a Harrison/Showco Showconsole, using built-in dynamics. "I chose to use this board for its rich analog sound quality and the fact its two work surfaces can accommodate a total of 80 inputs. I like

certain digital consoles like the Digidesign, but there's a certain warmth I like with analog." Ruggles' slimmed-down outboard rack houses a TC Electronic TC 2290 and TC 5000, Lexicon PCM70 and Eventide Harmonizer.

Monitor engineer Mike Pirich is also manning a Showconsole, using somewhere in the vicinity of 70 inputs. Rack gear includes Dolby Lake Processor, Yamaha SPX990s, Drawmer DS201s and Summit DCL-200s. Joel sings through a Shure SM58 and is on Sensaphonics in-ears; all the musicians who play upstage of Joel are using 2XS models. "As for Billy's keyboard setup, that is completely top-secret info!" Pirich declares. "No, it's really a Kurzweil keyboard and PCI sound module. All the patch changes are done by Billy's longtime assistant, Wayne Williams."

The Clair Bros. P.A. comprises 14 i1s and 12 i4Bs per side, eight i4s and eight i4Bs per side (sidefill), eight i3s a side for rear-fill, four R-4 under the stage (front-fill), four S-4 subs side with four P-2 speakers/side on top of the subs.

Both engineers send special thanks to the rest of their crew, including Cliff Downey, Craig "Sprout" Robertson, Tony Rossi and Josh Weibel.



Left: Brian Ruggles with Billy Joel. Right: Mike Pirich.

FixIt

Front-of-house engineer Kirk "Eek" Shreiner has mixed for Mötley Crüe and is currently out with Maroon 5.

I have been working for Clair/Showco for 19 years and have been touring for the last 15 years. When I became a system engineer, I got to work with some of the best FOH engineers in the business, so I took in a lot of good and bad info. It was cool to be able to A/B these guys. Now that I'm starting to mix at FOH, I'm putting it to good use. First, you need good gain structure. I saw so many opening-band mixers with bad gain structure that couldn't keep their mix together. Also, when EQ'ing an empty room, don't overdo it. When people get in the room, your sound will change, mostly for the better. Always make sure your delay times are right between the P.A., front-fill and subs; after that, I delay everything back to the loudest thing onstage. Lastly, use your ears; use your computer as a tool.



PHOTO: JULIA BURKE

Now Playing

Velvet Revolver
Sound Company: Eighth Day Sound (Highland Heights, Ohio)
FOH Engineer/Board: Toby Francis/Digidesign VENUE



Monitor Engineers/Board: Andy Ebert and Clay Hudston/Digidesign VENUE
P.A./Amps: L-Acoustics V-DOSC, dV-DOSC; d&b audiotechnik J Sub, B2/Lab gruppen, d&b audiotechnik
Monitors: d&b audiotechnik M2
Microphones: Heil Sound PR 30, PR 20, PR 40
Additional Crew: Michael Mordente, Chris Messina

News



At this year's Big Chill (UK) music festival, visiting engineer Jim Carmichael (mixing New Young Pony's Club) manned a DiGiCo board. Dobson Sound Productions supplied the gear.

Aired live in surround sound, the 2007 Country Music Awards saw microphones supplied by Audio-Technica and Shure. The audioteam comprised audio producer Tom Davis, audio coordinator Michael Abbott, production mixer Michael Davis, front-of-house engineers Patrick Baltzell and Rick Shimer; sound system provided by ATK/Audiotek (backline gear and wireless guitar systems by Soundcheck Nashville), and XM Productions/Effanel Music (remote recording) with mixers John Harris and Jay Vicari...A new Soundcraft Vi6 has been installed at The Barns at Wolf Trap for the winter concert season. The audio system at the 382-seat indoor venue was revamped in 2005 with a JBL VerTec line array system, Crown amplifiers, BSS Audio Omnidrive processing and AKG microphones...At the SoCo Music Experience (Madison, WI), Technotrix provided full production and lighting, bringing in Martin Audio speakers, Yamaha consoles and XTA processing...FOH engineer Eddie Mapp is relying on a PreSonus DigiMax FS for surround sound mics on the current Evanescence tour.



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PHOTOS: DAVID WAIN

On the Road

Voodoo Music Festival

Following a succession of successful summer festivals, the Voodoo Music Festival (October 26-28, 2007) celebrated the best of New Orleans' musicians. This year's lineup included such heavy-bitters as Rage Against the Machine, Ben Harper & The Innocent Criminals, Smashing Pumpkins and many others. Mix caught up with Wilco's front-of-house engineer, Stan Doty.

How much gear are you carrying for this tour?

Wilco had just ended a three-week tour. For Voodoo, I looked to see if there was enough P.A., a top-quality mixer, comps and effects. Voodoo is a top-notch festival, so I usually use what they are supplying. That being said, Clair Bros. [the production company for Voodoo] are the best and fine-tune the specs to handle all the bands.

Do you have to change your mixing style from a regular tour to a festival situation?

Mixing style, no. A good sound engineer should try to achieve the same representation for the band they are with every night. Now, each festival is different. At Voodoo, I did a tap-through of the 36 channels I use because we had an hour set change. With an hour set change, I have more than enough time to check each line and gain structure, and dialing in the inserts are very important.

Do you have a specific mixing technique for Wilco?

I bring my overheads in close. I like to time-align my overheads, my crotals and my audience mics for live recording. It helps the stereo effect as you try to find space in the mix.

Where can we find you when you're not on the road?

I'm currently the owner of a couple of nightclubs (located 80 miles outside of Chicago). So when I'm home, I'm at the clubs, either mixing, managing or fixing something.

P.A. Showcase at ET Live!

ET Live!, held during the LDI 2007 conference (November 16-18, 2007) in Orlando, employed six P.A. systems and requisite concert gear (including front-of-house and monitor consoles, processing, amps, etc.). Here are some highlights from what we saw—and heard—with the SPL clocking to 110 dB at some points during the performances by local bands.

Making big news was EAW, with its public debut of the NTL 720 system, code-named BLAM for "baby line array module." It's a three-way self-powered enclosure, a true hybrid approach combining Guinness Focusing user-controlled DSP and elements from the KF900 and KF730 technology. Dave Rat (of Rat Sound, pictured) mixed Led Zeppelin tribute band Physical Graffiti on the new UMX.96 digital console, his first foray into digital mixing.

"I was involved early on with some of the consulting on its design; actually, in the mid-stages," Rat recalls. "So I became somewhat familiar with it. As far as features, I tend not to be a big digital console fan; I'm a hard-sell. On the other hand, it's got a fairly analog layout. I do like the concept. One feature is the tactile knob with a motor in it with feedback for whatever you assign it to be. If it's the pan pot, it has a little center detent. If it's a volume pot, it clicks. It has end stops; I kind of like the idea of that. It allows you to take your eyes off the board and watch the band while you're controlling something."

At the QSC stage, Brian English was pulling double-duty as marketing guru and mixer. He experimented at the show with a "5.2" system, with the surround WL8s providing mostly ambience and a nice sweet spot. Up front in the center, the company flew the brand-new, compact WideLine 8s and thumped the low end with the new ultracompact WideLine double-18 sub. All power is from the new PowerLight 3 Series, meaning upward of 120,000 distributed watts. EtherSound, RAVE and CobraNet worked together, and English made a point to thank Allen & Heath for bringing out the new iLive I44 digital board for FOH and monitors.

Over at the Digidesign and d&b audiotechnik stage, front-of-house engineer Robert Scovill and monitor engineer Dave Skaff mixed the Latin Wave on



PHOTO: KEITH CLARK

Digidesign boards. Digidesign is also a relative newcomer to the field, though you'd never know it from the 700 VENUE consoles that are in use worldwide. Scovill took some of his allotted time following the performance to extol the virtues and introduce the possibilities of a plug-in-based architecture for the crowd around FOH. He introduced the Digidesign All Access bundle and the Waves Live bundle, and demonstrated the instant record/mix/playback capabilities. The benefits of running TDM natively on the VENUE DSP is said to reduce latency to as low as 20 microseconds, a single sample.

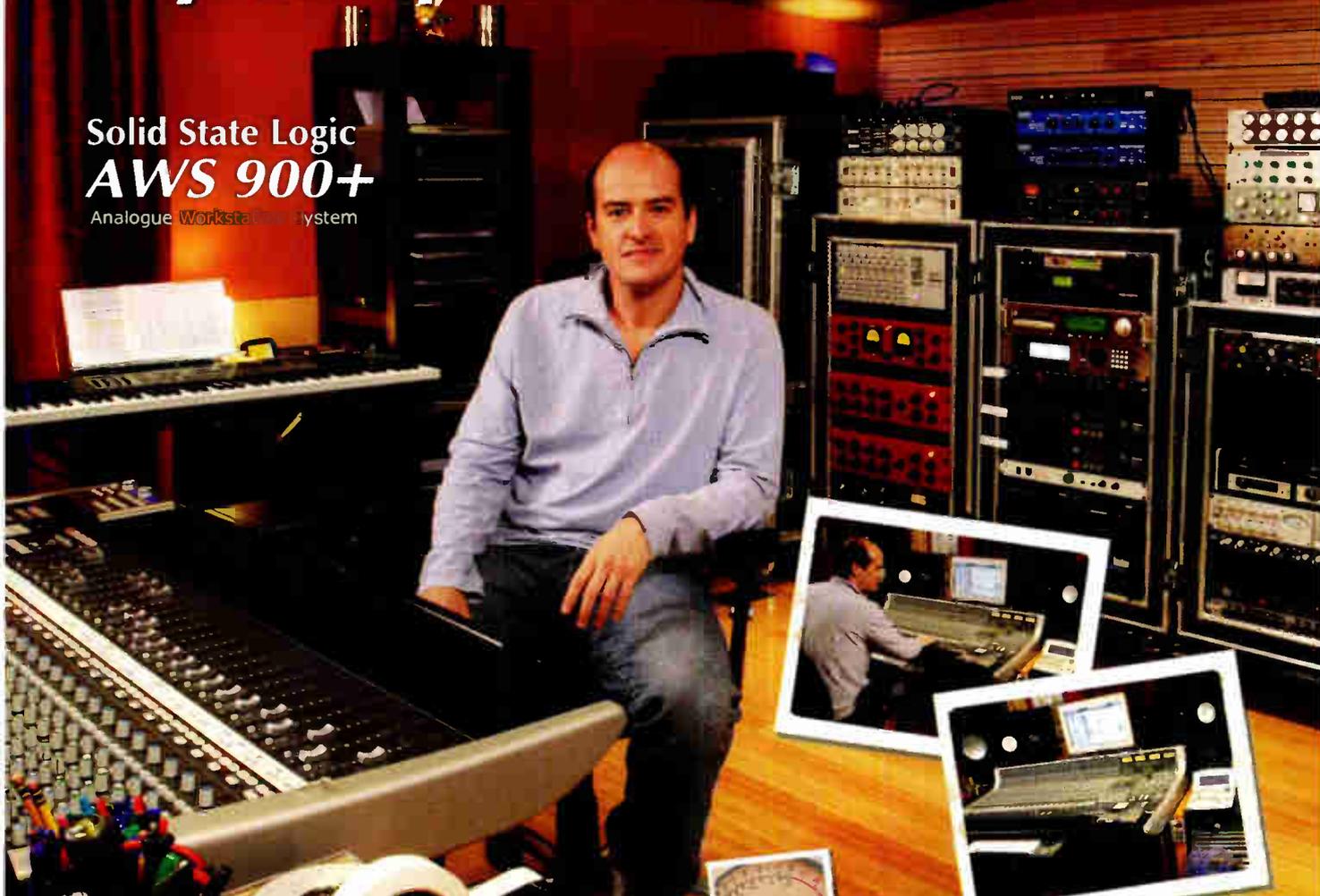
Scovill also spoke of the rapid acceptance of Digidesign gear to the live sound market, saying, "Live sound guys work with artists that know Pro Tools. For them, it almost becomes this little bridge to credibility with the artist. They feel comfortable. Add to that the engineers who get really well-versed in VENUE are driven to get well-versed in Pro Tools, and now you expand their visibility to the artist. Artists view them a little differently. We've had instances of engineers getting more work with a given artist because they have the Pro Tools background."

D.A.S. showed off its mid-sized line array, the ACN38A; the Three Forks Road band was mixed on a DiGiCo I D5 at FOH, with a DI at monitors. Relative P.A. manufacturer newcomer (at least to the States) Outline brought its Butterfly CDH43 line array. The band was mixed on a StageTec Aurus with fiber Nexus networking throughout.

For video interviews from ET Live!, visit mixonline.com/video. ■

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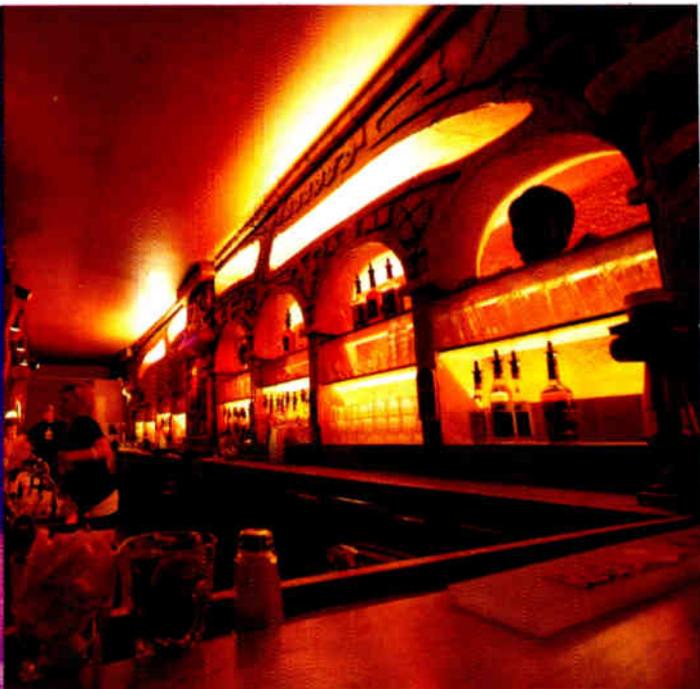
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Clubs Go Beyond the Stage



A recent performance at the Knitting Factory, Los Angeles



Patrons cozy up to LIVE's bar while waiting for the band to hit the stage.

With telltale white headphones dangling from our ears, for a while it appeared that download culture and video blogging might usurp live performance as the musician's primary means of interacting with audiences and introducing new material. But even as live music venues have struggled to survive in recent years, the emphasis is beginning to return for bands to get out and gig again, to build their careers on-stage rather than through record sales.

Almost ironically, it would seem that the Internet age has fueled a number of value-added services that fans love, artists and labels need and only live venues are positioned to deliver. For example, we've been seeing a lot of high-end clubs installing multitrack recording gear and HD video-capture systems to complement their standard mixing boards and P.A. systems.

DINNER AND A SHOW

Laguna Beach, Calif.'s Mozambique Steakhouse started to record audio and video of performances when the club first opened in August 2005. Owner Ivan Spiers wanted to capture any magical live events that would occur onstage, allowing his guests to experience the best of South African cuisine and enjoy great musicians like Bill

Recording, Streaming Support Next-Gen Business Model

Medley of the Righteous Brothers and vocalist, Rolling Stones sideman Blondie Chaplin.

From the comfortable perch of his well-stocked control room isolated just off from the stage, in-house audio/video engineer Tony Tin Nguyen simultaneously mixes audio and cuts live video in a one-man production effort.

Performances are first mixed through a Yamaha DM2000 console and sent to front of house, as well as directly to a Digidesign Pro Tools HD system for full multitrack audio recording. Four monitor and three in-ear mixes are sent to the stage while the Pro Tools mix is fed to Final Cut Pro 6, capturing audio to video for archiving and streaming to the Internet. Meanwhile, three Sony BRC-300/300P 3CCD color cameras capture HD video—controlled by a Sony RM-BR300 remote—and cut to three camera angles using a Sony DME switcher. An AJA Io box feeds the picture to Final Cut Pro where SATA drives provide more than 3 terabytes of nonlinear storage.

"The Pro Tools mix is also used to feed the live audio signal to private rooms and to the patio for a high-fidelity mix throughout the venue," says Nguyen, adding that the band can also be seen on any of the club's 10 LCD (17- to 60-inch) televisions.

Mozambique's total investment into a full-service live music production setup now tops the \$1 million mark, including all A/V equipment, major facility design and an impressive backline: Gretsch "Classic Series" drum kit, SWR bass rig/Goliath 4x10 cabinet with SWR Working Head, Steinway grand piano with original ivory keys, B3 organ with Leslie cabinet, Fender Twin Tweed reissue, Fender Deluxe amp, 62 original VOX amps and more.

According to Nguyen, though, the coolest acquisition that the club has made recently is Wirecast 3 HDV for its ability to stream live high-definition audio and video online, and at the same time to record iso views to hard disks for future use.

"Wirecast was actually used to stream



Mozambique's A/V engineer Tony Tin Nguyen (R) and owner Ivan Spiers

At LIVE, local bands can cut promos and other material from a performance.

the Live Earth Concert, which was the largest audience concert stream ever online, and is ideally what we want—to be able to stream to the masses online,” says Nguyen.

The vision and business angle of the club's rich and eclectic assortment of goodies came entirely from Spiers, a multifaceted businessman who owns Mozambique Records and Mozambique Studios. Also a musician, Spiers decided to give back to the musical community by creating an outlet for local and international band/artists to be able to come and play at a high-end, upscale venue.

Mozambique's isolated control room houses a Yamaha DM2000.



“We did allocate a large budget for entertainment, and the return would be that people would come from everywhere, from all walks of life, to experience fine dining and entertainment under one venue, making it an authentic place [to] visit,” says Nguyen. “And if they physically couldn't make it, they could be there online.”

Every show gets recorded and musical guests performing for their first time are given one live CD and a one-song DVD as a courtesy. Artists have the option to purchase their audio/video masters and/or edit the media with the club's production facilities. Currently, the recordings are being used only for marketing the entertainment at the Mozambique Steakhouse Website. The club does not sell the recordings, but is open to offering the right artist an opportunity to release their music on Spiers' record label.

“Being able to make a deal with certain band/artists with their media for distribution is another way of potentially generating revenue,” adds Nguyen.

REBIRTH OF A LEGEND

The bi-coastal Knitting Factory chain was actually a very early adopter of audio-visual-capture technologies. Dating back to the late 1990s, the company produced a television series called *Live at the Knitting Factory*, spotlighting its flagship New York City club's earlier focus on avant-garde and jazz music. At the turn of the millennium, a Los Angeles venue was built from the ground up with a central A/V recording and control hub windowing out into three performance spaces, capable of doing automated shoots of each. But when Jared Hoffman joined Knitting Factory Entertainment as president and CEO in 2002, the company had strayed into the sale of multimedia and was in turmoil.

“This was a classic situation of an organization losing track of its core competencies,” Hoffman recalls. “As a club, we are a great place to aggregate live content, but we are a very bad place to try and get involved into the rights chain that relates to that content, in that there is a web of publishers, labels, artists and various interests that own and control the rights.”

Drawing on his past experience in dealing with and securing rights—as owner of Instinct Records and the man responsible for signing Moby—Hoffman recognized

"Acoustic music has never sounded so good"

~ Jerry Douglas

Whether you play a jumbo, dreadnaught, dobro or triple-0, the tone going from your guitar to the PA system depends entirely on every component along the way. And your DI box is the most important component of all: It takes the guitar signal, converts the impedance from hi-Z to low-Z, balances the line and then drives it hundreds of feet to the mixing console.

An active direct box like the Radial J48 is in fact an instrument preamplifier. And like studio mic preamps, the quality varies. But what actually makes a great direct box? Simple: If you take the time to design the circuitry so that you get the lowest harmonic distortion, virtually zero phase-shift, reduced inter-modulation distortion and then provide sufficient headroom so that even the loudest guitar will not choke the input stage, a funny thing happens... It sounds better.

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(FOH engineer - Paul Simon, AC/DC, Paul McCartney)

"I'm really happy... I replaced my old DI's and found the J48's to have more output and less coloration. Acoustic music has never sounded so good."

Jerry Douglas
(Alison Krauss & Union Station, 12-time Grammy winner)

"I thought Radials only worked on cars, but since my sound man hooked them up to my guitar, I like them even better. Great clear and pure sound!"

Phil Keaggy
(world renowned guitarist/performer)

"It is nice to find great sounding industrial grade equipment still being made today!"

Daniel Lanois
(U2, Robbie Robertson, Bob Dylan, Peter Gabriel)

"Over the past 13 years I have used a variety of DI boxes. The Radial J48 is without a doubt the best, cleanest and most versatile DI I've ever used."

Paul Richards
(California Guitar Trio)

"With a Radial DI, the difference is surprising and dramatic. The sound is punchy, warm, solid and accurate. There's no going back!"

David Oakes
(Front of House engineer - Pat Metheny group)

"When it comes to sonic integrity, nothing touches Radial. Great gear built by great guys."

Steve Stevens
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The Radial J48 active DI employs a unique digital switching power supply to maximize headroom. (Like having a turbocharged 500 horsepower engine in a luxury sedan). More headroom means more signal, less noise and less distortion. This ensures the natural tone, dynamics and feel of your guitar is delivered without artifact. To get the full story, visit our web site and check out the Radial Blue Report. It compares the Radial J48 with other popular DIs. The results are clear — the Radial J48 outperforms them all.



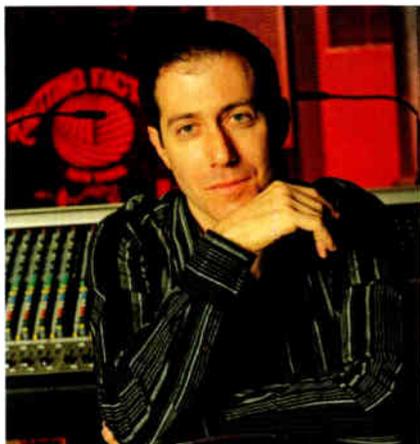
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Clubs Go Beyond the Stage

instead that the clubs could perform a very important function and service for artists and labels.

So in the fall of 2006, a new technological division was launched, and Knitting Factory Digital Services (KFDS) began specifying out state-of-the-art HD video-capture systems for both venues. The installs went live in June of 2007, and include some of the first pieces to come out of Sony's manufacturing plant that allow a single operator to



Jared Hoffman of Knitting Factory Entertainment

automate and capture up to a seven-camera modular shoot.

"Obviously, because we can install a very sophisticated camera system and amortize it across thousands of nights, it allows us to do for hundreds of dollars what might otherwise require thousands of dollars," says Hoffman, noting the savings in terms of soundstage rental, bringing in and setting up, hiring video crews, post-production, etc. "So we're able to use the scale of a fixed-point installation on a stage that some 5,000 bands a year pass across."

Cameras at the Knitting Factory never get turned on unless the club is asked to do so by the artist. On a work-for-hire basis, KFDS offers completely scalable solutions for all vital promotional needs, along with customized delivery to a variety of broadcast, Web 2.0, wireless and other distribution platforms. This can include manageable streaming solutions through the venue's Website, a band/label's site or other. Hoffman sees countless reasons for offering this service, especially to labels that are developing new artists.

"Maybe they want to do a showcase," he explains. "Well, how often do label showcases end up empty because the execs are too beat, or they're caught in a meeting and can't get down there? But they want to

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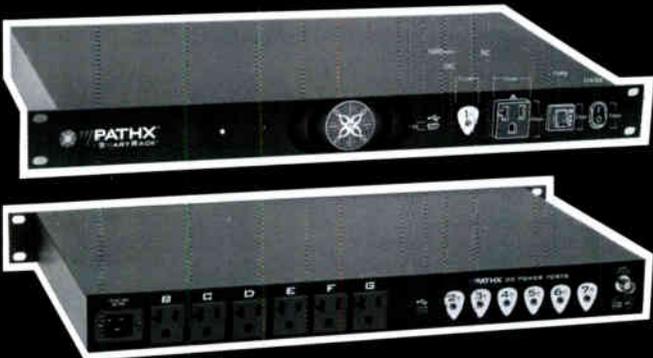
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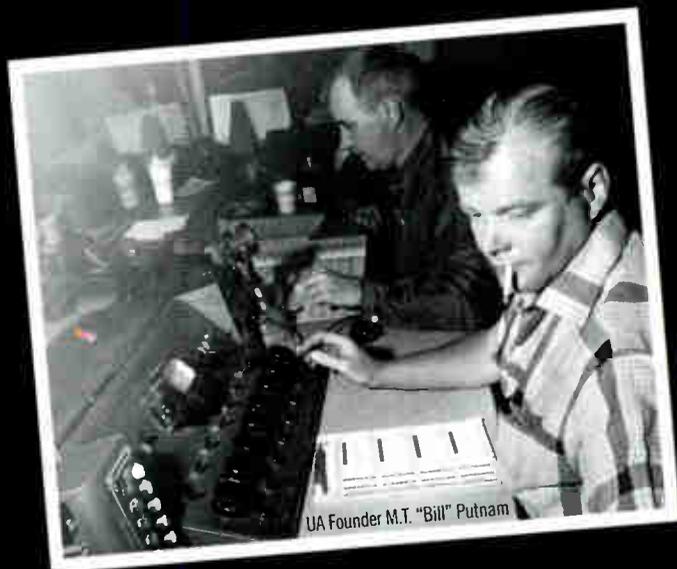
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1948 - 56: Bill engineered and/or produced Bing Crosby, Frank Sinatra, Nat King Cole and countless others while pioneering innovations such as the control room, vocal booth, console, sends/returns, echo, artificial reverberation ... even stereo recording 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."

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Clubs Go Beyond the Stage

excite the marketing staff or distribution staff nationwide. I think it's sort of a natural add-on for a label to decide, 'You know what, it's real cheap—let's just have the Knitting Factory post the stream and we can invite our staff to get some sense of what the live experience is.'"

Hoffman says that the service aspect could eventually extend to KFE-branded content online such as a monthly series of Top 10 "Knitting Factory Presents" performances—but he insists it would remain entirely for promotional purposes and that the club would not try to monetize artist content.

"We very much see ourselves as an organization with an editorial voice; that's what our venue is all about," says Hoffman. "We exist to help introduce audiences to what's next and what's new. We don't want to be in the business of speculating what other businesses' money may be in because we don't own the content; we provide services. That's smart."

HITTING THE AIRWAVES

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LiVE's signal flow, from top: the Mackie Onyx 80 Series console, the rack/interfaces/live-to-air streaming box and then to the mobile Pro Tools LE Mac recording setup.

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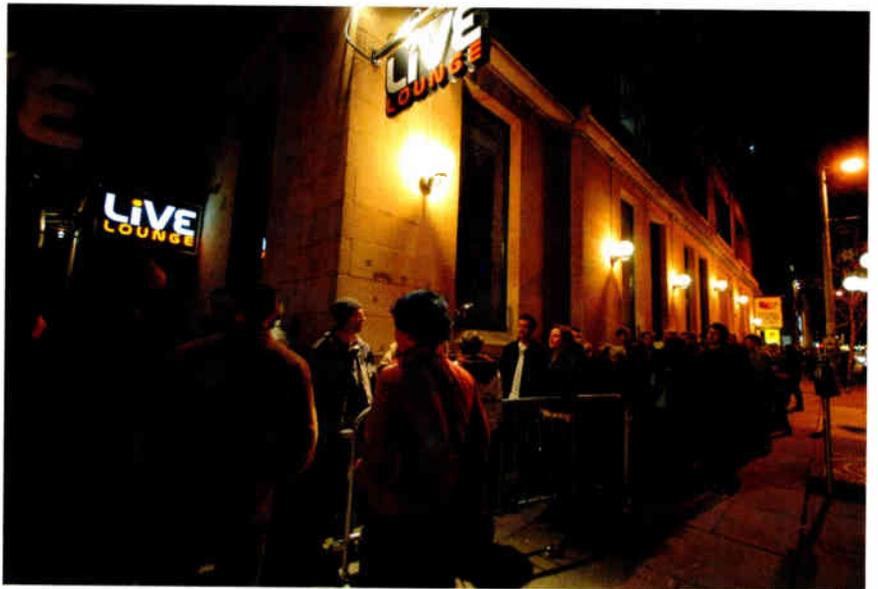
Ottawa, Ontario—LiVE Lounge opened its doors in January of 2007 under the name-sake of its parent company, LiVE 88.5 FM, a popular alternative-rock radio station of close to three years with a strong local indie community presence.

"It was natural extension of the LiVE brand and was part of our plan from the beginning," says Scott A. Broderick, general manager, Newcap Radio. "Great brands create places, events and opportunities for their most committed fans to gather."

What sets LiVE apart from other radio station-owned venues is its integrated recording services. Centered on Digidesign 002 hardware and running Pro Tools 7.1 LE on a MacBook to LaCie external drives, the tracking rig is intentionally modest in size, keeping it completely "plug-and-go" mobile for station demands. Housed more permanently within the racks of the recording booth is a PreSonus FireStudio receiving feeds directly off the FOH board

As with Mozambique and Knitting Factory, LiVE Lounge does not own or sell any of the recordings they make. Bryan Ruckstuhl, the club's engineer and booking agent, says the club's aim is simply to provide bands with creative tools that they can use as they wish. Artists and labels have already employed the service to prepare demos, special live tracks for CDs and bonus downloads, pre-production material for later use in studio tracks and so on.

"It's not just another gig; it's being recorded and documented forever, and the fans love it," says Ruckstuhl. Even more enticing to musical guests is that LiVE Lounge records free of charge, supplying the bands with untouched audio files that they can mix themselves or have the LiVE engineering staff mix, also free of charge. With the services value-added from the perspective of bands and patrons alike, LiVE Lounge's revenue comes mainly from



There's always a long line at LiVE—where you can check out Ottawa-based bands live or online.

(24-channel Mackie Onyx 80 Series console), making for 16 tracks total of off-the-floor recording. A Telos Zephyr X Stream is installed to transmit "live-to-air."

"The Pro Tools studio is a huge hit and a wonderful asset for up-and-coming bands that may not have access to that technology on their own. We are pleased with the relationship it has allowed us to forge with the local and indie music scene," says Broderick, citing examples in which the station was able to cut multiple promos, exclusive on-air features and other fan-centric bonus material, all from a single performance.

drinks, rarely the door.

Through its symbiotic relationship, the club uses the recordings to help promote the venue, LiVE 88.5's radio contests and special events within the community. Being owned by a radio station that can reciprocate by promoting the upcoming shows and play recorded "live tracks" on air definitely makes it an easy choice for bands looking to book. And though the club's primary focus is currently on audio, adding video recording and production into the fold is something they're definitely eyeing.

"Like audio, it's just another tool to

provide for bands and separate the venue from others," says Ruckstuhl. "The days of bands playing venues that don't meet their expectations are slowly coming to an end. The live show is the most important aspect of their career and bands need and want to work with people who understand this."

MODEL BEHAVIOR

Looking out five to 10 years, it's possible to imagine the day when the larger venues might become completely internetworked, similar to how New Years Eve or Grammy parties are currently produced for television. The upside, of course, is that patrons could see a live act or two in person, and also enjoy other acts piped in from distant locations between sets.

"You know, you can do that, and I know that excites a lot of technologists, but I don't see a lot of consumer demand for it," says Hoffman. "I just don't think that's the real experience. I think the live music industry has grown and is thriving thanks to the Internet, with audiences further and further afield from the major cities getting instant exposure to what's next and what's new. Our job as a venue organization is to get out there into those secondary markets and local venues."

After what he calls a short seven-year blip in recording history, where record companies have tinkered with online initiatives in hopes of solving geographical and technological issues stemming from digital music sharing, Hoffman believes that live music's primacy is returning. Even more distinctly, he sees live venues becoming an essential brick-and-mortar anchor of the online parts of both social networking communities and band services.

Testament to Hoffman's optimism is the fact that San Francisco's Fillmore club is in the process of branching out and becoming a nationwide franchise. "There's a triangulation that will occur between the live venue on the ground and a place where people can re-coalesce online later to discuss the show, and with Websites that host bands' own fan sites and services, whether it's merchandise or their own homepage," Hoffman notes. "It's going to be interesting to watch how those relationships shift and form. But those are sort of the three legs of the music industry looking out five years. I don't see a place for record labels in the end." ■

Jason Scott Alexander is a producer/mixer/remixer in Ottawa, Ontario.

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Just Trust Your (In-) Ears

By Steve La Cerra

THE MIX GUIDE TO PERSONAL MONITORING SYSTEMS

The problems associated with traditional wedge monitoring are many, ranging from difficulty for the artists to hear themselves clearly and inconsistent monitor performance from room to room, to feedback and a general wash of noise coming off the stage, making the front-of-house mix a mess. Other issues include ear fatigue and the well-known danger of hearing damage due to high onstage SPLs. By eliminating traditional stage wedges, artists who use in-ear type monitors (IEMs) can avoid most of these problems.

As the popularity of IEMs has soared, prices have dropped and the technology has advanced—much to the delight of monitor and FOH engineers. However, along with the advantages of IEMs comes the responsibility for ensuring that sensible monitoring levels are used to prevent hearing damage. Here, a little extra care and common sense goes a long way.

IEM BASICS

Most artists use *wireless* in-ear systems for the same reason they use wireless instruments: onstage mobility. Some IEMs are hard-wired, appealing mainly to drummers and keyboard players who are tied to their rigs and don't need to move around. Wireless IEMs operate similarly to wireless mics, except the broadcast process is reversed: A base station transmitter broadcasts a signal to a belt-pack receiver, which amplifies the signal and routes it to a set of earpieces. Belt-pack controls typically include channel select, on/off, mute, balance and volume. Some systems turn the wireless receiver into a 2-channel mixer, where a discrete signal is sent to each channel and the balance control mixes the signals. For example, a band mix might

be sent to channel 1 while the performer's own voice or instrument goes to channel 2. The balance control lets the artist mix between the two signals, with the result sent to both left and right earpieces.

Most systems surveyed here operate in the UHF band; however, a well-designed VHF system can challenge the performance of a poor-quality UHF system. A key feature to consider in any wireless system is frequency agility, or the ability to switch among different operating frequencies. Such systems let users choose from as few as four to hundreds of operating channels across a variety of frequency bands.

The chart displays each system's number of bands and frequencies, but this does not necessarily equate to the number of actual frequencies to which the system can be tuned. Adjusting operating frequency is much easier on belt-packs that have some sort of external channel selector/indicator, as opposed to packs that use internal DIP switches. Some systems can automatically scan the local RF spectrum to identify a clear frequency—a time-saver when multiple units are run in a busy RF area.

Speaking of RFI, serious RF users should check out Intermodulation Analysis Software (IAS) from Professional Wireless Systems (www.professionalwireless.com/ias/index.aspx). IAS assists in frequency selection and coordination of wireless units to avoid RF interference across 40,000 ZIP codes in the United States. Other features to look for are remote antenna connectors on the transmitter's rear panel, and EQ or limiting on the belt-pack's audio output.

Mindful of this growing market, some companies are building IEM-specific ac-

cessories, such as the dbx (www.dbxpro.com) IEM Audio Processor, which provides peak-stop limiting, 4-band stereo compression, parametric EQ and Lexicon reverb algorithms. Shure's P4M is a 4-channel mixer with an audio split, while its AP201k Ambient Pack has a lavalier mic to introduce ambience to an in-ear mix.

WHERE'S THE ROOM?

When wearing earpieces, the lack of ambient sound can make an artist feel isolated from the audience and other performers. As a result, some monitor engineers will run audience or stage mics, bleeding them into the performer's ear mix. Sensaphonics has taken this concept to the next step with its 3D Active Ambient IEM system, which uses sensitive, precision-equalized mics *embedded in the earpieces* to capture stage ambience with natural sound quality and accurate directional cues. Signals from the mics are sent to a bodypack mixer, where they can be added to the mix from the monitor console without latency. Several manufacturers have introduced or are working on products for ambience recovery, either electronically or through the use of "vented" earpieces.

The chart on page 54 surveys in-ear systems, with an emphasis on electronics. We did not include earpieces in this survey for two reasons: First, choice of earpiece is an extremely personal decision. Second, earpieces can always be mixed and matched to the support electronics. ■

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



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IN-EAR MONITOR SYSTEMS

Manufacturer Model Website	Audio Format	Audio Response	Bands/Frequencies Per Band	S/N Ratio	RF Range	RF Sensitivity	Max RF Output	Notes
AKG IVM4; www.akg.com	stereo, mono, dual-channel	35-20k Hz	4/14	>90 dBA	UHF	121dB SPL/V	10, 20, 50 or 100 mW	Complete system
beyerdynamic IMS 900; www.beyerdynamic.com	mono or stereo	50-15k Hz	4/16	94 dBA	UHF	At 2uV input level, S/N > 58 dB	100 mW	Complete system
Galaxy Audio AS-1000; www.galaxyaudio.com	mono or stereo	40-15k Hz	1/64	>94 dB	UHF	At 5dBuV, S/N > 80dB	100 mW	Complete system
Hear Technologies Freedom Back; www.heartechnologies.com	mono or stereo	40-16k Hz	2/120	N/A	UHF	-94 dB for 30dB SINAD	10 dBm (nominal)	Complete system
Lectrosonics IFBT4; www.lectrosonics.com	mono	30-20k Hz	10/256	90 dBA	UHF	N/A	250 mW	IFB (interruptible foldback) transmitter
Lectrosonics R1a	mono	100-10k Hz	N/A	95 dBA	UHF	1 uV (20dB SINAD)	N/A	IFB receiver
Lectrosonics UM400a	mono	32-20k Hz	14/256	>100 dB	UHF	N/A	100 mW nominal	Transmitter, Digital Hybrid Wireless technology
Nady PEM500; www.nady.com	mono or stereo	50-12k Hz	1/16	>80 dB	UHF	2.5 uV (-100dB/12dB SINAD)	50 mW	Complete system
Nady E03	mono	100-10k Hz	1/8	60 dB	VHF	2 uV for 12dB SINAD	80,000 uV @ 3 meters	Complete system
Rolls PM50s; www.rolls.com	stereo or mono	20-20k Hz	N/A	90 dB	Wired	N/A	N/A	Personal monitor amp, dual TRS outs
Rolls PM50sOB	stereo	50-20k Hz	N/A	90 dB	Wired	N/A	N/A	Personal monitor amp, can be battery powered
Rolls PM52	stereo or mono	N/A	N/A	QQQ	Wired	N/A	N/A	Passive headphone tap; requires power amp
Rolls PM351	stereo or mono	10-30k Hz	N/A	90 dB	Wired	N/A	N/A	3-channel personal monitor mixer
Samson EarAmp™; www.samson-tech.com	stereo or dual-mono	20-20k Hz	N/A	80 dB	Wired	N/A	N/A	Wired beltpack
Samson Wireless EarAmp™	stereo or dual-mono	40-15k Hz	8/16	>80 dB	UHF	N/A	50 mW	Complete system
Sennheiser EK 3253; www.sennheiserusa.com	stereo	40-15k Hz	5/32	90 dB(A) RMS	UHF	typ. 1.5 uV at 52 dBA	N/A	Transmitter
Sennheiser ew 300 IEM G2	stereo or dual-mono	40-15k Hz	5/12	91 dB	UHF	< 2.5 uV at 52 dBA	max. 30 mW	Complete system w/earpieces
Sennheiser SR 3254	stereo or dual-mono	40-15k Hz	5/32	90 dB(A) RMS	UHF	N/A	max. 100 mW (50 mW, ±2dB on delivery)	Receiver
Sennheiser SR 3256	stereo or dual-mono x2	40-15k Hz	5/32	90 dB(A) RMS	UHF	N/A	max. 100 mW (50 mW, ±2dB on delivery)	Twin receivers in one rackspace
Sensaphonics 3DAA-WL1; www.sensaphonics.com	stereo	20-16k Hz	N/A	80 dBA	*	N/A	N/A	Active ambient system
Sensaphonics 3DAA-WL2	stereo	20-16k Hz	N/A	80 dBA	*	N/A	N/A	Active ambient system
Sensaphonics 3DAA-HW1	stereo	20-16k Hz	N/A	80 dBA	**	N/A	N/A	Active ambient system
Sensaphonics 3DAA-HW2	stereo	20-16k Hz	N/A	80 dBA	**	N/A	N/A	
Shure PSM200; www.shure.com	mono	30-12k Hz	1/8	80 dBA	UHF	-109 dBm typical	30 mW	Complete system
Shure PSM400	stereo or MixMode™	50-12k Hz	1/16	80 dBA	UHF	1 uV typical	50 mW	Complete system
Shure PSM600	mono, stereo or MixMode™	50-15k Hz	2/5	80 dBA	UHF	1.2 uV typical	100 mW	Complete system
Shure PSM700	mono, stereo or MixMode™	50-15k Hz	2/16	80 dBA	UHF	0.7 uV typical	100 mW	Complete system

Notes: All systems are wireless; unless noted. All Sensaphonics 3-D systems employ patented 3-D Active Ambient™ IEM System for controlled mixing of ambient and monitor signals via sealed earpieces.
 * for use with wireless IEM systems
 ** for use with hard-wired IEM systems

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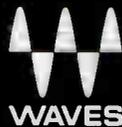
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BRUCE SPRINGSTEEN AND THE E STREET BAND

Photos & Text by Steve Jennings

Bruce Springsteen & The E Street Band are touring following the release of *Magic*, their first studio album in five years. The album hit stores on October 2, the same day that the North American leg of the tour kicked off in Connecticut. *Mix* caught one of the sold-out concerts a couple of weeks later, at Oakland, Calif.'s Oracle Arena. [Eds. note: At press time, it was announced that Danny Federici is taking a leave of absence from the tour to pursue treatment for melanoma. Charles Giordano, who played with Springsteen as a member of the Sessions Band, will temporarily fill in for Federici until he is able to return.]



According to Springsteen guitar tech Kevin Buell, the Boss plays 16 Fender electric guitars; most are '52 reissues with varying degrees of customization. Supplementing those six-strings are a few 12-string Telecasters, Bigsby Teles, Esquire neck Telecaster and a dozen Takamine acoustics. His guitars are miked with a pair of Shure KSM44s on the main box and a single KSM32 on the spare amp; he sings through an Audix OM-3 mated to a Shure UHF-R wireless system.

"Onstage, Bruce has a custom-made stomp box that remotely activates a lead boost and a delay," Buell adds. "He plays through a Mesa Boogie 100W Mark II amp coupled with a Marshall 4x12 slant. For lead, we are using an MXR-CAE boost/line driver with a MXR DynaComp, and delay is achieved with a Boss DD-3 digital delay. I operate some song-specific effects offstage. They include a Boss RT-20 rotary sound processor for a Leslie effect and a Boss BF-3 flanger."



At front of house, from left: John Cooper, systems engineer/Pro Tools operator Brett Dicus and systems engineer John "Boo" Bruoy

FOH ENGINEER JOHN COOPER

Cooper, who has been mixing Bruce Springsteen since the end of 2001, is manning a Digidesign 96-input Profile with a 128-track Pro Tools HD recording rig. Choice plug-ins for Cooper include BF-2As, BF-76s, Drawmer Tour Bus gates, McDSP multiband comps, Crane Song's Phoenix, TC Electronic D-Verb and Line 6 delay. Cooper also uses Neve outboard pre's for FOH audience mics.

Springsteen's longtime sound company is Audio Analysts; Cooper's relationship with this company dates back to 1996 when he was mixing for Wynonna Judd. This tour's P.A. comprises 64 JBL 4887s for main and sides; 32 4880 subs, 48 4887s for the rear (four groups of 12), eight 4887s for front-fills and four 4880 subs on the floor. "I'm a bit old-school, so I do a lot of tuning with the primary vocal mic," Cooper says. "Then with the Digidesign Profile and Pro Tools, I will roll the show back from previous days for additional tuning."



Guitar techs, from left: Aron Michalski (for Garry Tallent) (and Steven Van Zandt), Michael Kaye (Patti Scialfa), Roy Witte (Nils Lofgren) and Kevin Buell (Springsteen).



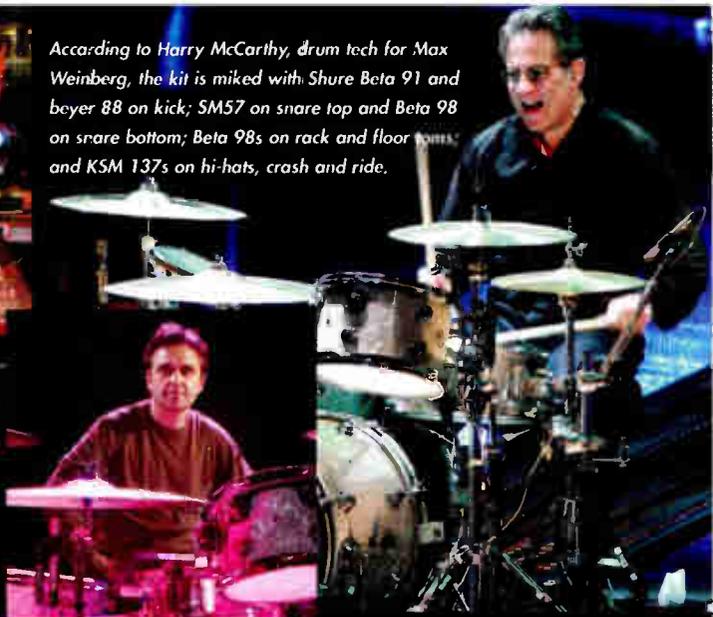
At monitor world, from left: engineers Monty Carlo (stage-left) and Troy Milner (stage-right), and P.A. stage techs Rob Zuchowski and Ray Tiitle

Situated at stage left, monitor engineer Monty Carlo is manning a Yamaha PM1D set up with 128 inputs and 64 outs, taking about 80 inputs from the stage and sending out 30 mixes from the desk. "They include wedges and in-ear mixes for the musicians and backline techs," Carlo explains. "My approach is to keep things fairly simple; I'm using only the internal effects and dynamics of the PM1D."

In addition to mixing for Springsteen, Van Zandt, Scialfa, Bitan, Federici and Soozie Tyrell, Carlo also manages mixes that are fed to some backline techs and the teleprompter operators. "Most of my mixes are wedges," Carlo says. "Roy and Danny are my only musicians using ear monitors, Westone ES-2s."

Over at stage right is monitor engineer Troy Milner, who mixes for Tallent, Clemons, Lofgren and Weinberg; all of these musicians are on ears except Lofgren, who has three wedges hanging under the stage. "My console is a Yamaha PM1D, set up for 128 inputs and 64 outputs," Milner says. "I'm using around 80 inputs from the stage, but with all the effects returns I'm running around 94 inputs on the console." Milner relies on Midas XL-42s for drum input preamps, onboard effects, two TC Electronic M2000s and a Lexicon 480L. Effects on Weinberg include Empirical Labs Fatso Jr., "strapped across his hardware ear mix to fatten it up a touch since he likes a big, warm mix," Milner says. "Also, I have two double 18-inch subs behind Max to move some air and feel the kick drum. All wireless ears are Sennheiser G2s."

According to Harry McCarthy, drum tech for Max Weinberg, the kit is miked with Shure Beta 91 and beyer 88 on kick; SM57 on snare top and Beta 98 on snare bottom; Beta 98s on rack and floor and KSM 137s on hi-hats, crash and ride.



Dueling guitarists: Steve Van Zandt and Patti Scialfa

Guitarist Nils Lofgren (left) with Clarence Clemons



Clarence Clemons (saxophone/percussion)

Keyboardist Danny Federici plays a Hammond B3 organ through a Boss RT-20 Rotary Ensemble; he also plays an Alesis QS7 synth and QS6 synth. According to keyboard tech Marty Gelhaar, "He mixes his own monitors on the Soundcraft Spirit 16 mixer to his left. In a rack offstage are two Alesis QSR synth modules, two Roland JV 5050 synth modules and two E-mu E4XT samplers."



Keyboardist Roy Bitan's setup comprises mostly vintage digital synths and samplers with a few exceptions. According to keyboard tech Kurt Wolak, Bitan has a Yamaha grand piano with MIDI driving a Muse Receptor Pro Jr. running Synthogy Ivory; controllers include Kurzweil K2600 and PC2X, and a Korg M1. In a rack offstage are a Korg M1R, Yamaha DX-7IIIFD and TG77, E-mu E4XT, and Akai S1000. A Mackie 1602 and Behringer Pro Mix handle the audio routing. Two JLC Cooper Synapse MIDI matrix units handle the MIDI routing.

Ozomatli

Energetic Nine-Piece Keeps Audience And Crew on Their Toes



PHOTOS: STEVE BANNINGS

By Heather Johnson

On a typical rock tour, the crew often outnumbers the band by a large margin. But when the nine members of Ozomatli hit the road, their support staff occupies the smallest space on the bus. And, yes, we do mean *one* bus. "Normally, a 9-piece band would have a 6-man road crew," says tour manager/front-of-house engineer Patrick Murray, whose FOH credits include jazz great John Scofield, Shakira, Santana and Miles Davis, among others. "There's only 12 bunks on the bus, so that means three of us are out here crewing for these guys."

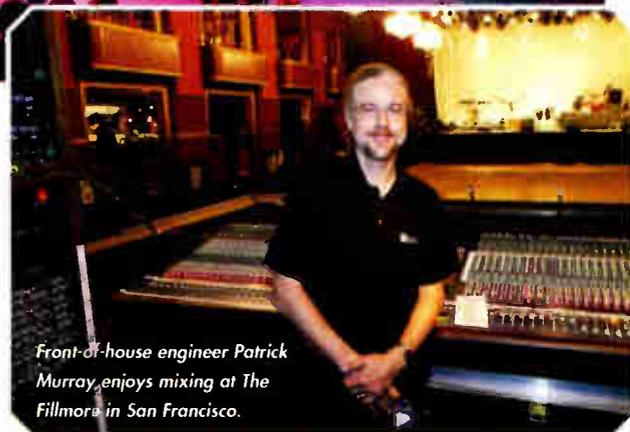
Needless to say, those three individuals—Murray, monitor engineer/backline tech Brian Simakis and production assistant/merchandiser Joe Priester—remained in constant motion during Ozomatli's 2007 Winter on Ice tour, which skated through the Western U.S. from mid-November through late December. *Mix* caught up with Ozomatli and their hard-working crew on the final night of a successful four-night residency at San Francisco's Fillmore Auditorium. Hip hop act Lifesavas, from Portland, Ore., opened the show, and

would join the band for the next two weeks.

During their 12-year career, Ozomatli has amassed an avid worldwide fan base for their rhythmic mix of Latin, hip hop, reggae and Middle Eastern funk. They've drawn equal respect for their commitment to human rights issues and for touring locales such as Kathmandu, Nepal—the first American band to do so.

After a brief announcement from a representative of San Francisco 8, the collective of eight former Black Panthers currently in prison with bail set at \$3 million each for charges related to the 1971 killing of a San Francisco police officer, Ozomatli and their mass of Latin and Indian percussion, horns, sax, keyboards, acoustic guitar and bass assumed the stage for a lengthy set culled mainly from their new release, *Don't Mess With the Dragon*, their fourth studio album and third from Concord Records.

Murray uses 36 channels of the Fillmore's



Front-of-house engineer Patrick Murray enjoys mixing at The Fillmore in San Francisco.

56-input Midas H2000 console, and for this tour relied on venue-provided outboard gear. In the case of the Fillmore, he has a solid collection at his disposal. "If the P.A. is set up correctly and we have a reliable console and good input signals, we're fine," says Murray. "We carry our own mics and monitor board, which keeps things consistent." The band travels with a Shure-endorsed mic assortment comprising SM57s, Beta 56s and Beta 57As for drums, percussion and guitars; Beta 58As for vocals; SM7Bs for the brass; and a Beta 57A for sax. KSM137s are used as percussion overheads and for hi-hat and tablas; KSM32s handle drum overheads with Beta 98s on toms. The band has four Shure UR24S wireless systems: two with KSM9 capsules for lead vocalist/trumpeter Asdrubal Sierra and bassist Wil-Dog Abers'

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vocals, and two SM87C capsules for rapper Trey Hardson and percussionist Justin Porée.

Due to the band's large size and high activity level (bandmembers constantly move around and switch instruments), Murray rarely has an opportunity to "set it and forget it." "With nine people onstage, you're generating a lot of information," he says. "It's not the type of music that has a lot of open space. It's difficult to layer in the different percussion instruments and other parts, including a horn section, MCs, multiple vocals and other various effects. The challenge is to keep a three-dimensional

mix happening without everything falling on top of each other. The arrangements are quite dense."

To keep Ozomatli's intricate instrumentation in check, Murray takes a straightforward approach to mixing, using minimal effects and few gimmicks. He uses a Summit DCL-200 for Sierra and guitarist Raul Pacheco's vocals, XTA C2 compressors for the horns, dbx 160 on bass and a BSS DPR-404 4-channel compressor. "I use one channel each for the two rap vocalists, one channel in stereo mode assigned to a group where I bus the other three background vocalists: Uli [Bella], Sheffer

[Bruton] and Wil-Dog."

On drums, Murray uses a time-tested studio technique. "I have a TC Electronic D-Two for delay and slap echoes, a [Yamaha] SPX990 for drum reverb, TC Electronic M2000 for vocal 'verb and a TC M-One," he says. "I'm using both engines of the M-One: One as a short hall reverb for the horns to give them a little dimension and to separate them out a little bit, and on the other side I use a pitch-shift program to thicken up some of the horn parts for certain songs, just a little plus-minus 4 cents with a little bit of delay to add depth and make the horn section sound a little bit bigger. Then I take the horns an octave down, specifically on the song 'Saturday Night,' to give an extra *womp* to the horn section."

In addition to the live instruments, drummer Mario Calire incorporates various loops and samples triggered on a 360 Systems playback machine. Standing next to Calire (some of the time), percussionist Porée plays a Roland Octapad loaded with other one-shot samples and effects, which are used mainly on some of the band's early material.

For reference, Murray records each show using an M-Audio MicroTrack pocket digital recorder. In 2005, however, the band recorded their San Francisco dates for the popular *Live From the Fillmore* CD. "This is my fourth year with the band, and we've played the Fillmore every year," says Murray. "They really make us feel at home. We know everybody on a first-name basis; it's really comfortable for us. The Fillmore is one of the greatest clubs in America, hands-down. They have top-notch people, the room sounds great, with state-of-the-art sound equipment." That includes a Meyer P.A. system with six MICA line array loudspeakers per side, one underhung DF-4 powered down-fill per side and a flown CQ-2 for center-fill.

Even more important than the gear, Ozomatli has a strong fan base in the Bay Area. During their four-night residency, two nights were sold out while the other two were very near capacity. "The crowds in S.F. rival the crowds from L.A., and the band is *from* L.A.," Murray adds.

MONITORS IN MOTION

Monitor engineer Brian Simakis—who joined the Ozomatli team at the start of the Winter on Ice tour—works on a Crest LM console supplied by Shaped Music from Fort Collins, Colo. He created 11 mixes during the Fillmore dates, including six wireless in-ear mixes, four wedge mixes, a drum sub and a hard-wired ear mix

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for the drummer. Saxophonist Bella and trombonist Bruton use Meyer UMI wedges, and Simakis dedicates additional UMIs to the bass and keyboards. "Asdru [Sierra] has a little bit in his ears, but he wants to hear a little in the wedge, too. But Uli will also play keys, and he doesn't have any in-ears so he needs to hear through the key wedge." Bassist Abers also uses the Sennheiser EW300 IEMs, but has a bass wedge nearby so he can feel the "oomph" of the low end.

Simakis works with mostly the first-generation EW300 system, as well as the Shure UR4D dual-channel receiver. "When you're traveling to different venues, every day is a hunt for clean channels," he says. "But the UR4D has a self-scan function that's been very helpful." Simakis uses graphs for the wedges and the drum sub, which is taken direct out of the kick channel.

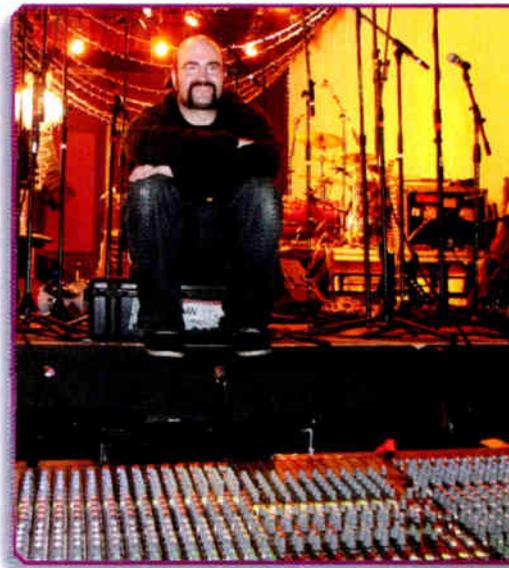
Like Murray, Simakis keeps his mixes "pretty cut and dry." "I make a lot of moves during songs," he says. "The guys want different things here and there, and they switch a lot of the leads. Depending on the vocal lead, the drummer might want more Raul vocal, then on a song where he doesn't need much we turn it down again.

I have to watch the guys all the time, but I appreciate the challenge."

Simakis received the challenge by way of engineer Scott Southern, Ozomatli's monitor engineer since May 2006. When Southern decided to take a breather, Simakis took over the reins. Likewise, Murray often gets a break when the band plays their hometown, where they frequently work with engineer Eduardo "Mack" Mackinlay. "They're a force to be reckoned with," Southern says of the band. "The challenge was having two eyes and nine people!"

By the nature of their music, Ozomatli puts a strain on their engineers, so the nine members do their best to lend a hand when they can. "On fly dates, when it is often just me and the band, Wil-Dog will jump behind the monitor board and get the monitor mix together," says Murray. "They're not pretentious enough to say, 'I can't do that.' It's all about the show and making it happen."

And happen it does, with unyielding energy right to the last song of the encore. "It's quite an event to go to an Ozomatli show," says Murray. "You *must* dance. But from a sound standpoint, it's a demanding



Monitor mixer Brian Simakis uses a Crest LM console.

show to mix. That's why I came onboard. Not only do I like the music, but it's a challenge to me as an engineer." ■

Leather Johnson is a freestyle music writer and serves on the Board of Governors for the San Francisco chapter of NARAS.

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Kelly Clarkson

Lead Vocalist Powers Her Way Through Sold-Out Tour

By Sarah Benzuly

Touring under her third RCA release, *My December*, Kelly Clarkson has achieved a level of success that's easily measured by the number of fans she's garnered since becoming the first *American Idol* winner back in 2002. (Let's just say that the crowd can overpower a line array's output!) *My December* debuted at Number 2 on *Billboard* (just behind the *Hannah Montana* soundtrack, if that's any indication of who's out there buying). Her previous release, *Breakaway* (which features such standout tracks as "Since U Been Gone" and "Because of You"), sold more than 6 million copies in the U.S. alone.

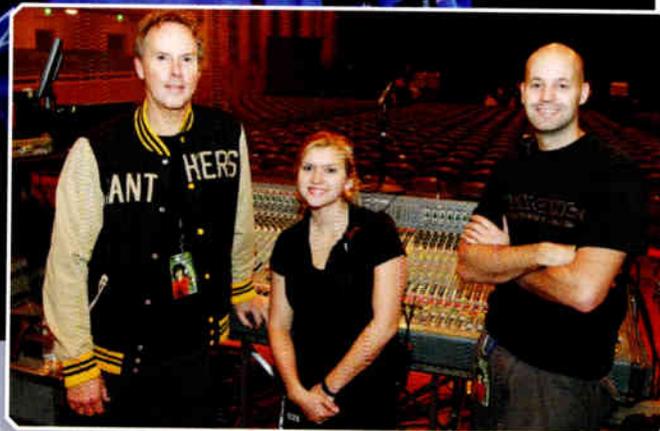
While some may question the true artistry behind *American Idol* and the subsequent longevity of the winners, Clarkson has shown the world that she *can* sing and is not just another face in the pop idol world.

Clarkson's world tour included a stop at the Memorial Auditorium in Sacramento, Calif., where *Mix* caught up with the singer, her stellar band and, of course, the dynamic duo of front-of-house engineer Kevin Elson and monitor engineer Robert Miller.

JUMP INTO THE FIRE

Both Elson and Miller replaced the previous engineers who had been working with Clarkson. Previous FOH engineer Dave Eisenhower got pulled away to do additional Bon Jovi dates (the Clarkson tour started a few months later than previously planned, overlapping the Bon Jovi tour); Miller filled in the vacant monitor engineer position early on during band rehearsals. So not only were they "fresh" to this tour, but they also inherited their previous counterparts' gear; fortunately, both Elson and Miller had experience with their respective boards and were able to slide in behind the desk and get straight to work.

Elson mans a Midas XL4, "but I had no problems inheriting that," he says. "It was [Eisenhower's] setup that he uses with Bon Jovi, as



L-R: Kevin Elson, monitor tech Christy McCleary, systems tech Doug McKinley

well; it's almost duplicate. It was great to walk into."

Miller agrees, adding that his Midas Heritage H3000 is completely "tapped out. I've added all the stereo channels I can add," he says. "It was already there when I got here, and I really love the console; it sounds great. I would have probably used a smaller console knowing some of the venues we were going to, but, obviously, that wasn't my choice. But I still like the console."

ALL ABOUT KELLY

Also adding to the almost seamless personnel changeover is the straightforward mix that Clarkson and band require—little in effects and processing, with just a bump up to spotlight Clarkson's vocals, which is what the audience came to hear. Over at FOH, Elson works



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with two TC Electronic 5000 reverbs, with both a short and long plate on vocal ("like a 480 hall on vocal," Elson adds), and a chorus program and a deep drum reverb. "TC Electronic 2290 for delay and a Yamaha [SPX] 990 for short room for the drum kit," Elson says. "All the other effects, the band does. So it's not a lot of processing out front; they kind of do the processing they want and I keep it pretty clean in terms of not manipulating too many sounds. It's a very straight-ahead show; it's mainly vocal things that go on."

Likewise over at Miller's compound, he's only using an M5000 reverb on her vocals. "I like that it's nice and warm, and I don't really have any issues with it," he says of the M5000. "It's always my preferred reverb. And just a little bit of limiting—a Summit TLA 100—just to top off the high spots a little bit. She projects really well; she has a very strong vocal output, so that's one of the things I listened for when I got here."

Miller also employs that M5000 for the backing singers. One of those backing vocalists, Corey Churko, has a little Pro Tools rig that his vocal and guitar go through. It's pre-EQ'd when Miller gets it the way Turko wants it, "and it comes through myself and Kevin, and it sounds great."

Clarkson sings through a customized Shure KSM9; the company padded down some of the mic's internal workings. "She was just destroying microphones and they came up with this a year or two ago," Elson clarifies. Backing vocalists sing through Shure 58As. The rest of the stage sees a large complement of Shure mics: 91, Beta 52, 57s, KSM32s and 98s on the kit; 32 and 57 on each cabinet of the guitar amps; 52 on bass amp; and 52 (low end) and 98 (high end) for the organ. Despite the large complement of onstage mics, most of the stuff is hidden. "so we don't have a ton of stage volume," Elson says.



Monitor engineer Robert Miller at the Midas board

FLYING HIGH

The tour carries a supply of Clair Bros.' i3 line arrays: 12 i3s a side with four S4 subs per side. Front-fill comprises four FF2s. Clair's ribbon front-fills.

Elson also carries Clair Lake processing for system tuning, especially for theaters. "A lot of the theaters we've done were three balconies high and [we were] tuning the top two boxes of the i3 to get to the very back of the third balcony," he says. "In a lot of these theaters, where you're trying to cover so much space, it's been a long process: probably 30, 40 minutes of really going into all the nooks and crannies, turning the highs up on a certain cabinet—trying to really fine-tune it. Whereas with a lot of the arenas, you can just go in, crank it up, walk the balconies.

"To get over the crowd," Elson continues. "I'll hit 108 [dB] at one point and generally stay right around 101, but there are times when everyone's singing and the crowd can definitely outdo the P.A. We hit pretty high once everyone's singing. I tend to mix a bit loud. [Laughs] I figure if I don't feel it, no one else is feeling it."

Also onstage are a few "just-in-case" wedges; the entire band is on in-ears, "with some drum thumpers and we do have sidefills, but I don't normally have them on during the show," Miller adds. "Most of the band has Ultimate Ears; right now, Kelly is on Future Sonics. She has always been on in-ears, but she's also had wedges and sidefills."

Regarding the IEM feeds, "They're all individual mixes, but it's really a more high-fidelity thing," Miller answers. "Kelly's mix has a whole lot of her vocal in it and then a really nice mix of everything else. Everybody else gets a general mix with the exception that each person's instrument is just above everybody else's."

"There's a lot of texture because she'll go from 'Since U Been Gone,' which is a full-out pop and sing-along, to a song like 'Sober,' which is just acoustic guitar, French horns, strings—just really a very dark, airy song," Elson says. "There's just a lot of changes that I do as far as effects and just the approach, which is fun. With one, you're just banging it straight out in your face, and the next is a really airy tune. It's fun because they're going back and forth throughout the show. For me, it's just making sure they hear her sing, so the biggest approach is concentrating on every word, that it's understood and heard." ■

Sarab Benzuly is group managing editor of Mix, EM and Remix magazines.

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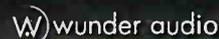
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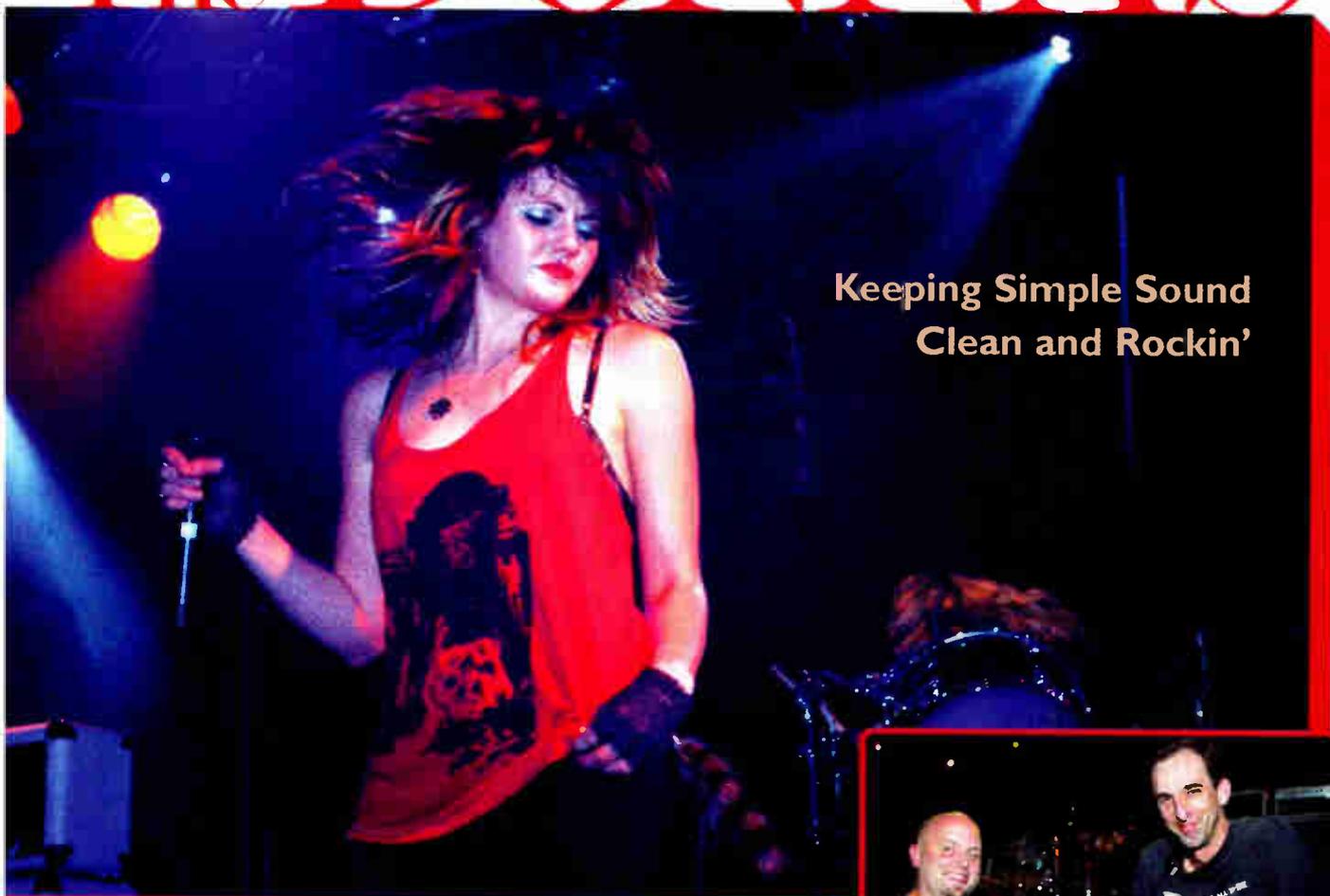
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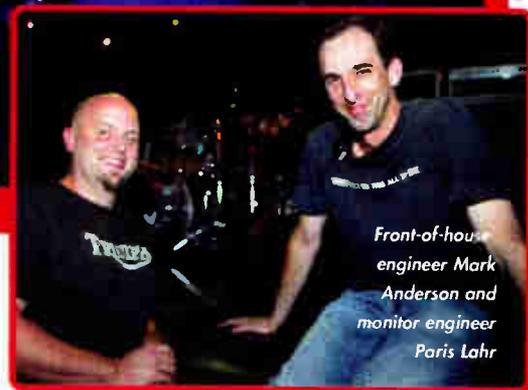
By Gaby Alter

When The Donnas appeared on the punk rock/pop scene in 1998 with their indie-label release, *American Teenage Rock 'n' Roll Machine*, they brought—along with their deft musicianship and tongue-in-cheek lyrics—a flurry of all-female power to the testosterone-fueled rock genre. A few more chart-topping albums followed, and the foursome (Donna A., vocalist Brett Anderson; Donna R., guitarist Allison Robertson; Donna F., bassist Maya Ford; and Donna C., drummer Torry Castellano) created an immense following, but then they seemed to disappear. Three years after their major-label debut (they jumped from indie Lookout to Atlantic), The Donnas are back full-steam-ahead, with their latest, *Bitchin'*, released on their own record label, Purple Feather. *Mix* caught up with the nationwide tour supporting *Bitchin'* at New

York City's Highline Ballroom.

Handling the monitor mix and managing production is Paris Lahr, who has been with the group for two and a half years, previously as their front-of-house engineer. Lahr uses the band's Sensaphonics ProPhonic 2MAX in-ears with whatever wedges each venue provides or sometimes goes for in-ears alone. "When we roll in to do a TV or radio broadcast that's going live to air or going to tape, then we'll go exclusively on ears because it isolates everybody better; there's no monitor bleed into the microphones," he says. "For bigger venues, if I roll into a festival with them [and] they've got a rockin' monitor rig, everything's tuned right and I can just patch into them. I'll do it."

The band carries wireless Shure PSM 700s and a hard-wired PSM 400 with their in-ears. Lahr likes the consistency of the '700s, and



Front-of-house engineer Mark Anderson and monitor engineer Paris Lahr

their 32-channel broadcast makes them a must for frequency-heavy areas. He mixes on his own Yamaha 02R desk, saying, "It's got a really, really small footprint, and on this tour it's a necessity. It has compression and gating on every channel, four bands of EQ [and] it's fully recallable. I store every show, and then when I walk into a venue, I look around, and [say], 'Okay, this stage is kind of like Omaha last week,' and I'll pull up Omaha and start my patch there."

Lahr uses almost no effects, except for a bit of delay on every channel. "I'll delay all the backline mics to the vocal mics so there's less of that phasing problem in the

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ears, especially in these tiny clubs with low overhangs," he says. "I measure out how many feet it is from the backline to the mics every night, rough it in and then guitar tech Derrick [McDonald] and I will just sit there and rock the delay back and forth until we find the sweet spot."

McDonald tag-teams with Lahr to ensure the band's in-ear mix is the best possible. "I carry in-ear packs so I can hear their mixes, as well," McDonald says. "If anything is kind of squirrely, I can talk to Paris either with Walky or eye communication." He is also responsible for dialing in Robertson's guitar tone each night. "Allison's tone is kind of like Slash's [guitarist with Velvet Revolver, formerly of Guns 'N' Roses]," he notes. "She can get the sustain she wants but without overdriving the gate, so I'm not making it too fuzzy, but not too clean."

FOH engineer and tour manager Mark Anderson is on his maiden voyage with The Donnas, though he and Lahr have worked together before on tours with the All-American Rejects and *American Idol* finalist Mario Vasquez. Anderson carries a memory card—"We can throw it right in and pull up all the settings and effects routing that we've done from previous dates and

start pretty close, if the room is EQ'd well," he says—and is mixing tonight on the club's Yamaha PM5D board.

"Every channel has a compressor and gate available, which is incredible," he says. "You can run just a couple dB of compression on the guitars; it just really helps to get separation on every instrument. We carry very little outboard gear because sometimes we can't even get a rack physically into where we're going." However, Anderson always uses two TC Electronic D-Two delays for standard vocal and stereo guitar delay.

Lahr and the band are Shure endorsees, which is also Anderson's preference. Drummer Castellano gets an SM91 and Beta 52 on the kick, a Beta 57A and SM57 for the bottom and top of the snare, respectively, and a Beta SM98 on the rack tom. The floor tom gets a KSM32, while the hi-hat and ride are covered by two KSM137s. Anderson uses a VP88 overhead on the whole kit, which he calls "amazing." "It's a stereo condenser, so you've got the same distance from the snare drum to each overhead mic, so there's no phase cancellation," he says. "You get full stereo image from a single point."

Guitarist Robertson's amps are miked with a KSM27 and SM57; bassist Ford's amps

are taken direct. "Sometimes Derrick will take a third [Marshall stack] and put it in the back," Anderson says, "because the guitar player likes to run the tubes pretty hot to get the tone she wants. So we'll turn that around and face it toward the curtain in the back, and then the front guitar amp almost acts like a monitor for her." Both lead and guitar vocals go through Shure KSM9s.

The amount of reverb on drums and vocals varies from night to night. "We have different equipment all the time and the rooms are so different," Anderson says. "Some places are huge and cavernous; I run the show completely dry because I can't get rid of the verb in the room. Some places are dead-sounding so you have to have a really high decay time." The Highline Ballroom, while large, is deadened by a rubber material covering the stage, so Anderson runs the lead vocal and three backups through onboard stereo hall reverb, in addition to a stereo delay for the guitar. "It's like 24 channels of effects coming back," he says. "I don't use half of it. I just like to set up the options and then see what sounds better. I try and keep it simple for [the band]."

Gaby Alter is a New York City-based writer.



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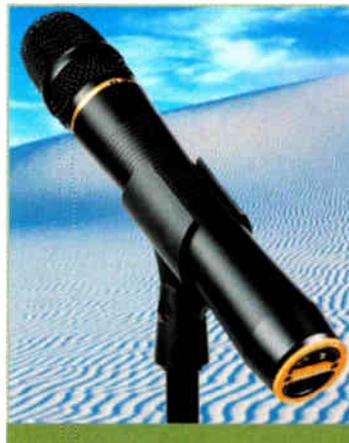
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A-LINE ACOUSTICS EMMA ARRAY

This compact, powered line array system from A-Line Acoustics (www.a-lineacoustics.com) can be easily set up by two people, yet can cover theaters or ballroom-sized venues. Its 100-degree dispersion coverage reduces the need for satellite point-source speakers in many applications, while onboard Bang & Olufsen ICEpower modules with DSP and networking options eliminate the need for heavy amp racks. The system includes an EMMA806A with eight 6.5-inch LF drivers, eight 6.5-inch ribbon tweeters and a 4x10-inch subwoofer that travels on a custom wheeled transport.



LECTROSONICS/HEIL SOUND WIRELESS

Wireless provider Lectrosonics (www.lectrosonics.com) and mic manufacturer Heil Sound (www.heilsound.com) have entered into a strategic partnership to create pro wireless products. Unveiled at this month's NAMM show, the first product is Lectrosonics' UTPR20, which combines Heil's PR20 dynamic capsule/grille basket with Lectrosonic's

comparer-free UT Series Digital Hybrid Wireless transmitter. The unit features 100mW RF power and 256 synthesized frequencies, and is compatible with Lectrosonics Digital Hybrid Wireless and analog receivers. Retail is slated at \$1,695.

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For small to medium permanent installs or large-format touring, the Metrix Multi-purpose Line Source Series from Adamson (www.adamsonproaudio.com) can handle front-fill, lip-fill or out-fill arrays. The enclosures feature both 5-degree (Metrix) and 15-degree (Metrix Wave) vertical patterns, with 120-degree horizontal dispersion. The two-way box has an NID8-ML 8.5-inch Kevlar neodymium mid-low driver and a 1.4-inch HF compression driver on Adamson's patented HF wave-shaping chamber. An arrayable, dual-15 cardioid sub is optional.



OUTLINE KANGURO 2008

Like the earlier Kanguro ("Kangaroo") speaker system, the upgraded Kanguro 2008 from Outline Pro Audio (dist. by Morin Productions, www.morinproductions.com) features an HF/MF cabinet that nests within the subwoofer enclosure during transport to create a compact package. The 1,000W powered system pairs a 15-inch subwoofer and a pole-mount satellite box with a 12-inch neodymium

woofer and 1-inch compression driver. A network card provides access to DSP parameters (gain, delay, EQ, polarity) using the included software. Once stored, three user DSP presets and the factory default can be enabled using switches on the sub.



TELEFUNKEN | USA ELA M 80 HANDHELD MIC

Unveiled at AES and shipping this month is the Ela M 80 (expected street pricing: \$219), a handheld vocal microphone from Telefunken | USA (www.telefunkenusa.com). The mic is said to offer condenser-like performance from its newly designed, low-mass dynamic capsule with a superthin Mylar diaphragm and a custom-wound, step-up transformer from TAB-Funkenwerk. Other features include a cardioid response and an internally shock-mounted capsule. ■

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Game Composers Get Their Fair Share

Agent Cheryl Tiano Takes Care of Business

Those who work in the videogame industry now face most of the same issues as their counterparts in the film and television industries. For example, in the days of transistors in game audio, and even simple PCM reproduction, no one in the videogame business really cared about agents or unions. Then, everything exploded. In the mid-'90s, great studios began to be built, Hollywood star talent was courted and some heavy-hitting composers began providing music for games—for example, in 2004, when Danny Elfman wrote the title theme for the game *Fable*. Administrative and legal issues skyrocketed.

Now, agencies that traditionally represent film and television composers are also representing game music composers. I had the opportunity to chat with Cheryl Tiano, who has been an agent at the Gorfaine/Schwartz Agency (GSA) for 15 years, to discuss just what game companies should expect when they plan their next project's soundtrack. GSA represents practically a who's who of film composers, including John Williams, Alan Silvestri and Thomas Newman, and composers who cross genres such as Michael Giacchino, who scored the Disney/Pixar film *Ratatouille* and Electronic Arts' *Medal of Honor* series.

Let's talk a little bit about what an agency does. Why have agencies in the first place? Can't composers approach a company to offer their services, strike a deal and leave it at that?

It is definitely more complicated than that. In the game world, we often pitch the clients to the music/audio directors and owners of the game companies. We make the clients' deals, troubleshoot problems that arise and provide guidance on how to manage their careers. As for deal-making, agents can push the boundaries a lot further than the composer can and/or should do. The composer needs to be the person who says, "I'll be there for you." Composing music for film, television and games is a service industry. People expect agents to fight for more money and other deal terms such as soundtrack royalties, credit and placement, paid advertising, additional money for use in sequels and prequels, publishing income, et cetera. It doesn't help composers to be service-oriented if they are arguing about deal terms. Plus, the composers often are not creative deal-makers, and they don't know the many terms that need to be discussed and negotiated because they don't make deals every day like agents do.

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Business agent Cheryl Tiano of the Gorfaine/Schwartz Agency represents film and game composers.

That's the idea, exactly.

The average rate per minute for game music these days is around \$1,200. Is there an average film rate?

It varies

Can you give me a ballpark figure?

Sometimes a well-known film composer becomes interested in working on an independent or smaller-budget project, so we negotiate smaller fees for those projects.

Is there a "highest amount yet paid" figure you can quote?

Unfortunately, I can't give out details like that.

When it comes to standard entertainment industry agreement practices, game companies are unfamiliar with a lot of the terms. For example, there's the certificate of authorship, which is akin to a letter of intent.

There is also the deal memo, which precedes a contract. Can you explain this concept?

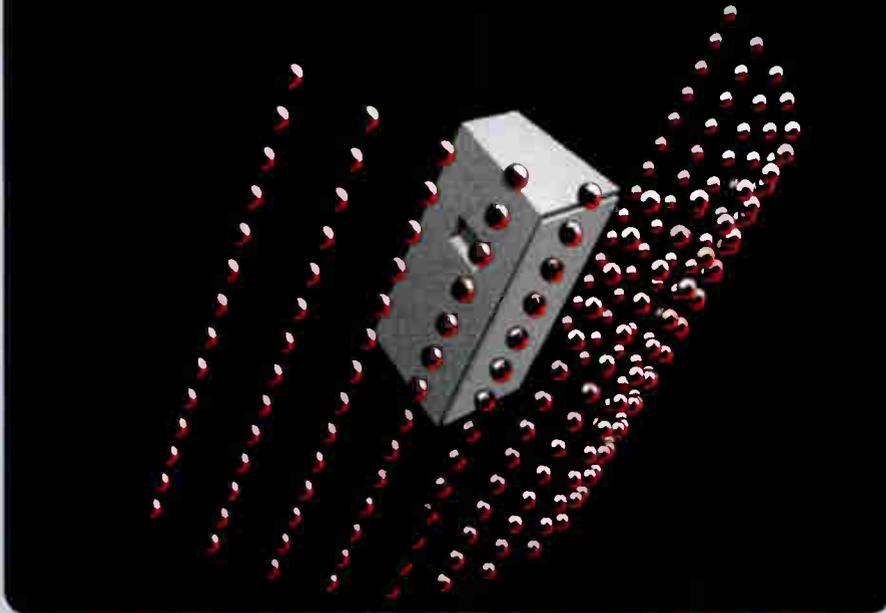
A deal memo outlines terms that are negotiated. Often, the deal memo is then passed on to the attorneys as a reference for creating and reviewing the contract. This can enable work to begin before the longer process of a contract is complete, although most companies want a signed certificate of authorship prior to sending any payments.

Have there been projects completed before a contract was signed?

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agents explain the terms and the attorney at GSA makes sure that those terms are reflected in the contract. Our attorney understands every aspect of contracts and can explain this to our clients.

There is also the difference in a contract in film/television and games—that difference is Writer's Share. Can you explain this term?

Regarding the Writer's Share of performing rights, a composer and/or music editor and/or audio director indicates the titles of the music cues, as well as the name of the writer and publisher on

those cues on a cue sheet. The composer is always the writer, and can also be the publisher, depending on the situation. When the composer is not the publisher, the studio/production company or game publisher/developer is listed on the cue sheets. This cue sheet is submitted to performing-rights societies like ASCAP or BMI by the music editors or audio directors, and so on.

In TV, for instance, the composer deal is between the composer and the studio or production company (not with the network). When the music is aired on

network or cable TV, the networks pay money to the performing-rights societies for the right to air the music. Typically, the networks pay a blanket license fee to the societies for the rights to air the music. Then, the societies pay a royalty to their respective writer and publisher members for the music that has been aired.

So all this fear from game companies that they're not getting a buy out of the work actually means they get money for free from the music on the back end and they don't have to pay anything?

In a sense, yes. They have to register with the performing-rights societies and submit the cue sheets. Then, if any performing rights monies come in, they are paid to the writer and to the game companies, if they are the publisher. For instance, if there is a commercial on television advertising the game and a composer's music is also aired on the commercial, both the writer of the music and the publisher of the music will receive performing-rights income from the performing-rights society. This doesn't change the fact that the production company/studio/game company *owns* the music. That is a separate discussion about the owner of the copyright, master, et cetera.

Fascinating. There are a lot of other terms involved in a deal memo. Can you recommend any resources for learning more?

There are several books that explain these terms. One I can recommend is *All You Need to Know About the Music Business*, by Donald Passman [available through Amazon.com].

If there are residuals for actors who perform "x" number of times in a theatrical playback setting, what about games?

I'm not sure if you can track music in an interactive setting, although sometimes we get points on the game/film project, et cetera, back-end bonuses based on sales, distribution deals, et cetera.

Ah, but you could.

Really?

Sure. Just have a programmer provide a log that spits out how many times a piece has been played. With online reporting in particular becoming a regular part of PC, as well as console game tracking, it would be easy. The problem with this is that it would be difficult to assign a value to it. Suppose that a piece of music was tracked but an animation wasn't, and the animator wants a residual, as well?

[Laughs] This is something that will probably be talked about for a while. ■

Alexander Brandon is audio director at Obsidian Entertainment.

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Coppola's New (Old) Way of Filmmaking

By Steve Shurtz

Francis Ford Coppola's first directorial effort in ten years, *Youth Without Youth*, might be called a Romanian film. Based on a novella by Romanian author Mircea Eliade, the story is set in Romania before the outbreak of World War II and was shot on location there with a predominantly local cast and crew. Nearly all of the post work was done there, as well. Romania is a hot filming spot these days because of its diverse and appealing range of rural and city locations and the economic incentives of working in one of Europe's least expensive countries. It was important to Coppola that he be able to produce the film himself, so budget was a concern. In a sense, the film marks a return to the more personal style of filmmaking he enjoyed before his mainstream successes in the mid-'70s. And the financial approach is straight out of the playbook of B-movie king Roger Corman (for whom Francis once worked): Find talented young people eager to get a break on a feature film and use them. They're inexpensive, creative and adapt easily to difficult filmmaking conditions.

Coppola, who personally adapted the screenplay, was attracted to *Youth Without Youth* because the story explores a number of different philosophical themes, including inner consciousness, identity and time. At the center of the tale—which the

director has likened to *The Twilight Zone*—is an aging linguistics professor named Dominic Matei (played by Tim Roth) who is struck by lightning and miraculously made young again, and with a superior intellect. While on the run from Nazis who want to exploit his mind, he re-connects with a flame from his past, a relationship now fraught with unusual dangers and repercussions.

Though Coppola did find most of the crew in Romania, there were a few notable exceptions including picture editor/re-recording mixer Walter Murch and sound designer/re-recording mixer Pete Horner.

Murch first worked with Coppola on *The Rain People* (1969) and was an integral part of the early days of Coppola's American Zoetrope Studios, along with George Lucas, Carroll Ballard, Bob Dalva and others. On such groundbreaking films as *Apocalypse Now*, *The Conversation* and *The Godfather* films, Murch worked in both picture and sound, and through the years he earned numerous awards for both picture editing and sound mixing, a rare cross-disciplinary feat in these fields at this level of filmmaking.

Pete Horner, an eight-year veteran of Zoetrope Studios, started in the transfer room and worked his way up to sound editor, sound designer and re-recording mixer. He works on the leading edge of digital audio, cutting with Pro Tools and adept at ICON mixing. He has the added advantage of having come into the post world using analog consoles and cutting mag. Now independent, Horner works at Skywalker Sound and else-



Tim Roth plays a professor who is miraculously made young again.

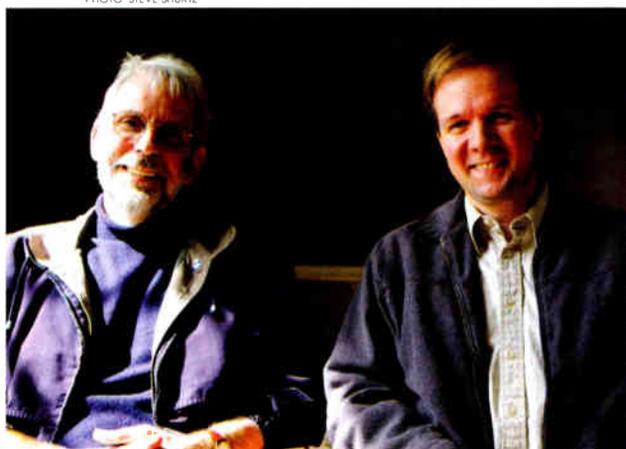
where. He previously worked with Murch on *Jarhead* and has worked on many Zoetrope productions.

Horner's first assignment was to look into post. "I went over to Romania six months early to answer the question, 'Can we do the sound post here?'" he says. "I spent a week there and I looked at the production building to see if they could also use it for the post-production. It was an old villa with high ceilings, creaky floors and a lot of marble. The second part of the question was finding personnel who could do this. It was a week of interviews of probably every sound person in Romania! Ultimately, I identified a team and I figured out a way that we could utilize the building."

Horner found that nearly all the East European sound-for-picture editors used Sony Vegas workstations, but since Zoetrope already owned three Pro Tools TDM systems as well as an ICON console that had been purchased for mixing Sofia Coppola's *Marie Antoinette*, the plan was to use that equipment, which would be shipped over, supplemented by purchasing four additional Mbox 2's with the DV Toolkit option and a Control|24 console. As it turns out, the Romanians were very adaptable and appreciated the experience on the popular platform. Horner notes, "I think that the plat-

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PHOTO: STEVE SHURTZ



Picture editor/re-recording mixer Walter Murch (left) and sound designer/re-recording mixer Pete Horner

The Kite Runner

Heightening Emotion with Sound

By Blair Jackson

Khaled Hosseini's novel *The Kite Runner* was a huge best-seller when it came out in 2004, but there was no guarantee that it could successfully be made into a film. Even with a proven director at the helm—Marc Forster, of *Monster's Ball*, *Finding Neverland* and *Stranger Than Fiction*—the story of an Afghani boy's return to his native land, since taken over by the Taliban, to help an old friend, didn't exactly scream "blockbuster." Throw in the fact that the film features a cast of foreign unknowns, is largely in languages other than English, and has a grim sexual assault of a child as one of its key plot-points, and it's easy to see why movie producers might have viewed it as a risky project, and why ultimately it was made more on an indie budget than a major studio outlay. Still, director Forster managed to attract a

top-notch sound crew to work on the film, and even though everyone involved had to dig deep to be creative within certain financial restraints, the result is a film that is being acclaimed for its power, sensitivity and artfulness.

Spearheading the post sound team at Skywalker Sound in Marin County, Calif., was supervisor Frank Fulner (*Hellboy*, *The Village*, *Charlotte's Web*), who was joined by sound designer Steve Boeddeker (*X-Men*, *Charlie and the Chocolate Factory*, *Corpse Bride*), re-recording mixers Michael Semanick (two-time Oscar winner for *The Lord of the Rings: Return of the King* and *King Kong: Ratatouille*) and Lora Hirschberg

PHOTO: PHIL BRAY



(*Batman Begins*, *The Prestige*, *Into the Wild*). When I spoke with Boeddeker and Semanick, they had just completed work on *Sweeney Todd* (and Semanick also worked on *There Will Be Blood*), so

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Tekkonkinkreet

A Sonic Journey to the Heart of Animé

By Mitch Osias

Tekkonkinkreet is the first Japanese feature film and, more to the point, the first animé to be helmed by a non-Japanese director, American Michael Arias. In late 2005, with the production already well under way, Arias invited me to supervise his film's sound design. I was initially intrigued by the story and design, and excited by the opportunity to collaborate on a traditionally animated film. Later, when he told me to get ready to work in Tokyo, I knew I was heading for a unique experience, a sonic journey to the heart of animé.

On my first trip to Japan, in April 2006, I had 10 days in which to spot the rough cut with the director and make location recordings. Armed with the screenplay, the *manga* on which the film is based, a Sound Devices 722 field recorder, and a

Sennheiser MKH418S MS microphone, I left New York eager to jump into this project.

After arriving at Narita Airport, I made my way via underground shuttle and commuter train to Kichijoji, a western suburb of Tokyo and a center for animation production. It was a short walk from the train station to Studio4°C. *Tekkonkinkreet's* animation production company, which is well known for their work on *The Animatrix*, which Arias had produced. Over the next three days, he and I watched and discussed the rough cut. The film was to be completed in October so what I saw was about 80-percent



animatic MOS. Arias verbally filled in the holes and beautifully articulated his aural vision for *Tekkonkinkreet*.

We had detailed conversations about *Tekkon's* historical and cultural context, filled with aesthetic references to films such as *City of God*, *Blade Runner* and *Delicatessen*, mixed in with discussions of Walter Murch and George Lucas's col-



laboration on *THX1138*. It was a stimulating and spirited exchange, the first of many to follow throughout production. I felt Arias was creating something special with this film and was excited to be a part of it.

Fortunately, Arias is a director who fully appreciates the role sound can play in film. We studied audio technology together as NYU undergrads, and our first professional collaboration was in 1993, when we created the score and sound design for *Megalopolice*, a five-minute CG "ridefilm" that he directed for game giant Sega. That was my first experience working with sound-to-picture and it proved instrumental in changing the focus of my career from music to post.

Tekkonkinkreet was Arias' directorial debut. It was also my first feature film, as well as the first film score for the composers, British electronica duo Plaid. Though veterans of our respective crafts, this was new territory for us all. We were exhilarated by the opportunity; it was our first movie,

and we believed *Tekkon* had the potential to be a great film.

Tekkonkinkreet is anim  for adults with a realistic aesthetic, set in a well-worn pan-Asian city inspired by 1960s Tokyo. Sound would be well-rooted in reality, emphasizing the weight, geometry and texture of the period-specific visuals, with departures into the fantastic as needed. I was asked to avoid anim /cartoon clich s and encouraged to use sound creatively to help tell the story.

Arias brought me to several Tokyo locations that served as inspiration for *Tekkon*. Over the next four days I recorded source material all over the city—on Tokyo wharfs, in smoky after-hours yakitori pubs, shrines, amusement parks and even a boxing arena. As we rode the trains from one spot to another, we discussed the scenes and logistical construction of Treasure Town, the city where *Tekkon* takes place.

Just listening to the material we recorded each day proved immensely inspiring. The gritty sounds of the bell, crowd and announcer I'd captured at a kickboxing event were so evocative they influenced Michael's construction of one of the film's key sequences. Our creative collaboration really began there.

Next came invention born from necessity. Given *Tekkon's* constricted budget and schedule, Arias felt the best way to realize the sound design for his still-evolving film was for me to set up my studio at Studio4 C's production facility. This way, he would be better able to interact with me, while still moving forward with the film's visuals and, later, recording actors' voices at various Tokyo dubbing facilities. Though concerned about the technical and acoustic aspects, I realized the advantages of this arrangement. Not only would it increase efficiency, it would also allow for a nuanced blend of sound and picture, and perhaps even open up more opportunities to mine real-world locations for sounds authentic to

the universe of *Tekkon*.

We were aiming high, and both of us realized the effort required to pull this off. With little money to throw at problems, I would have to become the entire sound effects department.

I returned to New York and started planning. Working to my specifications, Studio4 C outfitted the "sound room" (a repurposed conference room) with acoustic foam, a large-screen plasma monitor, and a Blue Sky Pro Desk 5.1 monitoring system (the entire sound design/editorial workflow would be in 5.1). Meanwhile, I put together a "portable" Pro Tools HD2 system in a G5 tower with 2 x 750 GB SATA drives loaded with an extensive database/searchable SFX library.

Over the next few months I sporadically received short QuickTime clips from Japan via FTP and began the sound design in New

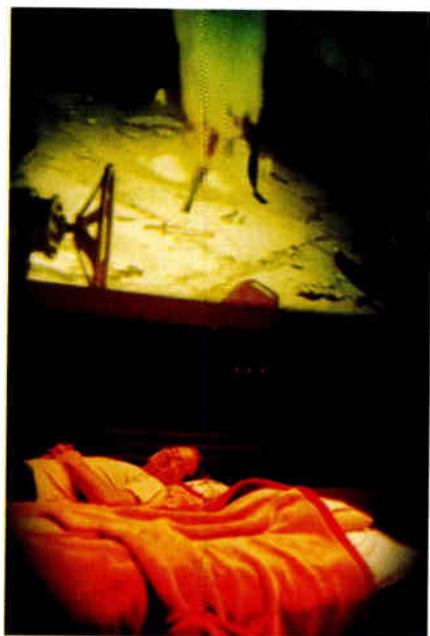


Mitch Osias was on the job every waking and sleeping moment (see below left).

York. By the end of July, I still had only 12 minutes of finished animation to work with. At that point, with just two months left to deliver, I packed up my rig and returned to Tokyo (praying nothing would get damaged in transit). After a 24-hour trip, I arrived at Studio4 C and assembled the studio. I got the computer up and running, calibrated the 5.1 monitors, set up video and, in a few hours, was ready to work.

With just 30 percent of the shots complete and 51 days to finish the sound design, I needed to maintain a pace of two minutes a day. Like all the animators, producers and the director on *Tekkon*, I wound up working 14- to 16-hour days, weekends included, through delivery.

Because I spoke no Japanese and had little free time, I often conversed only with or through Arias, my sole translator. It was a monastic existence, but it was energizing to be so focused on one common goal with the director and his team of animation artisans. With no budget for Foley art-



ists, assistants or SFX recordists, I stretched my library to its limits and grabbed sounds whenever possible. People wandered in and out of my room and, more often than not, were pressed into service assisting me with impromptu Foley sessions. The feedback I received from visitors was positive. It was a unique situation for animators and background artists to have a sound designer on-site, and we definitely inspired each other in this final stretch of production.

My ideas for sound leading picture in a couple of scenes were well-received (a video game sequence and several scene transitions stand out in my mind), and editorial changes were influenced by my input on more than one occasion. The sound edit room became a place for the director to view the film from a new perspective. It was this dynamic process that Michael was hoping to achieve by having me at Studio4C.

As my work progressed, however, I found myself wishing for original Foley material more than anything. I didn't have an isolated environment to record in, so I started pleading with the producers for access to a Foley stage. Michael and I visited both of the two dedicated facilities available and, just five days before the mix, I was granted one 24-hour session at Nikkatsu, an expansive but aging film studio, home to many classic Yakuza and soft-core "Roman" porn films of the '60s and '70s.

I packed up my Pro Tools rig and set up in Nikkatsu's Foley room, a former soundstage, piled floor to ceiling with everything from car doors to bowling balls, and equipped with a concrete-lined pit for water effects, and various floor surfaces. Michael drafted several of his animators as Foley artists. This ended up working out beyond expectations, because the animators were familiar with the characters' motions and possessed an innate sense of timing that's perfect for Foley. We worked 24 hours straight, and I captured some crucial material.

Over the next four days I cut the Foley, reconfirmed the sound to editorial changes, designed sound for recently completed shots, and started working with temp dialog and music tracks (the composers were experiencing a similar last-minute crunch in their London studio). With the cut all but locked and one of the composers flying in from London, I packed up my rig once more and moved to Tokyo Television Center, Japan's only THX film mix stage.

We had two days to premix and seven days to mix seven reels. I plugged into the DFC console and went to work on SFX. In the same room, dialog supervisor and mixer

Tsutomu Asakura cut dialog on another Pro Tools HD rig, and composer Ed Handley mixed down his cues in Logic. Arias and the rest of us literally set up beds under the screen and didn't leave until the mix was completed.

In the end, many compromises were made. Though the director and I wish we'd had more time and resources, we are enormously proud of the film we created. It has been a critical and financial success in Japan and was well-received at many international festivals. The review by *Variety* from the Berlin Film Festival even called the sound design "top-notch."

With the release of the DVD in the U.S. this past October, I was able to listen with fresh ears, and hear the new English-language dub.

Though making *Tekkonkinkreet* required sacrifices, and at times, total submission, it was one of the most creatively satisfying projects I've ever worked on. Arias is currently prepping his next project, a live-action film, again shooting in Japan. And I plan to return to Tokyo in Spring 2008 for our next collaboration. ■

Youth Without Youth

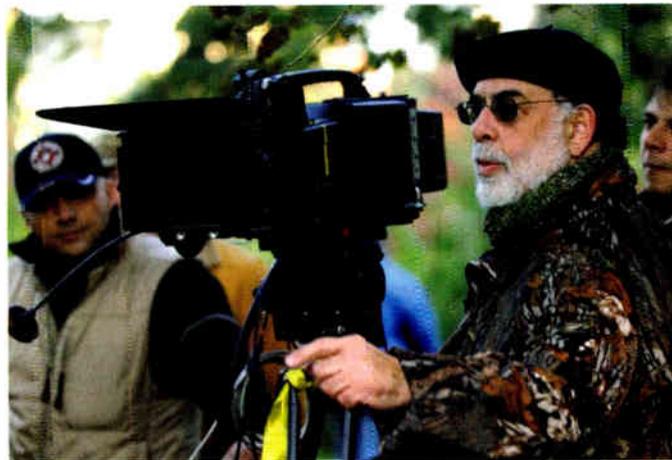
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form issue is not a huge deal for someone who is an editor. Which keys you hit are different and the menus change, but what you're doing is the same. So I'm sure that there was a translation that they had to do, but they picked it up pretty well." It helped, too, that sound effects editor Victor Panfilov already knew Pro Tools and could help others get up to speed.

FILM SOUND TECHNIQUE AND AESTHETICS

At Murch's urging, the sound crew diligently mined all the effects from the production soundtracks that they could. These elements provided much of the sound effects, ambience and backgrounds for the film. Murch had used this approach on earlier films, like *Godfather II*, and explains, "My aesthetic is to try to be as naturalistic as possible and to squeeze the production tracks really hard because there's great stuff in there that a

lot of times just gets stripped away, kind of like a pressure washer—everything gets blown away except for the dialog and gets replaced with Foley. This was the opposite, which is: flip out things that don't work.



Francis Ford Coppola gets behind the camera on the set of *Youth Without Youth*.

save everything that does work, and then mine the production tapes—maybe in another take there's a clean set-down and that kind of stuff. Maybe in another scene there's something you can use."

In addition to sound effects and sound design, whatever additional sounds were needed were created by location Foley, which is sound recorded in the real world, not a Foley stage, sometimes in rough sync for specific needs. Although the YWY production had built a small ADR room that could have worked for some of the Foley, the location approach was deliberately used for its naturalness. Horner says, "Vadim Staver, Foley editor and recordist, jumped in and really took this on. Vadim would go out with a microphone into real life, real spaces, and often perform them himself. He would watch it on a portable monitor held in one hand, he would hold the boom in the other, and he would walk. Sometimes he would rope someone into holding the mic for him, or he would set the mic somewhere, but I saw him actually recording, watching and performing all at once."

When it came to sound design, one of the most challenging elements needed in the film involved special sounds for scenes that dealt with a shift in consciousness. Horner drew inspiration from a personal experience of an aural sensation that happens sometimes when he awakes from a deep sleep. This sound varies its characteristics depending on his level of conscious-



so it's music reproduction throughout the ages. I found one instrument—this piano melodica—which is like a player piano: It takes this piece of paper that has punch holes through it and it strikes notes and it plays a tune when you turn the crank. But it was broken so it made a sort of cacophony of notes and it also made a clicking sound. If I turned it slowly, I would just get the clicking. If I did it quickly I would get this great cacophony, and

ness. To re-create this sensation in sound, Horner used an unusual Tibetan musical instrument called a singing bowl, which in this case was a large crystal glass bowl. "It's basically the same concept as a wine glass [sound] but it's much larger," he says. "The great thing about that is that it's almost exactly a sine wave, except that it's not. It has a sort of beating to it which I'm sure comes from the slightly imperfect shape of the bowl. So I began with that raw sound and pitched it and processed it in a number of different ways. I could get into this altered consciousness state using these sounds in a way that people wouldn't necessarily know that this was happening, but they would feel it. And then, depending on how the cut was made, it would either cut abruptly into real world sounds or it would hang over a little bit into the real world."

Horner also needed to create sound elements that bring to mind the concept of time. The crew searched the country for the perfect clock tower to record, settling on the clock tower in the town of Iasi, near the Ukrainian border. Horner recorded the bells and got inside the tower to record the pendulum and other working parts, which he described as "wonderful."

Before the excursion to Iasi, one of the producers questioned sending the sound designer, suggesting this might be a task for an intern. However, Murch intervened, explaining that there's something that happens when you send a sound person out to record a sound, "You get that sound but also usually get something else that you never would have been looking for." Prophetically, Horner found just that: "The amazing thing is that in this same building was this museum of mechanical music players. On one end of the room is a music box and on the other end is literally a boom box with a little placard in front of it with '1989.'

all the way in between. So I spent a lot of time trying to get every single sound that I could out of this one instrument. The ladies who ran the museum kept looking at me funny—like why am I so interested in this broken instrument?—but what I came back with was this great little library of sounds. The cacophony turned out to be its own special thing, but the clicking became a very instrumental part of the opening of the film and is used other places in the film. In the opening he's in a nightmare and we're really sort of bending time and consciousness and this sound just flies around the room and creates this sense that time is not necessarily a constant linear thing."

Murch elaborates, "The film begins with a very deliberate 'tick...tock... tick...tock,' but then these other things start to happen which are temporal distortions—of ticking, and also chimes; [you have] chimes going backward, those sort of elements, which combined with the images that you are looking at, in the beginning, which are mechanical time things, but that are being distorted through a diopter. You get these very unusual visual distortions of timekeeping devices mixed in with romantic images of the girl that you find out that he lost. And also of his work, there are linguistic things in there as well. It is an overture of the themes, in an abstract way, the way overtures should be because you don't know how any of these things tie up with the movie yet, because it's just beginning."

MIXING IN THE VILLA

Horner had committed to mixing the film in the villa, in keeping with the self-contained approach of making this film. Zoetrope's Robert Knox sketched the dimensions of a mix room—the standard room-within-a-room approach. However, the mix room was on the second floor of the villa, so there

was concern about the weight of the materials. Therefore, the floor was not floated, the walls were not quite as thick or solid as they should have been and it was a small room, about 12x15 feet. The compromises made in construction meant that it was not completely acoustically isolated. But it was a 5.1 mixing stage with projection that successfully worked, even if the editors next to the stage could hear leakage on louder scenes. Monitors were Blue Sky SAT 6.5s and two SUB 12s, shipped, like the ICON and the rest of the equipment, from the U.S.

All the premixes were done on the ICON, with Horner handling the dialog, music and FX, while Murch was editing picture. When he came onboard as a mixer, Murch premixed the ADR. On the final, he had his hands on the dialog and music on the ICON, while Horner used a Control|24 to handle the SFX, sound design and Foley. So, each mixer had separate sessions on separate Pro Tools HD3 systems.

"The sessions were built such that the premixes were online the whole time," Horner says. "Even when we were in final mix mode, the premixes were just a layer down, so we could make changes on the premix level and then switch back to final mix mode, with the exception of music. The music premixing was so DSP- and track-intensive that I had to do that as a separate session, print those tracks and then import pre-dubbed tracks into the session. In the case of dialog, Walter could always go back to the original recording without any processing or premixing I had done to it, but could also work in final mix mode."

On printmasters, Horner was concerned about the translation of the mix from a small stage to a larger theater, especially on the low end. Since there were no Dolby-certified stages in Romania, the printmasters were done at Zoetrope's stage in Napa, Calif., on the same equipment flown back from Romania.

A RETURN TO ROOTS

Lead actor Tim Roth commented that he found working with Coppola and his lean, back-to-his-roots approach on this film to be rejuvenating as an actor. I asked Murch if he found it a similar experience: "Yes, because any time you do anything that you're doing for the first time, you have to go back to a part of you that's closer to your own roots and then reinvestigate it. This is the first film that I worked on where so much of the picture was digitally acquired. It makes you take a step backwards to say, 'All right, what's the best way to approach this, both so I can feel comfortable doing

this and more importantly, how can I take advantage of the strengths of this way of working?" I'm sure that applied to Pete. The challenge of working in a different country, on equipment in a situation where there were so many new variables, was certainly similar to Zoetrope in its early days, [and also] in many ways to *Apocalypse Now*. We were doing so much that was new for the first time on that film, it just makes you have to come up with new ways of approaching the material. You have to rejuvenate, even to *think* about doing it."

"Ultimately," Horner adds, "this was working in the Zoetrope way, which is something I'm a big fan of, actually; it's something I have benefited from. Essentially, it's 'Do more with less; let your limitations spur your creativity.' I feel that I came through this rejuvenated in the sense that it was exhilarating. After having gone through it, I feel much more fearless than I was before doing it, because I've faced it and I've done it. I can find a way to make it work." ■

Steve Shurtz is the former General Manager of the Saul Zaentz Film Center and former GM of EMI's Studios 301 in Sydney, Australia.

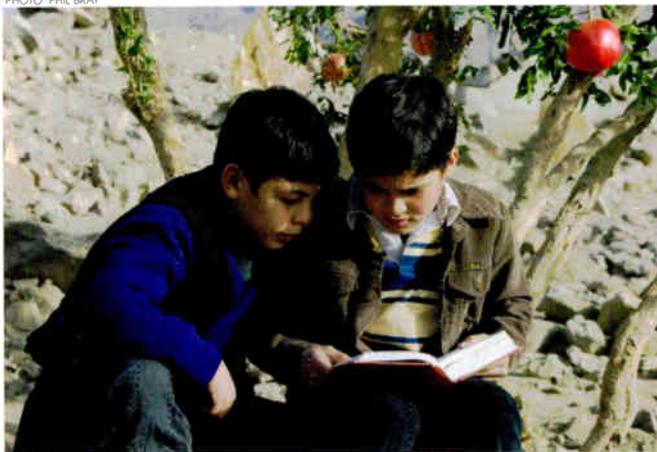
The Kite Runner

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they've been very busy fellows of late.

Now, it's common on big-budget films for the sound supervisor and/or principal sound designer and their crew to spend weeks or even months out in the field recording both hard effects and various raw material elements that can be used for backgrounds or combined in interesting ways to create original FX. We've all read many a story about painstaking sessions recording specific guns or cars or dogs, or traveling to exotic locales to capture "correct" ambiences. In the case of *The Kite Runner*, however, Eulner and Boeddeker took a different—and more economical—approach to collecting much of the material they needed to convey the sound of Afghanistan over a three-decade period. (Actually filming in Afghanistan was out of the question, so various locations in China, just over the border

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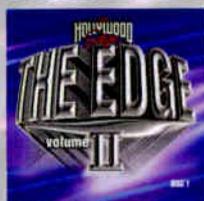
from Afghanistan, were used instead.)

"What we ended up doing, which worked out amazingly well," Boeddeker relates, "was we hooked up with two documentary filmmakers, one of whom had done a documentary about Afghanistan, among other places, in the '70s and '80s, and another who had just recently been there. We made a deal with them where we said, 'Okay, we're going to go through all your material—all your sound recordings, all of

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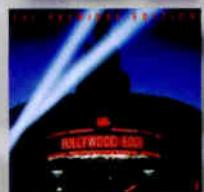
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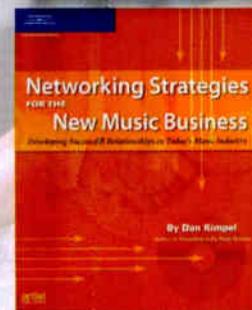
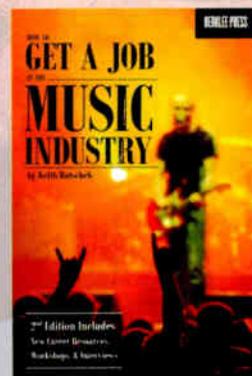
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PHOTO: PHIL BRAY



your DV videocam stuff; anything that had sound on it, and see what we can use.' So I would go through it, clean it, make it into a library, and we then paid them for the right to use it and gave them their library back. It was amazing how much we learned about Afghanistan by going through all this material, and it solved one of our big problems going in, which was how do we get authentic-sounding Afghani backgrounds and exteriors and cars and such that are appropri-

ate for the period?" The two documentaries in question were *Shadow of Afghanistan* by Jim Burroughs, Suzanne Bauman and Dan Devaney, and *Beyond the Call* by Adria Belic.

"Marc [Forster] wanted it to sound as accurate as possible, as if it was a documentary, but not sound like a documentary," Boeddeker says. "It's like a Hollywood version of a very accurate documentary-type sound. So that's what we were doing when it came time to

temp. And that was great—it was just right. Then we said, 'Let's go back and look at it from an overall emotional story standpoint and work on some sound design things.'"

Such as? "We started doing things like taking some of [main character] Amir's memories and, if it was a positive memory we'd heighten the positive side of it with sound, and if it was potentially a negative memory we made it sound worse. For instance, when they first go back [in a flashback] to

Afghanistan, when everything's happy, you don't see birds, but we filled the courtyard with tons of birds and you can hear people in the distance and there's laughing and kids singing; a lot of positive type of things and good home feelings. Then, when he goes back years later, [the capital city of] Kabul's been completely destroyed, and the sound is very stark and quiet. There are no birds. It turns out the Taliban actually did go in and chop down a bunch of trees, so it's a legitimate sound choice, as well. But there's no laughing. And we put in occasional distant gunfire which ended up being very effective. It's from one of the documentaries, so it's real stuff. The [documentary filmmakers] had also recorded some guys listening to a Taliban battle over the radio, so we ended up putting that in a scene, too—it's on in the background. You hear this yelling and screaming and gunfire and explosions; it's very strange."

"Steve and Frank did a great job of bringing me a lot of different tracks to layer," adds Semanick, who mixed the show on a Neve DFC. "A lot of what came to me from the documentaries were stereo tracks they had prepped up, and there were also



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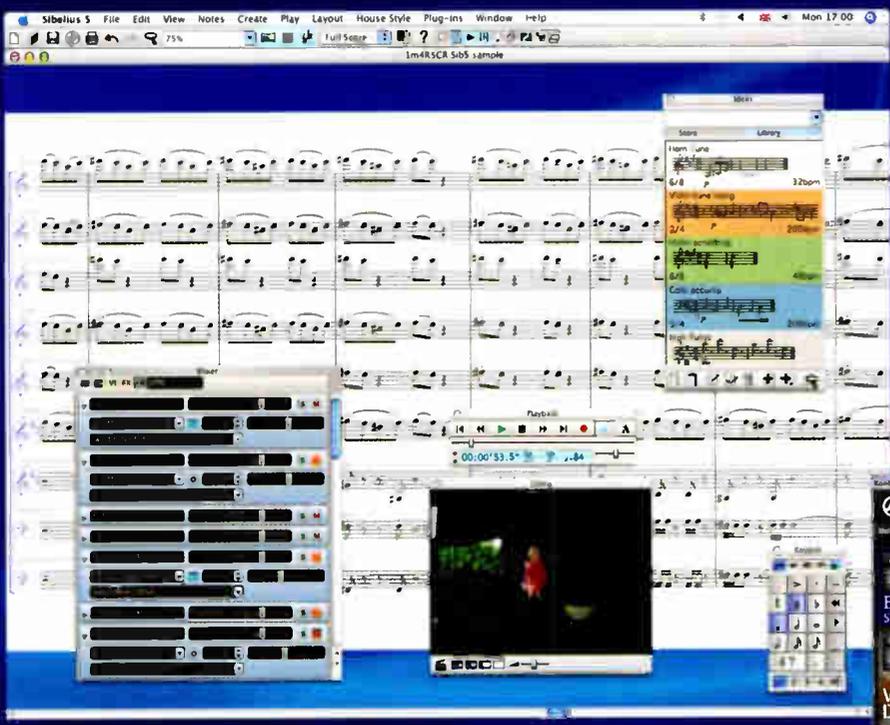
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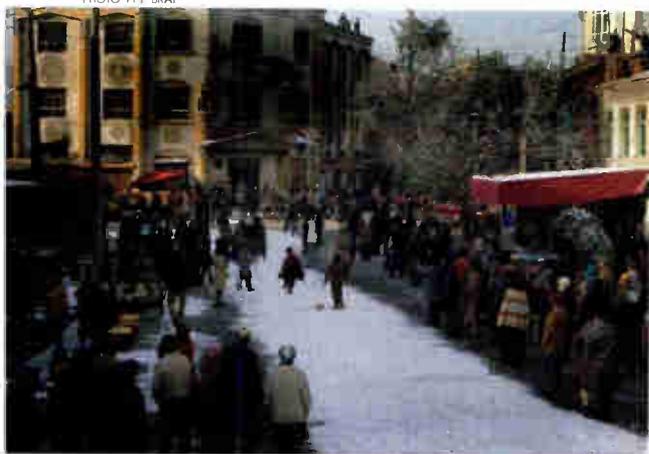
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some mono tracks, so I could place this one slightly left, that one slightly right, so it's not just a stereo background; it has a little more depth. Like when the kids run through the marketplace in Kabul in '69, what Marc Forster stressed is that he really wanted it to be a lively, active place: a fun place to grow up in. So we'd have all these great sounds coming from all over—someone's making something over here, someone's yelling over there, and I'd move it all around the room [using the surrounds]."

Semanick says director Forster "is a great one for letting you run with it. He has specific ideas, of course, but he also gives you the opportunity to take it and be creative—sort of, 'Show me something so that that I feel the emotion of this scene.'"

As often as not, it was the unexpected choices of what sounds to emphasize and the subtle application of processing that carried many of the film's most effective sound moments.

Semanick cites a scene in which our protagonists are trying to escape to America by traveling in a milk tanker, "and it's almost completely dark and the sound is all the rumbling of the truck and the eerie tones inside there, the reverb of the inside of this truck, which creates this uneasy feeling of being trapped inside."

Also challenging was the controversial rape scene, which is just a minute long, but pivotal to the emotional core of the story.

"That's pretty much all sound design and effects at the start," Semanick notes. "There's some close-up shots, and a kid starts beating him up, and it cuts back and forth, and it happens down an alleyway—it all becomes sort of ethereal, so I started to reverb a lot of the sounds, like the belt buckle coming undone and those sorts of things. There are lots of little sound design things going on that are sort of spooky and make you feel uneasy and help establish tension. Then the music comes in, too, and at times it's hard to distinguish the sound effects from the music, which I think is part of the beauty of that scene."

As for the kites of the title—kite flying (and kite fighting) being a popular pastime in Afghanistan and among Afghans in America—they did require some special recordings by Boeddeker and Eulner. The duo each brought Sound Devices 722 recorders to a windy spot near the marina in Berkeley, Calif., and then had a kite-flying specialist from L.A. named Basir Beria demonstrate some of the amazing things that can be done with kites. (The marina area is the site of a popular annual kite festival, which draws thousands of spectators.)

"The weather wasn't particularly good

- Tony Maserati** (*Black Eyed Peas*)
- Steve McMillan** (*Rod Stewart*)
- Charles Dye** (*Ricky Martin*)
- Spike Drake** (*Pet Shop Boys*)
- Jon Feldman** (*Ashlee Simpson*)
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- Simon Climie** (*Eric Clapton*)

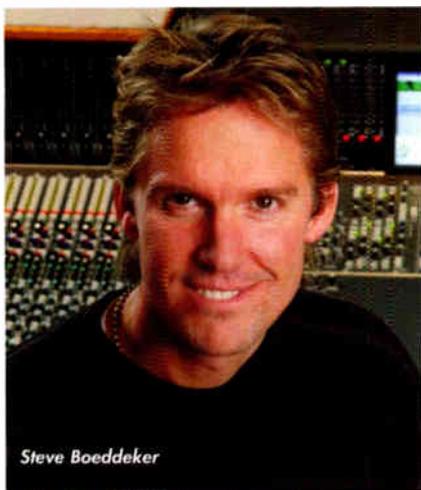
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Steve Boeddeker

that day," Boeddeker recalls, "and really, I wanted to record them mostly as a reference, because it's a pretty noisy place—there's traffic, harbor bells, planes and you name it. So Basir would fly the kite and Frank and I just stood next to him, getting all these fly-bys. I was even recording mono instead of stereo, because I didn't think this was going to be our only shot at doing the kites—I thought we were going to get mics and try and attach them to the kites and do all this other kind of stuff another time. But when we got back to Skywalker Sound, we discovered that what we'd recorded standing right next to him had this amazing jets-by phase-y kind of thing: I'm not even sure exactly what caused it. I ended up taking all those recordings and using every kind of clean-up tool I could come up with—like the Waves restoration stuff—and crazy amounts of EQ'ing and gating to get all the traffic out of these bays, and I ended up making a huge library of kite sounds.



Michael Sernanick

If you were to listen to them closely, on a couple of them you can catch a little bit of train [sound] on there." Later, some more kite recordings were made out at Skywalker Ranch, and some of the kite material was enhanced with Foley, but those original Berkeley recordings became the base sound for the kite scenes.

Sernanick notes, "We pieced a lot of kite sounds together trying to give character to each kite so it's not just a single sound all the time. Kites actually make a very cool and interesting sound when they *whish* by you.

I didn't have to do a whole lot to the recordings because they sounded so good, but I did a lot with the movement of the kite, panning it left and right and sort of whipping it across the screen. There are also a lot of shots with [the characters] on the ground where they're looking up at the kites, but you're looking at [the people], so I got to pan the kites a lot in the surrounds. [A kite flyer would] pull, and you'd see him look to the left, so in the left surround you hear the kite whip. That was fun to do because it gave the whole scene more character." ■

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Making Your Tape Echo Machine Last

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One of the unintentional “features” that results from recording to analog tape is the time delay between the record and play heads. Tape echo—sometimes referred to as tape slap—contributed to some of the high-fidelity era’s signature sounds, from pop standards to rock, and rockabilly to R&B.

When musicians wanted to take “that sound” on the road, people like Ray Butts and Mike Battle invented portable versions such as the Echosonic (1952, a guitar amp with a built-in echo unit) and the stand-alone Echoplex. The first 500 Echoplexes were sold to a Chicago dealer in 1959. Battle’s is still in business, producing a limited-edition tube version he calls the Tubeplex.

One of the great idiosyncrasies of tape-based echo units is the hint of self-chorusing due to speed variations caused by random friction in the tape path, pinch roller and motor bearings. There is, of course, a limit by which such imperfections can be tolerated, and it’s amazing how quickly small frictions can add up and eventually challenge the system. Like many vintage artifacts, tape-based echo boxes have that tactile factor: You can poke and prod the tape with your finger and interact with the device in real time, which is simply not possible in the digital domain, although some of the new touchscreen technologies show that the software side is working on being “tactile.”

INCH WORM

Most echo machines are based around a standard, ¼-inch endless-loop audio tape passing over one record

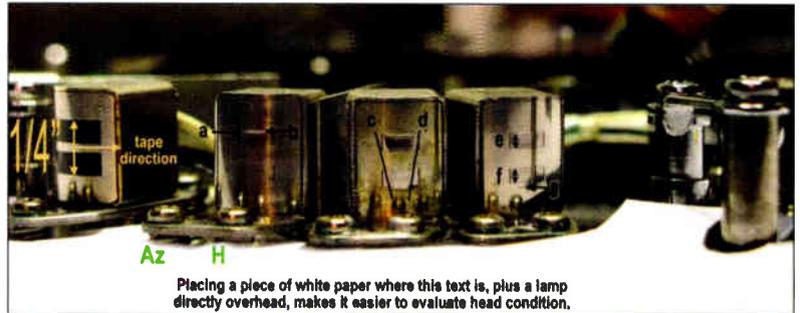


Figure 1: Four of the six heads used by the RE-301. The tape moves from left to right, starting with the erase and record, followed by two playback heads.

head and multiple play heads. One exception is the Binson Echorec, which uses magnetic wire wrapped around a flywheel. The Echoplex and earlier versions of the Roland Space Echo use a proprietary endless-loop tape cartridge that works much like a '60s-era 8-track, where the tape is pulled from a specially designed reel or pulley. For cartridge-based loops, the backside of the tape is impregnated with a graphic lubricant that tolerates the friction of pulling a magnetic rabbit out of a nylon hat.

The cool part about later Space Echo models (like the RE-301) is that they stored the loop in a bin, which means a wider variety of tape stocks could be used. That said, choosing the right tape for the job will maximize tape-to-head contact while minimizing headwear and friction in the process. For this job, I suggest using Quantegy 457 (available at www.totalmedia.com) or any 1-mil tape that’s not in danger of shedding. (Professional high-output tapes are typically 1.5 mils thick.) Both the Space Echo and the Echoplex apply back tension to the tape via felt springs, improving tape-to-head contact, and with it treble response.

The Space Echo’s heads are fixed in place (Fig. 1); in addition to the space (delay) between the heads, the tape speed is also variable to optimize the delay time—something that was easier to do in the '70s. In the '50s, when the Echoplex was developed, a constant tape speed was the only (easy) choice, and a sliding record head (Fig. 2) changed the delay time.

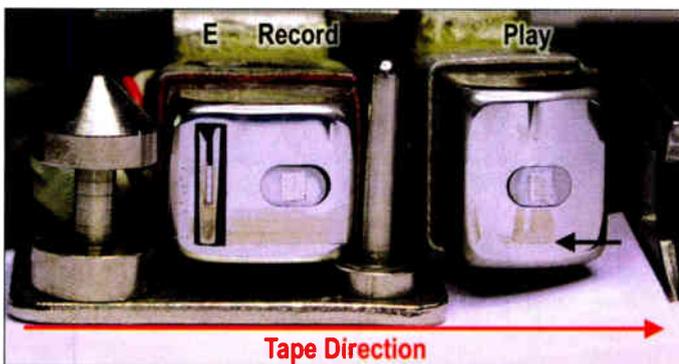


Figure 2: Two of the three Echoplex heads clearly show signs of wear, although not as extreme as the Roland Space Echo heads in Fig. 1. To the left is the combo erase/record head, mounted on a slider to increase the distance between it and the play head to the right.

HEAD VIEW

To get an idea of the relative health of a tape echo unit, you’ll need to get a good view of the head area. For these figures, a piece of white paper was laid in front of the head stack to better evaluate its condition. First look for height errors, which are easy to spot by eye—you don’t want

A night-time photograph of the Nashville skyline, featuring several illuminated skyscrapers and buildings. The lights are reflected in the water in the foreground. The sky is a deep blue.

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to see the tape head's "tracks" (pole pieces) above or below the tape. If the heads are in such good condition as to not show any appreciable wear, then the best way to con-

CLEAN THIS, LUBE THAT

As long as the pinch roller isn't gooey or dented, there's probably still some life left in it. (If it's not usable, head over to www.tetysrubberrollers.com

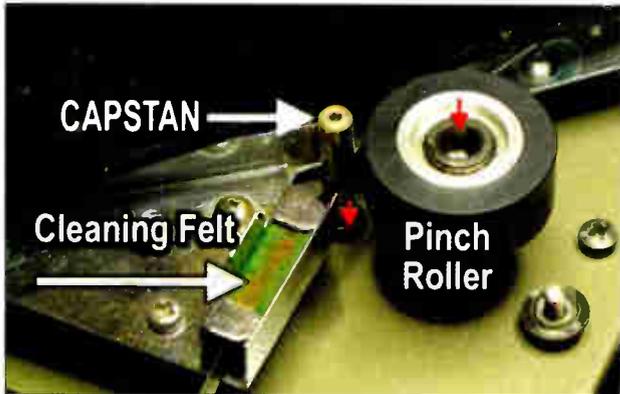


Figure 3: The Space Echo's capstan and pinch roller, the latter with its retaining cap removed. Notice how the pinch is lifted up and staying in position because the lubricant is so stiff (not good).

firm the mechanical head alignment is to draw on the head's face with a Sharpie or dry-erase marker. (Do this with an old tape loop.) The tape will wear away the ink and reveal Zenith errors, hopefully none as bad as shown in Fig. 1, labeled "c" and "d."

and they can make a new one.) Remove the pinch roller (Fig. 3) and wipe it with a cloth dampened with a water-based cleaner such as Windex. If it seems particularly oxide-encrusted, then you can safely soak it (overnight) in a 50/50 mixture of Windex and water, but only after removing the bearing lubricant. (See below.) The pinch-bearing lube in the RE-301 I'm servicing,

for example, was still like rubber cement, causing the roller to drag the tape speed down.

To clean the heads (and pinch bearing), use 99-percent (or denatured) alcohol and cotton swabs. Clean the capstan shaft and

the pinch roller's mounting post with a cloth dampened (not soaked) with the same alcohol. Don't let any cleaning solvent drip into the capstan bearing as this will dissolve the lubrication, increasing friction and causing heat that could possibly damage either the capstan or the motor bearings.

EL CAPISTAN

The Echoplex uses a belt to link the AC motor to its flywheel, the other end of which is the capstan. The Space Echo uses a direct-drive motor. (Neither the heads nor the motor are available, so be nice to them.) In both cases, a solenoid engages the pinch roller. The capstan and pinch roller should be perpendicular to the tape path and the deck plate (surface). If this is not the case, then the tape will drag on the tape guide edges, creating a "mound" of oxide dust below. (If you remove the pinch-roller screw, it, too, may attempt to ride up or down, another sign of poor mechanical alignment.)

For the Echoplex in Fig. 2, either the machine was left on continuous duty (for perhaps a decade) or more likely a certain "someone" (not me) increased pinch-roller pressure to compensate for perhaps what might have been the wrong tape type—or

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bad tape. The excessive pressure on the capstan shaft was enough to visibly elongate its bearing, which is riveted into place, messing up the tape path in the process (a complicated fix).

FALL INTO THE GAP

The business part of the head that creates the sound stripe or track comprises two mirror-image pole pieces that nearly meet. You may be able to see this "gap" in Fig. 2; if not, a good magnifying lens will do the trick. The gap should be perpendicular (at a right angle) to the tape. The adjustment to get it there is called azimuth. The "Az" and "H" designations (in green in Fig. 1) are screws that affect the azimuth and height adjustments, respectively, on the Space Echo.

Getting the azimuth right will maximize the high-frequency response. The best way to judge the HF response is with pink noise from a signal generator or FM static. In this case, you would inject and record pink noise, and listen to one head at a time while adjusting azimuth (side-to-side head tilt) for the clearest signal. All tools and heads should be demagnetized. The Space Echo heads are "stereo" wired for mono, making azimuth more critical than on the Echoplex.

AZIMUTH, HEIGHT AND ZENITH

Endlessly looping tape creates noticeable horizontal wear lines across the upper and lower head face (the edges of 1/4-inch tape travel) as shown in Figs. 1a, b and g. There are multiple lines because the tape height wasn't consistent. (More on that in a moment.) For the Space Echo, the rear height-adjustment screw (not shown) when combined with the front height-adjustment, affects zenith—the poorly aligned, front-to-back tilt that caused the uneven "e" and "d" wear pattern (Fig. 1). The top "e" area of *all* the heads is worn more than the bottom "f" area—bummer.

THE PLEX

Figure 2 shows the combo erase/record head, which is on a slider that increases the distance—and delay—between it and the play head. A separate play head allows sound-on-sound/looping on both the Space Echo and the Echoplex. The black arrow indicates the "lip" created by the bottom edge of the tape, above which is the wear pattern. From just looking at it, it looks like the amount of wear is equal to at least the tape thickness, which is not a good thing.

A yellow-ish green glue has been applied—in the annotated area—to lock the

head in place. The glue will likely crack off when the head is moved. To adjust azimuth, a nut behind the head assembly must first be loosened, after which a wrench can be used to ever-so-slightly rotate the head. I will say (somewhat squeamishly) that zenith is "adjusted" by bending the head-mounting brackets.

THE MAINTENANCE FACTOR (BIRTH OF THE COOL)

No matter which tape-based echo unit is within your field of vision, there's a symbiotic relationship between the "investment" required to be in possession of vintage coolness and the maintenance factor required to preserve it. Even if you can't D.I.Y., you might now know how to recognize and avoid doing further damage to something that could be older than you are. If your beloved does need more than D.I.Y. help, then send the entire unit in for lapping and mechanical alignment. Treat it well afterward, and it can give you a lifetime of service. ■

Eddie Ciletti is an educator, engineer and electronics technician based in St. Paul, Minn. Visit him online at www.tangible-technology.com.



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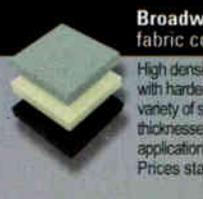
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FOCUSRITE ISA828

Designed to upgrade a DAW or studio's front end, the ISA828 (\$2,999.99) from Focusrite (www.focusrite.com) has eight original ISA transformer-based preamps, boasting the same design as the original ISA110 module from the company's Forte console—including the original Lundahl

L1538 transformer and custom Zobel network. The two-rackspace unit also features eight line inputs, four instrument inputs and an optional 8-channel, 192kHz A/D converter. I/O is on 25-pin D-type connectors for easy integration with Pro Tools HD, hard disk

recorders and mixing desks. Also standard are variable-impedance switches for the preamps, along with insert switches and highpass filters on every channel. LED input channel meters with precise meter trim use the same reference points as Digidesign's HD system and provide clear and accurate input metering independent of the DAW.

CORSAIR FLASH PADLOCK DRIVE

For security-conscious users, the Corsair (www.corsair.com) Flash Padlock USB 2 Flash drive offers an auto-locking feature that automatically locks and protects itself after removal from the computer. The affordable unit comes in either 1GB (\$29.99) or 2GB (\$39.99) versions, and has a 10-digit, user-customizable security PIN via a direct keypad on the front of the unit. It works on Windows, Mac and Linux platforms without the use of additional software.

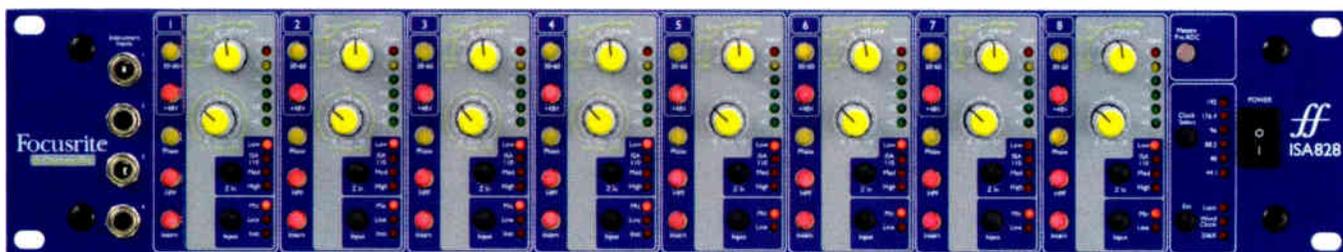


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M-Audio (www.m-audio.com) is now shipping its Fast Track™ Ultra (\$499.95) high-speed 8x8 audio and MIDI interface. Designed for mobile and desktop production, the unit features USB 2 connectivity, the MX Core™ DSP mixer and four preamps with award-winning Octane™ technology. USB 2 delivers the bandwidth for 24-bit/96kHz audio resolution and is Mac/PC compatible. The MX Core mixer uses eight DSP cores to deliver near-zero latency, effects, up to a 16x8 configuration and sophisticated channel routing matrixing—accessible via an intuitive control panel. Audio connections include six channels of analog I/Os (including four mic preamps and two instrument inputs), inserts on the first two inputs for connecting outboard gear, headphone out and 2-channel digital S/PDIF I/O.

BRANDON MCHALE DESIGNS MM96 MULTITRACK MATRIX

The MM96 (\$4,500) programmable switch array and dubbing interface from Brandon McHale Designs (www.brandonmchaledesigns.com) is placed in the signal path between two 24-track recording/playback devices, a mixing console and patchbay. It allows for instant recall of selected channels from either device to be sent to and returned from the mixing console with the remaining channels from either



device being sent to the user points on the patchbay. A Dub feature allows audio to be transferred from one recording device to the other without using a console, with programmable level control of the dub recallable at the touch of a button. A relay matrix handles audio switching with no circuitry in the signal path unless the Dub feature is activated. Eight fixed and eight user memories store favorite settings.



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Those seeking low-cost monitors should check out iKEY Audio's (www.ikey-audio.com) M Series, which includes the 5-inch, 75-watt M-505 (\$219.99); 6.5-inch, 90W M-606 (\$269.99); and 8-inch, 125W M-808 (\$319.99). All are bi-amplified and mag-shielded, and feature an MDF cabinet with radiused edges, red woven-glass aramid fiber-composite woofer and 1-inch soft-dome tweeter. It has XLR, TRS and RCA I/O connectors, and each monitor features volume

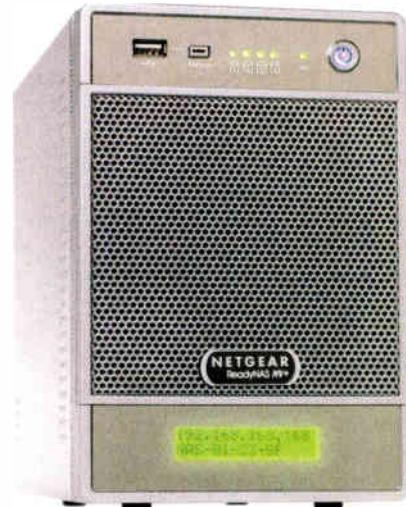
control and adjustable HF cut/boost. An optional M-10s subwoofer (10-inch, 175W) is \$419.99, and features a built-in crossover, pass-through capability for direct connection to the monitors, TRS/XLR/RCA inputs and a 35-150Hz response.

DB AUDIOWARE SIDECHAIN COMPRESSION VIDEO

db audioware (www.db-audioware.com) offers a free online tutorial on sidechain compression, presenting a step-by-step introduction to two of the most popular applications of this useful technique, often used for de-essing, voice ducking or in dance-music production to open up space for drum loops and let the mix breathe. The video features db audioware's latest Sidechain Compressor plug-in, which operates in the same way as any other sidechain, whether or not the software offers native sidechain support.

NETGEAR NETWORK ATTACHED STORAGE

Netgear's (www.netgear.com) Network Attached Storage (NAS) is a dedicated hard disk-based storage system for connection directly to a computer network, providing centralized data access to multiple



network clients. It features automated RAID management with volume expansion, letting users easily scale from one to four disks and beyond. Also onboard is a Gigabit Ethernet interface with native support for Windows, Mac and Linux/Unix clients, as well as FTP and HTTP support. Built-in system monitoring with SNMP, e-mail alerts and automatic online firmware updates provide system confidence (on- or off-site). The compact, 8x6-inch desktop unit comes bundled with five-client EMC Retrospect backup/recovery software for Windows and ReadyNAS for Macintosh. The cost for 1 TB (4x 250 GB) of storage is \$1,099.

BLACK LION AUDIO MICROCLOCK

In today's studio, clean clocking is a good thing, and the \$425 MicroClock from Black Lion Audio (www.blacklionaudio.com) may be just the ticket. The MicroClock uses discrete, Class-A MOSFET inverters to maintain clock signal purity and drive cable loads, and is just 4x1x3 inches (WxHxD). It works with any interface that has a 75-ohm BNC word clock input, and is capable of driving three 75-ohm BNC cables and generating sampling frequencies from 44.1-192k Hz.

PUREMAGNETIK GUITAR RACK

Guitar Rack Volume 2 from Puremagnetik (www.puremagnetik.com) is immediately playable out of the box and offers more than 60 high-quality loops, riffs and phrases of acoustic guitar, customized for Ableton Sampler, Kontakt 2 and EXS-24. Ableton Live users can take advantage of Live Clips with integrated macro controls. Kontakt users can instantly load loops in



...nki format with full KSP editing functions, while Logic and GarageBand users can take advantage of these sounds in Apple Loops format. Basic access to Puremagnetik's Micropak catalog is \$5.75/month or \$150/year.

SONIFEX RB-SC2 CONVERTER

Sonifex (dist. by Independent Audio, www.independentaudio.com) expands its Redbox range with the RB-SC2 single-rackspace, dual-sample rate converter, a \$1,150 unit with S/PDIF (co-ax and optical) and balanced AES/EBU digital I/Os. It can clock internally or externally at up to 192 kHz/24-bit, and run two independent sample rate conversion circuits that use a common clock source to set the output sample rate. A special X-Lock mode allows the unit to function as a fully bi-directional sample rate converter with the output of the first sample rate converter synchronizing the input of the second, and vice versa, so they follow each other.

I/ONE CONNECTS FIREWIRE AUDIO SNAKES

For getting your digital ducks in a row, there's nothing more elegant than a digital snake. I/ONE Connects (www.IOneConnects.com) offers multichannel audio transportation up to 1,640 feet along a single, lightweight fiber-optic cable. The mLAN-compatible snake (\$9,996) operates from 44.1-192 kHz, and comes with four stereo AES or S/PDIF I/Os, eight channels of ADAT I/O, 16 channels of analog I/O (externally switchable +4/-10 dBu) and word clock I/O. The snake features the DICE II FireWire chip with JetPLL jitter-elimination technology from TC Applied Technologies. Latency is only 0.35 ms, regardless of the number of devices connected. Other features include RS-232 control, fiber-optic and dual 9-pin FireWire connectors, and patchbay software for Windows XP.

SUBMERSIBLE TEMPESTAPACK I

Metal drummer John Tempesta (Testament, Rob Zombie, Helmet) has released a new heavy metal/rock/alt/industrial set for Submersible Music (www.submersiblemusic.com) DrumCore/DrumCore LT. The DrumCore search engine provides quick access to grooves, fills, variations and in-

dividual drum sounds with search content based on feel (straight, shuffle, etc.), time signature and tempo. Users can even add their own search criteria, such as new styles or comments. All audio loops and drum kit content are 48 kHz/24-bit. The set is priced at \$79.99, and requires DrumCore (V. 2 or higher) or the free DrumCore LT, downloadable from the company's site.

HOSA CUE 5

Cue 5 from Hosa (www.hosatech.com) is an \$899 monitoring system designed for the desktop recordist. These 30W powered speakers combine a 5.25-inch woofer and 1.5-inch silk-dome tweeter with analog (RCA or XLR) or digital I/O at 24-bit/96 kHz via optical or coaxial S/PDIF inputs. The included Mac/PC control software offers 6-band parametric EQ with bypass,

(www.hothousepro.com) lives up to its name, with available configurations having up to 20,000W of power for max SPLs in the 150dB range. The SD312 system combines a 12-inch Dual-Concentric driver with three 12-inch woofers, with the SB412 sub adding another four 12-inch woofers per side. Passive, bi/tri/quad-amped versions are possible, as are optional 2x15 or 2x18 subwoofers. System pricing begins around \$40,000. Also available is the HOS 115, featuring a 15-inch midrange driver, a wide-dispersion horn/HF compression driver, and a single-15, double-15 or double-18 subwoofer—all offered on a custom basis.

Part of the Linear Spatial Reference monitor line from JBL Professional (www.jblpro.com), the LSR6312 is a passive, three-way design with a 12-inch Differen-



independent volume, bass, treble, mute, left/right balance and programmable auto-fade-in/out. Eight user memories can store configurations and provisions for system access via Ethernet or RS-232. Frequency response is stated as 65-20k Hz.

CORRECTIONS

Several entries were inadvertently omitted from the large studio monitor article ("Livin' Large") in the November 2007 *Mix*. Here's what you missed.

Offered on a built-to-order basis, the High Output Series from Hot House Audio

tial Drive neodymium woofer, 5-inch cone neodymium midrange and titanium-dome tweeter on an Elliptical Oblate Spheroidal waveguide. The MF/HF sub-baffle is rotatable for horizontal or vertical orientation, and the drivers are mag-shielded. Response is stated as 60-22k Hz, but paired with JBL's LSR6312P powered subwoofer bandwidth extends to 28 Hz. The LSR6312P also includes RMC (Room Mode Correction) and integral bass management for surround use. For more IE, several LSR6312Ps can be combined or the 4645C 18-inch woofer is offered. ■

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- A 48-channel M-400 Mixing Console with 16 buses, channel and bus DSP, 4 stereo FX processors, 4 graphic EQs, built-in stereo recording and playback, and built-in multi-channel split port
- Up to 40 channels of limitless digital splits over Cat5e or fiber for monitor/broadcast positions and/or PC recording without any audio interfaces
- Up to 16 returns to stage over Cat5e or fiber

Easy to Use and Easy to Learn

The V-Mixer is designed to be fast and intuitive to use for the beginner or the experienced professional. It features dedicated knobs and buttons for access to console functions, 24 touch-sensitive moving faders, onboard Help, large bright TFT LCD display and Cat5e or fiber connectivity for low cost installation and truly portable systems.

Outstanding Sound Quality

The M-400 is a complete digital solution maintaining 24-bit audio from the stage to the splits and back to the stage. Preamps on stage provide the highest possible sound quality and intelligibility. Cat5e or fiber distribution eliminates the high frequency losses inherent in analog snakes. Onboard digital processing, channel DSP and routing eliminate any chance for buzzes from extra cabling and analog to digital conversion losses. Built-in 24-bit recording provides lossless capture of live events. The Digital Split allows lossless transmission to monitoring, recording or broadcast positions. Bus and Main LR return over Cat5e or fiber enables a complete digital signal path back to the stage.

Powerful Digital Benefits

Instantly change from event to event with 300 Scenes for total recall of all mixer, effect and routing parameters. Password level access provides only the relevant controls for any particular type of user. PC software allows loading/saving setups as well as real-time control. Libraries provide the ability to store custom channel, patchbay and effect settings. Direct to PC recording over Cat5e enables up to 40 channels of direct digital recording.

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Apple Logic Pro 8 Digital Audio Workstation

New Look, Reinvented Workflow, Plus Bonus Apps and Sounds

Apple acquired the Logic DAW when it purchased Emagic in July 2002, but until now the application looked much the same as it always did. Even after Apple's major upgrade to Logic Version 7 in 2004, the app's main downfall remained that it put flexibility before ease of use. Its feature set was great, but the GUI could become a nightmare of floating windows, obscure terminology and hidden key commands.

Logic Pro 8 remedies this problem by retaining the DAW's flexibility while making ease of use a priority, as well as adding expected functions and a few unexpected touches. Many users hoped that Logic Pro 8 would adopt a more Apple-esque look and feel, and with this new, extensive upgrade, it does. But what is most surprising is the price (\$499) and the package's many features. The Logic bundle incorporates more than one app, but for this review I'll focus on Logic Pro 8 alone.

WHAT DO I GET?

When I first heard about Logic Studio's updates, I expected to encounter the phrase "limited-time offer." Luckily, those words were nowhere to be found. Logic Studio includes Logic Pro 8; Soundtrack Pro 2 (reviewed in the December 2007 issue), Apple's audio editing/sound design app from Final Cut Studio; and MainStage, a new program for hosting software instruments and effects for live performance. Also included are five Jam Packs providing more than 18,000 Apple Loops and a wide range of new sampler instruments. Apple Loops are either Real Instrument Loops or Software Instrument Loops that conform to the session's tempo, making it easy to get a track started as a demo or for more serious musical endeavors. (If you thought that Apple Loops are for kids, visit www.mixonline.com, where we offer a clip of Rihanna's "Umbrella" from her 2007 Def Jam release, *Good Girl Gone Bad*, next to Vintage Funk Kit 03, the Apple Loop that acted as the basic building block for the song.)

Next in the list of features comes 1,300 total instruments; Xtreme Analog and Xtreme Digital EXS instrument libraries; 15 True Surround effects and two True Surround in-

struments; 1,000 multi-channel sound effects and music beds taken from Final Cut Studio 2; and 2,400 channel strip settings—chains comprising Studio Instruments and multiple Studio Effects. This entire suite of goodies is hosted by Logic Pro 8 itself, which has been reworked into a user-friendly, single-screen interface that not only redefines Logic's workflow, but also pays homage to the past by allowing users to work as they always have.

Logic also includes an Artist Spotlight DVD featuring tracks from Shiny Toy Guns, The Roots, Plaid and other artists. By clicking on the group's name, you will get a commercially released track broken down into its components so you can see how the artist recorded the tracks and how the mixer came to the final outcome. There are both stereo and 5.1 mixes on the disc and some have included videos. This is a great way to see how Logic ticks from the eyes of the artist and engineer. There are Logic plug-ins, Apple Loops and instruments on many of the channels so you can see how the engineers and artists crafted the sound, and how the plugs and instruments are set up in a variety of situations.

LET'S GET IT STARTED

Logic Studio came loaded on an Apple Mac Pro 2x 3GHz dual quad-core computer with 8 GB of RAM. After launching the app, I selected Create New Project, and right off the bat I saw something new: The screen was segmented into two boxes. This is unlike past versions of Logic in which a Setup Assistant asked questions about audio interfaces, sample rate and more. There are now collections on the left titled Explore, Compose and Produce. Within each of these collections is a list of templates in the right column. If you choose Compose and Orchestral, for instance, Logic Pro 8 loads the appropriate Jam Pack sounds to your category and gives you a track and empty



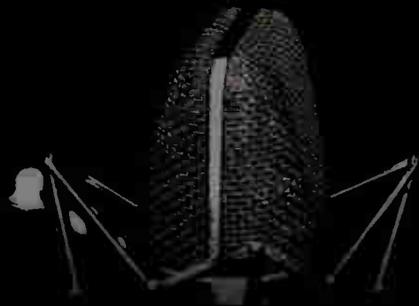
Logic Pro 8's Arrange window, showing tracks and regions

track regions in which to work. From there, it was easy to create a new track with a handy "+" button—a common Apple feature found in iCal or Address Book that is used to create new entries or categories. If you'd rather not take advantage of this framework, then you can open an empty project. In this case, Logic asks you what kind of track you want to create. You have the options of audio, software instrument or external MIDI, and you can go on from there as you wish.

What's most apparent in the new session is that Logic looks like it's built from one screen. This is the Arrange window—nothing new to Logic users, but now it includes retractable panes that provide access to all the primary editors and browsers that previously were only available in separate windows. This main screen is all you'll need to take a production from beginning to end. Yes, this is much like the GarageBand model, but don't think for a minute that this is "GarageBand Plus" because Logic has some serious horsepower and options unlike anything you'll find in other DAWs. Keep in mind, though, if you *want* to work with separate windows, you may do so by opening them up and dragging them to a second monitor, or have them behind the Arrange window.

CUSTOM CHOICES

Apple's hand in Logic's software design is most apparent in the toolbars across the top of the Arrange window, which are consistent with iWork, Soundtrack Pro 2 and Final Cut in a number of ways. First, you can



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customize your toolbar with a Control-click (or right-click if your mouse has that option). When you choose Customize Toolbar, a screen with 40 choices will pop up and let you drag your favorites up to the toolbar. This is unlike past versions, in which certain key commands were permanently relegated to the land of the obscure pull-down menu or operator's memory. Now you can make the toolbar your own.

At the bottom of the Arrange window is a customizable transport. A Control-click or right-click brings up a master window full of checkboxes that allow you to add options such as Play From Selection. Simply click on the check box and the button appears on the transport. Just above the transport are tabs for bringing up the editors. In previous versions, viewing the mixer required switching to a mix screen; now, you click on the Mixer tab. The Sample Editor, Piano Roll, Score and Hyper Editor, previously available only as separate windows, can now be opened within the Arrange window using tabs that run along the bottom.

Key command sets can be customized, saved and recalled on the fly so that you can jump between sets. This is great for a multi-user project, where each user could have his/her own sets of key commands that could be shared locally, through a networked computer or through a .Mac account using new sharing features, which can also be used to share plug-in and channel strip settings.

There is a slick track-zooming feature, Auto Zoom, which will automatically size your track as you click or arrow up and

down the list. First, manually zoom any track by going to the lower left hand side of the track name window where a hand tool will appear. Click on the corner and adjust the window to any size you like. If you click onto another track with Auto Zoom off, the window you just sized will remain the same size. However, with Auto Zoom on, if you use the up/down arrow key or click on another track, the tracks you move to will pop to the expanded size, while the track you just left collapses back to its original size. This is very handy for automatically sizing a track as you arrow around your mix.

IT'S ALL ABOUT CONTEXT

To view and manage your compatible Logic media in a variety of ways, the right side of the Arrange window has tabs that provide access to a set of Media browsers. The Bin tab displays your current project's audio files and regions. You can use the File Browser to search your hard drive, find Logic-compatible media and load it into your session. For instance, you can search for files with a certain file name that have a bit depth of 16 bits, all without leaving the app, and a Loops tab allows you to search for and import Apple Loops into Logic.

The Library tab lets you browse software instrument and effect settings, channel-strip settings, external MIDI routing destinations and more. The Library can change context depending on what you've selected elsewhere. For example, select a software instrument track and a set of instrument chan-

nel strip settings are displayed. Highlight a plug-in inserted on the channel strip and the settings for that plug-in are displayed. You can also filter the display based on search criteria, and as with other familiar Apple apps, these are searchable via the mouse or arrow keys.

Also worth mentioning is how Logic organizes these settings. If you click on an individual channel plug-in, such as Space Designer, the Library shows Space Designer settings including Large, Small and Medium spaces with their corresponding subcategories. All the settings go from short to long decays, top to bottom. There's no need to search for this data on the plug-in itself, which would clutter the session above your mixer or Arrange window.

MIXING IT UP

The Mixer and Inspector work hand-in-hand to give the user some incredible features that speed workflow. Most importantly, signal flow viewing choices abound. For instance, the Dual Channel Strips found at the base of the Inspector provide access to the selected track's channel strip and any Output or Auxiliary channel to which it is sending signal. The "Single" view option found in the Mixer window itself lets you see only the channel strip of the selected track, plus all Output and Auxiliary channel strips to which it is routing signal. It's like Pro Tools' Show/Hide groups function, but it's automatic. This lets you easily troubleshoot your signal flow on individual channels, because all you see is other channels sharing a signal path.

Making a send and accompanying aux return is also greatly expedited. For example, when you choose one of your 64 stereo buses from the Sends pull-down menu on the channel, rather than having to create a "home" for your processor, Logic automatically creates the aux input and puts it in the mixer window.

CREATING A TRACK

I created a demo in a short time with just a guitar. I began by bringing up an Apple drum loop simply by dragging and dropping from the Library onto the Arrange window, which automatically created the track. I got the tempo where I wanted it and the loop followed along with no glitching or ugliness. Next, I created a track for my guitar from the lists in the Library under Guitar, Clean and Dual Chorus. The guitar track automatically brought up an easy-to-use tuner, allowing me to quickly tune the instrument. After clicking on Record, a window popped up asking where I wanted to put the audio files and I was off to the races.

Surround Features

Logic's surround capabilities have increased considerably in Logic Pro 8. For example, you can now record a surround track and see I/O levels on multichannel meters. The panning is top-notch, with a great-looking interface that lets you easily move up to 7.1 individual channels or groups of channels. Surround signal flow is supported throughout the DAW—even in busing for porting your channels to surround processors. Speaking of which, the included Delay Designer and Space Designer plug-ins are now true 5.1 processors, with the reverb offering a great-sounding group of new impulse responses from the best rooms in the world. You can also use your other plug-ins in multimon mode, providing a variety of options from existing resources. Using the included Compressor app, you can encode your mixes in Dolby AC-3 format for playback on any standard DVD player with Dolby Digital surround playback.

And if you jump from surround to stereo on the same session, you can use the Downmixer plug-in to make your job easier. These surround features take Logic light-years beyond where it's been, providing all the necessary tools for taking a project from concept to consumer.



The Surround Panner lets users grab the front three channels and move them as a group.

—Kevin Becka

“There is no upgrade from this”



“I’ve been buying audio gear for years...I just bought a Millennium Origin, and for the first time, I feel like I’ve bought something I’ll have for the rest of my life. Not to say I’ll never want anything else, but for what the Millennium preamps offer, there’s nothing better.”

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QUICK COMPS

I used the slick multitrack recording function by making a selection and engaging Record. Each time I played the section, a new pass (called a *sub-lane*) was created as it repeated. You can do this as many times as you like and it's automatic. You can then audition parts of each take region by using Quick Swipe Comping. This new feature lets you choose the audio from each sub-lane and hear the results immediately. You can save as many comps as you like and recall them from a list. Once you decide on the final, you can simply choose the folder or choose Flatten Comp, and all the regions from the original tracks are laid end-to-end in the main channel. The advantage of flattening is that you can then move the audio regions individually or change the crossfades.

IT'S OUT OF HERE!

Apple has knocked it clean out of the park with Logic Studio and Logic Pro 8. It's worth stating that Logic's resources sound excellent. The included processors, instruments, loops and samples are all top-notch. Space Designer and Delay Designer are true 5.1 time-based effects, and the impulse respons-

es for the reverb are rich and deep with lush tails. The ES2 instrument's sounds are mind-blowing—a sound designer's dream. Going through the settings, especially in surround, is impressive.

This is the first time I've seen a DAW take full advantage of what a computer does best. The well-written software presents pertinent data clearly and automatically. The streamlined GUI redefines workflow and gives the competition something to envy. In addition, the long-sought-after introduction of multitrack plug-ins; no-charge extras such as MainStage and Soundtrack Pro 2, Apple Loops and Jam Packs; and pricing at \$499 is nothing short of jaw-dropping.

But, of course, this isn't a perfect world, and there are a few items on my wish list for V. 8.1. For starters, there is still no true stereo panning. You have the opportunity to change the pan rules when you pan hard-left/right (0dB, -3dB or +3dB compensated, where center is zero but 3 dB is added when you pan hard-left or -right), but there is still no easy way to have dedicated panners on a stereo track. Speaking of panning, I found it a minus that there is no panner available on your aux send. This would not allow you to create headphone cues when

the artist might want to hear a different panning scenario than what you're hearing, nor specialized panning for mix effects returns. The workaround is the Post-Pan button, which allows you to reflect the panning of the channel, but is clearly not as flexible as having separate panning.

All that said, Logic Studio is a no-brainer purchase, but if you still don't want to spend \$499, you can get Logic Express for \$199. Unlike past versions, Express only takes you down a few notches from the Studio package, leaving out TDM support, surround support, Distributed Audio Processing and support for high-end control surfaces. If you were waiting to make the jump to Logic or have longed for a great second resource in the studio that won't break the bank, now's the time to get this one. Logic Pro 8 is what it needs to be: an affordable, professional one-stop production app for engineers, composers, sound designers and live musicians.

Apple, 800/692-7753, www.apple.com. ■

Mix technical editor Kevin Becka was recently elected to serve on the SPARS Board of Directors. He thanks Robert Brock for his help in this review.

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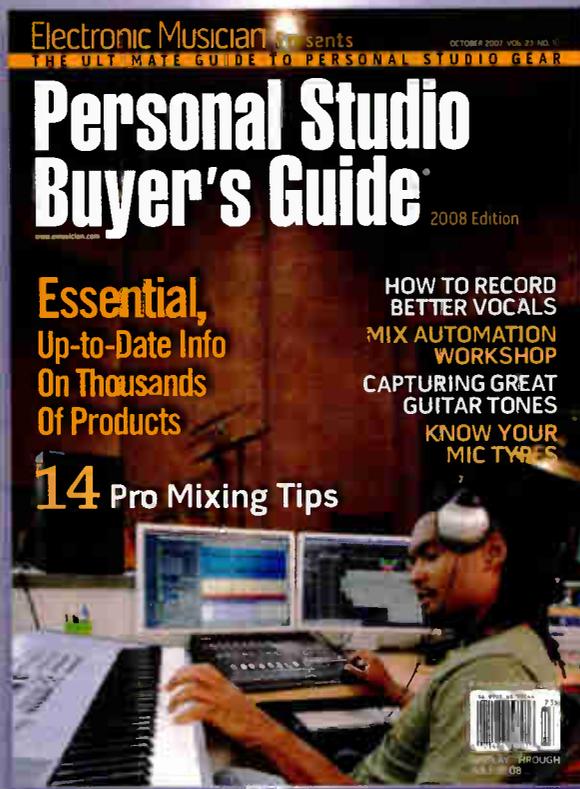
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Dolby Lake Processor Speaker Controller

Remote Adjustment of EQ and Crossovers for Studio or Live

The Dolby Lake Processor (DLP) is a digital loudspeaker processor “mainframe” designed for use in live and studio applications. Combining proprietary technology developed by Dolby Labs, as well as Lake Contour and Lake MESA equalization, the DLP is offered in configurations ranging from the LPD (digital I/O only) up to the LP4D12 (4x12 analog I/O), which was used for this review.

LET’S JUMP INTO THE LAKE

The \$7,000 LP4D12 has balanced analog XLR I/O and eight AES/EBU I/Os (16 channels), along with S/PDIF optical I/O. A BNC connector facilitates sync to external sources up to 192 kHz, or the device can sync to its internal clock. Front and rear panel Ethernet connectors provide easy access of the DLP to a network.

Occupying most of the front panel are Dolby’s “Portal” meter/controls, which deliver more information than any audio meters I’ve ever seen. Each Portal shows what is happening in a specific “module,” or processing block. (A module includes input, mixer, EQ, crossover and outputs for multi-amplification.) Initially, I configured the DLP as a 2-channel, three-way crossover, so the first Portal showed level for low, mid- and high outputs on its inner ring. Another concentric ring of metering showed compression on the output if applied. Surrounding each Portal is a backlit ring of push-buttons that provide access to functions based on operating mode. In the previous example, I could mute the LF, MF or HF output simply by activating the global Mute Enable and pushing the button closest to the respective output meter; buttons that are not active are unlit.

CONTROL ISSUES

The DLP operates in one of three configurations. In the default Contour mode, the unit functions as four three-way loudspeaker processors. (Four-way, five-way and six-way crossover configurations are also available.) Contour/MESA mode provides two three-way loudspeaker processors, plus four MESA EQs. In MESA EQ mode, the DLP runs eight MESA EQs. Operating mode can be reset from the front



panel or via software.

The DLP’s front panel functionality is limited, but Dolby Lake Controller software provides access to just about every parameter via wired or wireless Ethernet. (The software runs on Windows XP; a tablet PC is recommended but not required.) A variety of base configurations include Classic and Linear multiway crossovers, or multiway crossover “+1” aux output to add a subwoofer feed. Dolby also includes profiles developed for specific loudspeakers from major manufacturers.

I first used the Processor in Contour mode for a three-way P.A. with a delayed two-way “lawn” system. In this mode, four processor modules appear in the module scroll bar, default labeled A, B, C and D. To access parameters of the modules, you drag them into the main page area, at which point the software “synchronizes” with the hardware. The icon for each module clearly shows its ID, input and output mute status, frame and module names, and the module type. I designated Modules A and B for the main system L/R and Modules C and D for the lawn L/R. The DLP automatically sets up default signal routing with input mix, gain, EQ and delay, crossover, output EQ and levels. Tapping I/O Config opens a block diagram of the processing and a series of menus for clock source, input select and the DLP’s Iso-Float status. Iso-Float is a brilliant feature that allows remote ground lifting of analog I/O cards. It should be employed on every loudspeaker processor

A tap on input 3 in the C module opened the input mixer. In this applica-

tion, the lawn system need not be discrete stereo because listeners on one side of the venue would miss audio panned hard to the opposite channel. “Bleeding” input 4 into module C and input 3 into Module D reduced the stereo spread without destroying it, thus avoiding this issue. With a single tap on input delay or a single fader move, the lawn system was time-aligned with the mains.

Selecting Output EQ/XVR opens up a screen with a series of tabs at the top: Levels, PEQ1 (parametric EQ 1), GEQ1 (Graphic EQ 1) and XOVER. The XOVER page provides a graphic display of the current crossover filters. By dragging filters along the graph’s frequency axis, I could easily hear—and see—the effects of moving the crossover point(s). Filter options include Bessel, Butterworth and Linkwitz-Riley, with slopes ranging from 6 to 48 dB per octave. Slopes are already established when the base configuration is loaded, yet you can create and store custom configurations.

EQ FOR MAINS AND MONITORS

Equalization is where the system flexes its true muscle. For starters, you have parametric and graphic EQ on each input. Modules and groups of modules can have additional layers of EQ known as overlays, with up to 256 EQs across multiple overlays. Audio response is calculated by summing the input EQ with the overlay EQ. Overlays come in handy when you need global EQ applied across a group of modules after establishing the system’s default response.

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FIELD TEST

Once I dialed in my setup, I could provide guest engineers with their own graphic EQ overlay, letting them tune the P.A. to their tastes without messing up system parameters. If you need to tweak the EQ on a specific crossover output, adding a filter to the XOVER page leaves the other outputs unchanged. In one instance, the LF cabinets on one side sounded slightly different from the other. I compensated by adding a parametric filter to one of the low outs and adjusting it until both sides sounded consistent.

For stage monitor EQ, I reset the mode to MESA EQ. My test unit had 4x12 analog I/O, so the maximum number of accessible MESA channels was four. Loading the unit with eight analog I/Os would allow eight MESA EQs. With the tablet tethered to a long Ethernet cable, I could stand in front of a stage monitor and use the graphic EQ to achieve maximum gain before feedback.

would require an infinite number of bands and would produce a ragged response with some nasty phase-shifting. After said monitors were hung and dialed in, the musician commented that there was too much midrange, which was easily fixed by adding a gentle MESA filter from 1 to 3.5 kHz and dialing down the gain by a few dB.

WHAT YOU GET OUT OF IT

What I've described here is really just the tip of the Dolby Lake Processor iceberg, so be prepared to work through the tutorial. The software is so deep that it would take several pages to detail all of the functions. During my trials, I did things like lock the DLP to an external clock and pull the clock cable while audio ran through it, with no glitch in the audio output—very impressive. And walking a room with a wireless tablet while adjusting EQ is a wonderful thing.

DLP in the Studio

My review of the Dolby Lake Processor concentrated on live sound applications, but the DLP is equally useful in the studio. San Francisco's Talking House Productions recently installed three LP8D8 (eight analog I/O) units to manage monitor systems in three control rooms. According to Pete Krawiec, the facility's chief engineer and producer, "All three control rooms are set up for 5.1 monitoring with five Genelec 8050As and Genelec 7070A subs. Studio A also has Genelec 1038s for the main stereo monitors, so all eight channels of that particular processor are being used. Dirk Noy from WSDG [Walters-Stork Design Group] tuned the rooms using the DLP and it sounded much better, especially in the bottom end."

Noy set up the DLP to correct for bandwidth (high- and low-shelf filters), EQ (dips and bumps) and timing/delay for the "fly time" relative to individual driver and loudspeaker positions, including the subwoofer. "In this particular case [with Genelec loudspeakers], the crossover functions are not needed, but very often they need to be set, as well," says Noy. "In my experience, an even frequency plot needs to be complemented with accurate timing behavior [a very clean 'single direct-sound peak' impulse response] to make for accurate, transparent, well-translating sound. Despite this observation, the timing information gets much less attention in the broader public."

One of Krawiec's concerns with the DLP was latency. "Since the DLP processes audio in the digital domain," he explains, "I was worried that performers in the control room would detect latency, but the delay was no more than stepping back from the speakers a few feet, so you don't hear it."

—Steve La Cerra

Lake Contour technology allows for "smart" graphic EQ, combining adjacent filters to produce a smooth composite curve, as opposed to the jagged response produced by traditional graphics.

The star of the show—the Lake MESA EQ—is a single-band EQ with two separate filter points. You can adjust frequency of the filter points and change the slope of *one side* of the filter while leaving the other side intact. This produces what could be described as a parametric mid-frequency shelf EQ that sounds very natural when using gentle slopes. Using several bands of graphic EQ to accomplish the same thing

The most important question is, how does it sound? Fantastic. It's as close to a straight wire in the signal path as I have yet to hear. Particularly in the studio (see "DLP in the Studio" sidebar), it was apparent that Dolby did its homework on the AD/DA converters to make sure that audio remains uncolored until you decide to color it. The Dolby Lake Processor's price point is for those with deep pockets, but as a tool for use in A-level P.A. systems and studio installs, it represents the current state of the art.

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AKG C 5 and D 5 Handheld Microphones

Identical Twins of a Different Color

The near-identical look of AKG's latest series of handheld vocal mics may cause one to assume they are similar, but in fact, these are two completely different products with their own personalities. Both the C 5 condenser and D 5 dynamic models have slightly elongated, 7.3-inch zinc alloy bodies with a gray-blue finish. And other than the model number in small lettering at the base of the mics, the only outward factor that sets these two apart is the word "condenser" on the aluminum band that circles the pop screen on the C 5 model.

UNDER THE HOOD

Unscrew the dent-resistant, spring-steel wire mesh grille, and the changes between the two are striking. The D 5 (also in a version with on/off switch) has a 1-inch diameter diaphragm in a nylon/hardened plastic housing containing a high-output neodymium magnet assembly set into a rubber shock-mounting assembly. The diaphragm uses AKG's patented Laminate Varimotion technology, a manufacturing technique for varying the diaphragm thickness from 40 microns at the center to 20 microns toward the edge, for better control of capsule resonance. This reduction of unwanted resonances at the source is said to reduce mic's susceptibility to feedback, especially combined with the supercardioid response of the D 5's capsule.

The C 5 has a gold-plated, medium-diameter (1/2-inch) diaphragm set into a machined brass and gold-plated capsule housing that's said to offer optimum conductivity, with corrosion and humidity resistance. An exceedingly fine layered mesh covers the capsule itself for additional protection, and the assembly is set into an elastomeric surround that delicately floats the capsule, protecting against thumps and handling noise. The C 5 ships with the PB 1000 presence boost

adapter installed. The PB 1000 is a plastic cap that surrounds the capsule, with three strategically placed holes acting as a passive acoustical filter. The PB 1000 changes the C 5's upper mid-frequency response, resulting in a 5dB boost centered around 9 kHz for improved vocal intelligibility. When removed (the PB 1000 snaps off easily), the mic has an otherwise mostly flat response, with gently rising high frequencies with two 2dB bumps at 3.5 kHz and 11 kHz.

CENTER STAGE

Overall, both mics have excellent fit and finish and a solid feel, but the use of a standard (rather than inset) screw to keep the XLR in place results in a small bump where the screw extends beyond the body. The mics balance nicely in the hand, although their 12-ounce (3/4-pound) heft may become noticeable after a long night of handheld use, particularly to the smaller performer.

The internal shock-mounting in the D 5 offers good protection against noise transmission from stage-borne vibration and handling noise. Yet the C 5 goes much further, with enough capsule isolation to ward off anything short of a hit with a baseball bat.

The D 5 is touted for its feedback suppression, and through the combination of the mic's supercardioid pattern (which remains tight in the critical 2 to 8k Hz band) and the resonance-reduction action of the Laminate Varimotion diaphragm, the D 5 delivers in this regard. In fact, about the only way I could create feedback was to point the capsule directly into the throat of the monitor horn. The C 5 wasn't quite as dramatic, but with its cardioid pattern staying consistent at nearly any frequency, keeping

feedback to a minimum required little more than the usual practice of setting wedges 180 degrees behind the capsule.

I liked the overall sound of the D 5. It has a fairly neutral character with +4dB presence peaks around 5 kHz and 9 kHz. It was fine on male vocals, but seems more suited for female singers who need just a bit of a boost in the upper midrange or high-end for clarity. And if you want gain for miles, the D 5's feedback suppression and hot neodymium output provides all you need to keep any vocal up front.

The C 5 is quite a different bird. I began with the presence boost cap in place, which makes the C 5 just the thing if you're looking for an aggressive, in-your-face sound that cuts through the mix of edgy guitars, keys and cymbals. With the PB 1000 in place, the net effect is a crisp top end that's ideal for male rock vocals and that may be a little too much on an upper soprano voice, although I liked the effect on acoustic guitar in a rock ensemble. Of course, if you don't like what you hear, simply remove the PB 1000 for a more neutral midrange sound that is similar to that of the D 5.

Both mics have a proximity effect that's smooth and not overstated, but to take advantage of it, the performer really has to be within two inches from the grille for that extra deep bass fullness. Yet even here, the pop filtering does the job, keeping those problematic "p" and "b" sounds in check.

With the \$170 D 5 and \$299 C 5, AKG offers two new designs that—in a crowded field of vocal handhelds—provide two interesting new flavors for live performance professionals.

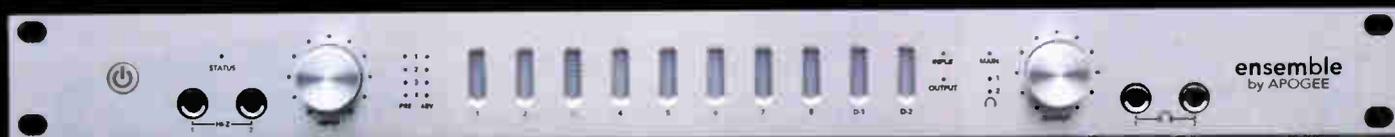
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Genelec 8250A/7260A DSP Monitors

Powered 2.1 System With Advanced Networking Management

Released in 2004, Genelec's 8000 Series monitors reflected the first major redesign of the company's original and ubiquitous studio monitors—an obvious step forward for the company. The latest version of this product line now includes extensive control for calibration/remote operations, with onboard DSP providing the very definition of detail and flexibility.

LEFT, RIGHT AND BELOW

The 8250s are a two-way design with a proprietary 8-inch woofer and 1-inch metal-dome tweeter. The dark-aluminum enclosure fits in well with control room décor and provides low cabinet resonance, which at high levels could color or even distort a speaker system's acoustic output. Stated specs include a -3dB down-point in the 35 to 21k Hz response. Internal bi-amping provides 150 and 120 watts to the lows and highs for max SPLs of 120 dB at 1 meter.

A "flow-optimized reflex tube" minimizes port turbulence, and—as with rear-ported designs and any speaker in general—placement near a boundary can lead to excessive low-frequency buildup. When using the 8250s with a subwoofer, the ports are nonfunctional, thereby alleviating this possible LF issue. Genelec addresses these challenges by providing extensive written documentation on optimal speaker placement and user control of the system's onboard DSP. Additionally, a bass roll-off control can attenuate up to 6 dB at the 35Hz cut-off frequency to minimize the bass boost associated with boundary placement. A similar control called Bass Tilt acts as a low-shelving filter with the knee placed at 800 Hz, offering more control when dealing with room boundaries. For desk-top usage, another LF control cuts 4 dB in the 160Hz range.

Treble-tilt shelves the signal from +2 to -4 dB at 5 kHz. This is useful when using the speakers at various distances from the listening position, enabling control of the HF drop-off associated with distance. These controls only work when the network is not connected and

the rear panel switch is set to "manual." But for the most part, I let Genelec's AutoCal™ software run the show, using the recommended, optimized calibrated setting for room control. The rear panel also has analog XLR inputs, digital AES/EBU inputs, digital thru connectors and RJ-45 networking connectors for just about any conceivable situation.

The 7260A subwoofer uses a 10-inch driver with Genelec's proprietary Laminar Spiral Enclosure bass-reflex cabinet, providing a long reflex tube in a small footprint. This design puts the frequency response down to a very impressive 19 to 100 Hz, and the onboard 120W amp pushes the max SPL to 108 dB. This sophisticated sub is fully integrated into the DSP network, with AES/EBU I/Os, variable crossover frequency and full-on bass management for any configuration up to a 7.1 surround system.

The 7260A has RJ-45/Cat-5 connections for running the GLM™ (Genelec Loudspeaker Management) software. One important note: You *cannot* use an analog input to this subwoofer; it only accepts an AES/EBU input. This could be a drawback for some installations. If an analog source is your only available option, then an outboard A/D converter will be necessary. Genelec has announced an 8-channel A/D converter to address this application, shipping in early 2008.

To get into the sub, AES/EBU single- and dual-wire are supported for sample rates up to 192 kHz. Other useful features include facilities for a separate remote bypass switch, LFE +10dB monitoring for Dolby Digital and DTS encoding formats, a variable bass roll-off (up to -14 dB at 20 Hz), bass redirect for sending content above -120 Hz from the LFE to the center channel, a multifunction warning light and a test-tone generator for phase alignment with 0/90/180/270-degree adjustments to help retain linear response at the critical crossover frequency. All in all, it's a formidable list. All of the previously mentioned hardware controls work only in stand-alone manual mode, but they can be addressed through the GLM software quite readily.



SETUP AND SOFTWARE

The AutoCal automatic calibration system is not designed to override bad acoustics, but it can certainly make a recording engineer's life easier. If you like to start with good acoustic principles, then AutoCal is the icing on the cake.

I began by setting up my audio runs using AES/EBU 110-ohm cabling, which is not provided. The AES/EBU signal heads over to the sub, then one AES/EBU output goes to one of the 8250s while another AES/EBU cable goes from the 8250 that's receiving the initial signal onto the next speaker. AES/EBU channel assignment for the 8250 is then performed in the GLM software, so cable routing is not critical. By the way, the GLM software can control up to 30 speakers on the network. The audio and networking signals are completely separate.

After configuring your audio, the networking setup is straightforward using the provided Cat-5 and USB cabling, and the GLM network interface. An RJ-45/Cat-5 cable goes out of the interface and into any one of your speakers. Similar to the audio setup, a Cat-5 cable runs from the first speaker to the next speaker, etc., daisy-chaining between the monitors.

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FIELD TEST

The network cables can go in any order. There's a mic input at the interface for the provided calibration mic, as well as a mic output jack that sends signal into the soundcard on your computer with the included 3.5mm cable.

Once the hardware was ready, I installed the GLM software on my Mac G5. On first use, the network needs to identify each speaker. The software's Rapid Cabling Wizard has 12 common setups, and I used the preset titled "AES/EBU single wire, 2.0, Stereo Pair with Subwoofer," which scanned the system and found all of the speakers.

Now for the moment of truth—running the AutoCal Acoustical Setup Wizard. Before performing test sweeps, you must input your mic's serial number. Single-point or multi-point measurements can be taken: multi-point is used to create a wider sweet spot for multiple users within the same soundfield. Place the test mic at the listening position and press the Calculate button. The software automatically compensates for both the input stage of your computer soundcard and the response of your particular mic.

As the software analyzes the sound, a graph shows what's taking place in real time. As EQ is applied, the graph displays the initial measured response, the applied EQ and the result of the DSP, with the option of saving this optimized response in the setup file. Once loaded and operating, the AutoCal settings can be manually edited, with access to four notch filters, crossover frequency, bass roll-off, level, distance and phase. One group of settings, whether created manually or with AutoCal, is stored into the speakers as a default (Stored Settings) setup so that the operator can use the speakers in stand-alone (Stored Settings) mode without having to run the software. This is handy for the tech who's setting up multiple rooms with one portable software setup.

A SOPHISTICATED LISTENING EXPERIENCE

With these speakers, tracking, mixing and just plain listening for enjoyment was a welcome treat. On a recent tracking session, the 8250s' level of detail was a most notable characteristic. Minute changes in microphone placement were easily noted when recording acoustic and electric guitars, and percussion. "Air" in the upper end has always been a Genelec trait, and the 8250 monitors are no different. Cymbal harmonics could be heard easily and varied through mic

placement. With acoustic guitars, string attack and body resonance were quickly balanced through mic placement while monitoring through these speakers.

Tracking and mixing vocals with the 8250s provided an audio microscope at the console. All the subtle details of mic, mic pre, compressor and EQ combinations are clinically apparent. Using a Groove Tube AM62 tube mic through an Audient Black mic pre and EQ, simple boosts at 8 kHz or in the "air" region above 16 kHz were precisely reproduced, yielding an excellent indication of sounds that went "too far." Solid midrange response gave me a true representation of the critical vocal range and how it will transfer. A 2dB boost at 800 Hz was all that a particular male vocalist needed while tracking, and the Genelecs let me hear these changes.

Creating the "space" on the soundstage while mixing was a joy; the system's imaging is rock-solid. Snares, kick drums, tambourines and any other percussion was reproduced accurately, without splatter or clutter. The lower-midrange/upper-bass region was handled faithfully, providing detailed look into those low-mid reverb buildups that can muddy up a mix. When mixing bass guitars, bowed bass strings and piano, there was a sense of realism that simply brought you closer to the instrument. Mixes made using these speakers transferred well to Tannoys, JBLs, M&Ks and car systems.

POWERING DOWN

With the 8250As/7260A, Genelec has created a system that delivers solid, accurate sound reproduction and exceptional imaging and powerful bass response, while providing cutting-edge networking for ease of use/setup with transferable results. This level of software sophistication and hardware clarity sets the Genelecs apart from the crowd, delivering new standards in performance and calibration capability.

Although somewhat pricey for the project studio, if added to your arsenal, you certainly won't be saying, "If I just had better speakers" for a very long time. Prices: 8250A speakers, \$2,595 each; 7260A sub, \$3,150; GLM software, \$595.

Genelec, 508/652-0900, www.genelec.com. ■

Bobby Frasier is an audio consultant, engineer and guitarist/vocalist in The Beatles sound-alike band Marmalade Skies.



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Universal Audio DCS Remote Preamp

Versatile DAW Front End, Desktop Studio Controller

Continuing its tradition of producing innovative studio products, Universal Audio partnered with the original founders of Euphonix to create the Desktop Console System (DCS), designed for the DAW user. The first two products in the DCS Series are the Remote Preamp, reviewed here, and the Monitor Master. The Remote Pre's combination of two mic pre/DIs and the ability to provide talkback, control monitors and cue mixes may provide a solution for DAW users who are frustrated by the lack of studio control inside the box.

FIRST BASE

The DCS Remote Preamp comprises two major components: the DCS Base and the DCS Remote. The Base is the heart of the system, providing the power supply and all the I/O. It weighs approximately 5 pounds and measures 9x6x3 inches (HxWxD). The A and B inputs include two XLR mic inputs and two TES connectors that accommodate TS instrument inputs or a TRS line connection. Outputs vary with TRS feeds for balanced preamp outputs and a second pair for speaker feeds.

An auxiliary A/B stereo out offers an unbalanced preamp output on one TRS connection. An additional pair of TRS inputs, labeled C In, allow an extra feed from the DAW into the Remote Pre's monitor system. A headphone feed and a talkback mic output are also standard. Another feature is a mid-side stereo encoder function. By feeding the "mid" mic into Mic A and the "side" mic into Mic B, and setting the Remote to MS-Stereo, the resulting MS-Stereo signal will feed outputs A and B. The DCS Base is packed with functional I/O and other studio control features; my only complaint is that it has no power switch.

DIGITALLY CONTROLLED ANALOG

The digital Remote is the main user interface. The Base and Remote interconnect via a hot-pluggable, 20-foot DCS Link (supplied) or any standard Ethernet (Cat-5 or Cat-6) cable that runs up to 300 feet. This way, the Base can sit at the mic source and drive a more robust line-level—rather than mic level—signal over long distances. The Remote is an attractive and well-laid-out controller

with two VU meters that can be tilted from flat to 45 degrees. The meters conveniently reflect either preamp or cue levels with excellent ballistics. Adjustable peak LEDs and a Gain Trim feature let users match the Remote Preamp's outputs to the inputs of a wide range of DAWs. This also allows peak monitoring from a remote location when the DAW screen is out of view.

Mic gain is digitally controlled from the remote with 60 steps of 1dB increments or 43 steps from the DI input. Other controls include DI switch, phantom power, polarity invert and a 30/70/100Hz highpass filter. A digital display shows gain adjustments and changes dynamically to reflect any other value that is adjusted on the Remote. Additionally, channels A and B can be locked for stereo, with the ability to control both using channel A's gain control.

Monitoring facilities include individual cue level controls for channels A, B and the extra input, C. The Base's speaker out can also feed a pair of active monitors. A talkback switch routes the onboard mic to cues. One unexpected feature is the effects section, which provides nine reverb presets and bandpass filters for the A and B channels. This easily accommodates vocal tracking sessions with effects in the headphones.

CLASS IN SESSION

Rather than use tubes or transformers, Universal Audio employs a transimpedance design with transparent amplification yielding a 4 to 150k Hz frequency response. During my first experience with the Remote Preamp, I used a Royer SF-24 stereo ribbon mic as a drum overhead feeding a Studer A827. The Remote Preamp's stereo-linking capa-



bility and its big VU meters made adjusting the mic's gain a breeze. While adjusting the gain, I noticed a low-level zipper noise occurring. According to the manual, this is due to the 1dB stepped-gain adjustments, and it advises you to avoid making these adjustments during recording. As a workaround, I used the Gain Trim to change the Remote Pre's output. This workaround would be an issue if I were recording to a DAW where the peak meters are matched to the interface's input, but in this case the workaround was acceptable and the zipper sounds were abated.

Coupled with the SF-24, the DCS yielded an excellent stereo image and good snare transients. During the same session, I swapped out the Royer for a pair of Neumann U87 Ai mics in a spaced pair. Again, the snare had good transients but sounded a little boxy around 200 Hz, which I easily fixed with a gentle EQ cut.

In a later jazz session, a spaced pair of AKG C 451 B mics also resulted in great transient response and smooth cymbals. Both the drummer and I preferred the Universal Audio preamps over the Neotek Elite console's preamps. On upright bass, a Peluso 47 tube mic positioned about waist high and 10 inches off the strings presented a full sound at 80 Hz and a nice growl off the bow.

I next tried the pre's powering the above-mentioned Royer while recording a tenor sax. Being a stereo mic, I used one ribbon by turning the mic 45 degrees and placing it two



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feet from the sax, between the bell and the keys. Once again, the DCS pre's screamed detail and provided a good balance between the reed and bell sound.

SWEET AT HOME

As a solo recordist in my studio, I really appreciated the DCS system's intent as I worked on a song within GarageBand and Pro Tools. A Digidesign 002R served as my interface, so I calibrated the Remote Pre's peak meters to match the 002R's +18dBu input. I plugged my bass into the DI, ran the stereo outputs of my interface into input C for DAW monitoring and patched the speaker outs into my active monitors. Within a few minutes, I had bass levels and control over my monitors and headphones, all from the compact remote unit. The DI was more than above par, rendering a clean, uncolored recording.

The Remote Pre really came through when I recorded acoustic guitar tracks in another room, where I couldn't see my DAW monitor. Turning up the mic pre's gain while watching the VU meters, I reacted as the LEDs indicated overs at the DAW's input. A yellow LED warns that the Remote Pre is approaching the gain trim max dBu level, while a red LED reflects levels that reach or exceed the output level set by the gain trim control. This technique worked flawlessly without the usual worries, guesses and retakes due to improper levels. I also took advantage of the onboard effects; here, a touch of reverb smoothed out the headphone feeds while tracking.

WEARING MANY HATS

The DCS Remote Pre performed well, both as a mic preamp in a traditional tracking setting and as a desktop monitoring system in my home studio. In all cases, the Remote Pre sounded great: Its transimpedance design was unbiased and clean, excelling when recording transient and high-frequency material. The metering system, including both VU and peak (especially if you take the time to match your interface's input level), is a big plus. The only needs for improvement would be including a power switch on the Base and removing the zipper noise when adjusting the preamp gain.

Personal studio users will appreciate the \$1,499 price, along with Universal Audio's attention to detail, as well as comprehensive studio control and enhanced workflow features.

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Tony Nunes is an engineer, educator and dad.

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The SCX25-A delivers a pure, open-air sound unlike any other microphone, especially on acoustic piano. Used in conjunction with the Dflex clip, the SCX25-A can be mounted directly on to a rail and positioned in close proximity to the strings. Even when the piano must be used in short stick or closed lid position, the SCX25-A is able to maintain the sound integrity of the piano beyond its competition.

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Brauner Phanthera Condenser Microphone

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The Brauner Phanthera (\$2,319) builds on the trademark sound of the company's VMA and VMX mics. The mic is handcrafted and sturdily built, featuring a nickel-plated brass case. It will take a healthy 142dB SPL and offers 83dB (1Pa/1kHz-cardioid) signal-to-noise ratio.

OPENING UP THE BOX

The Phanthera comes in a swank, foam-lined aluminum carrying case with a 16-foot Vovox cable that has gold XLR Neutrik connectors. Also included is an elegantly designed shock-mount that holds the mic in an elastic suspension basket. The mic is held tightly in a pair of captive "C"-shaped rings using an interference-fit method that requires neither screws nor clamps. Remove the mic by gently prying it out of the rings; there's no need to reposition the mic body as the mount swings and locks to any position by way of a clutch-operated lever.

Opening the mic requires a 1.5mm hex wrench (supplied) to drop the mic's assembly out of its case. The mic is phantom-powered, uses an FET amplifier and employs an output transformer. Inside is a neatly laid-out circuit board suspended between two metal rails. A two-position DIP switch on the mic's circuit board lets you change gain to either -3 or -6 dB. It comes set to 0dB gain and I found no need to fiddle with these settings during a session.

The capsule uses a 6-micron-thick, gold-deposited, polymer diaphragm (exclusive to Brauner) in a dual-sided, single-plated version of the VMA capsule. Diaphragms around 6 microns thick seem to provide a capsule "sweet spot" because they are thin enough for a good high-frequency response, yet thick enough to avoid the inherent problems with fragility and consistency found in thinner diaphragms. The capsule is center-tapped connected using a standard back plate that is acoustically optimized to Brauner's voicing preferences. It also has an internal shock suspension.

MIKING VOCALS AND MORE

In the studio, Phanthera was easy to set up and position. I recorded two different female vocalists at two different studios. In both

studios, I discovered that the Phanthera puts out a tremendous amount of level—it's a hot mic, and when recording loud sources like drum kits and guitar stacks you will need to use your preamp's attenuator.

In the first studio, I used a Manley EQ 500 tube mic pre followed by a Tube-Tech CL 1B compressor and no equalization. The Manley unit has no attenuator but it can reach down to 0 dB of gain. I used 20 dB of gain at the most for my quiet to medium/loud songstress, who sang four inches from the grille, which was protected by a pop screen. Immediately, I noticed the minimal proximity effect with this mic—which is usually a deal-breaker for the producer—but this time he was okay with her mic distance.

The sound was extremely clear but not overly bright—it had more of a "clinical" sound that inferred accuracy and a sharp focus. Its cardioid pattern is wide and very forgiving—I rarely heard any difference as my singer moved from side to side or up and down in front of the mic. In tone, I liked that the mic was consistently clear and warm, no matter how loudly or softly she sang, nor how high or low. This is an extremely quiet microphone and I could start to hear the noise floor of the signal chain before the mic's noise floor.

The second studio had more modest gear: an Aphex 107 Tubessence preamp followed by an Aphex Expressor. The second singer was much louder with a more strident, brassier tone, which caused me to set the 107's gain all the way down to the 18dB position. Again, without EQ, the mic sounded excellent and the singer remarked on its warm tone. The Phanthera captured her sound accurately, stridency and all, without overloading or adding shrillness.

At a third studio, I recorded 1955 Martin D-18 and 1952 Gibson J-200 acoustic guitars. I used no EQ with an API 512c preamp set to around 30 to 40 dB of gain, depending on whether my player was strumming or finger-picking. I tried three mic positions, all about 10 inches away: directly over the hole, at the 12-fret position and back over the bridge. Each of these miking positions produced the results I expected from these classic instruments, but in contrast to a smaller-diaphragm



condenser the sonic differences between those positions were less perceptible.

Next, I placed the Phanthera over a small Slingerland drum kit. I was surprised at how balanced and clear the kit sounded. The cymbals sounded natural but not crispy, and the toms were present and sounded thick with plenty of stick attack. I could add a kick drum mic for presence and I'd have a simple mono drum recording on two tracks! This application and the resulting sound reminded me of drum sessions in which I've used two Brauner FET phantom mics as overheads.

PHANTHERA FAN

The Brauner Phanthera performs solidly as a studio workhorse. It's excellent for all sources and excels at recording vocals when a high dynamic range and extra sensitivity are required, such as in quieter voice-over sessions or in Foley work. It makes a great first-time, high-end microphone investment that will pay dividends every time you use it.

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ADAM Pro Audio A7 Monitors

Folded Ribbon Technology Delivers Accurate, Nonfatiguing Sound

ADAM Pro Audio's product line includes an array of near-fields and mid-fields, and several flavors of main loudspeakers that all have something in common: the A.R.T. transducer. Based on Oskar Heil's Air Motion Transformer, the A.R.T. transducer has a membrane with a folded diaphragm whose single folds move, squeezing air in and out. This is unlike conventional cone loudspeakers that use piston "motors" to move air in and out. The folded diaphragm moves air in and out four times faster than how quickly the folds themselves are moving. This action is more efficient and equates to increased clarity and better transient reproduction.

WHAT'S IN THE BOX?

The ADAM A7 (\$999/pair) is a two-way near-field design using the A.R.T. tweeter coupled with a 6.5-inch woofer that has a cone made from a new material called Rohacell. This carbon-fiber sandwich offers high rigidity and (therefore) high internal damping, but with low mass. A perfect complement to the A.R.T. tweeter, the lighter cone reacts to transients quickly for a more accurate and clearer sound.

The stylish A7 cabinet is made from MDF finished in matte black. It matches the rest of ADAM's A, P and S Series speakers, with faceted corners that are reminiscent of stealth aircraft designs. Dimensions are 13x7x11 inches (HxWxD) and each cabinet tips the scales at slightly less than 18 pounds each.

The A7 uses two Class-A/B, 50-watt (RMS) monolithic IC power amps, one for each driver. Powered by an internal linear DC power supply, these amps have heat sinks on the rear of the cabinet and feature current limiting/short-circuit protection with long-term thermal protection that mutes the amps if they get too hot.

The 2.2kHz crossover network comprises cascaded second-order Sallen-Key filter sections. There's a fourth-order (24dB/octave) highpass filter for the tweeter, a fourth-order lowpass filter for the woofer and another fourth-order, very low-frequency filter to block harmful subsonic frequencies that are too low for the woofer to reproduce.

The rear panel has a ± 4 dB tweeter master level control, and ± 6 dB/6kHz high and ± 6 dB/150Hz "Room" EQ controls, plus the usual IEC AC power connector and 110/220VAC voltage-selector switch. Balanced XLR or unbalanced RCA jacks handle line-level inputs. The front panel has a power switch with a blue LED indicator and a detented gain control with a range between -30 and +5 dB to accommodate any inputs from pro- or consumer-type gear.

RIBBON IN MY EAR

I spent my time assessing the A7s by comparing them to the sound I'm used to: my own pair of ADAM S2.5As. The S2.5As are about twice the size, have a 9-inch woofer and the same A.R.T. transducer, are much higher powered and cost more than four times as much. My mixing space is just 10x10 feet—perfectly sized for mixing on small speakers. I operated the A7s vertically and on either side of my 20-inch monitor—i.e., 27 inches from the center-to-center of the left and right woofer cones. This worked out perfectly from my listening position on the third corner of the equilateral triangle.

To match the A7s as closely as possible to my S2.5As, I set the 150Hz Room EQ to +1.5 dB, the 6kHz Room EQ to +1 dB and the master tweeter level to +0.5 dB.

The low frequencies are well-proportioned for such a small woofer; I could hear all of bass notes very clearly on the A7s. I was mixing a rock track with Fender bass (i.e., not synth bass) and had no problems judging bass levels nor the relationship between the lows in the kick drum and the bass instrument. On the S2.5As, the situation was the same, although I could hear more of the deep bass; I recommend ADAM's optional Sub 10 to go with the A7s for surround mixing or if you just want to know exactly what's going on in "subwooferville."

The A7's stereo imaging and spectral balance were identical to the S2.5As, so determining EQ frequencies and amount in the mix is easy, while any EQ problems in the tracks were immediately noticeable. One of the benefits of superaccurate, small speakers is the clarity of the all-important midrange. The balance between the vocals and walls of guitars is readily apparent. Using the A7s, I



spent less time "massaging"—readjusting levels, compressing and/or equalizing—the midrange elements to get them to "mesh."

For these reasons and more, Yamaha's NS-10Ms became popular as a secondary monitor back in the day when everyone always mixed "big" on a studio's soft-fit-mounted loudspeakers. I think the A7s represent the new NS-10Ms, yet the A7s do a better job and their top/bottom are much nicer to listen to at any volume.

By quick comparison, the S2.5A, with its much bigger woofer, sounds a little scooped out in the low midrange, or 250 to 400Hz area. This is a common sonic difference between speakers with different woofer cone sizes; however, it does not affect the way in which mixes I've done on ADAMs translate to other systems. I've mixed with great results on ADAM's S3A, S2.5A, S2A and now A7 monitors, yet all have different woofer configurations.

THE ART OF ADAM

I like mixing on ADAM monitors because I feel less fatigued and "dinged out" at the end of a long day of mixing. I attribute that to the A.R.T. transducer and the speaker's low distortion. With their precise and clear sound, the A7s are hard to beat as stereo or surround monitors for small rooms.

ADAM Professional Audio, 818/991-3800, www.adam-audio.com. ■



COURTING VENUS DOOM

By Bryan Reesman

You may not yet be familiar with HIM's music, but you've probably seen their symbol: the Heartagram, a pentagram with its top two corners rounded off. It symbolizes the group's symbiotic marriage of darkness and light, menace and melody in their self-described "love metal"—a combination of infectious hooks, driving rhythms and passionate, crooning vocals that wax poetic about the melancholy side of love. The music is Goth in spirit, metal in attitude and pop in accessibility, without losing its rough edges. The Finnish band has amassed a loyal following on both sides of the Atlantic during the past several years. Having a new song in the soundtrack for the movie *Transformers* movie certainly hasn't hurt their visibility.

HIM albums are like *Star Trek* movies: The odd numbered ones are good, the even numbered ones are great. The quintet's sixth album, *Venus Doom*, is their heaviest and darkest work yet, contrasting with the 2005 more radio-friendly *Dark Light*. It's an album rife with emotional turmoil, which is not surprising given that during the past two years, frontman songwriter Ville Valo went through a tumultuous long-distance relationship, was victimized in a drugging and mugging incident after a show, and lost a friend

to suicide. It was heavy stuff, but luckily he and his bandmates had a familiar friend, producer Tim Palmer, to guide them through the creative catharsis. Palmer previously mixed their 2003 *Love Metal* album and produced *Dark Light*, plus two songs on the band's greatest-hits compilation, *And Love Said No*.

"We reached the comfort zone, where everyone is relaxed, faster," reports Palmer, who has also worked with Ozzy Osbourne, Tin Machine, Robert Plant and many others. "Trust is something that has



Tim Palmer (left) and Ville Valo at Finvox Studios in Helsinki, Finland

to be earned and does not come automatically, but as we had all worked together in the past, we just got straight into it. [Co-producer] Hilli Hiilesmaa is a great engineer, and he and I work together well as a team, so it all made sense. We got a lot achieved in quite a short time."

HIM's brooding *Venus Doom*—which charges through head-banging numbers like "Passion's Killing Floor" and melodic anthems like "Bleed Well" and closes with the psychedelic ballad "Cyanide Sun"—was recorded at Finvox in Helsinki, Finland, during February and March 2007 and mixed at Paramount Studios in Hollywood in April. The album follows in the footsteps of its heavier cousin, *Love Metal*.

The group—Valo, guitarist Lily (Linde) Lazer, keyboardist Emerson Burton, bassist Mige Amour and drummer Gas Lipstick—was up to the challenge. They combined crunching, speaker-rumbling guitars with delicate melodies and fast-paced passages with slower breaks, balancing emotional agony with contemplative serenity. One wonders if the harsh Scandinavian winter and the area's history of moody art played any role in the album's contrasts.

"I was reading a lot of Scandinavian poetry, but it doesn't directly influence me; maybe the mood a bit," explains Valo, who has the faces of Charles Baudelaire, Charles Bukowski and Finnish poet Timo K. Mukka tattooed on his forearms, and the eyes of Edgar Allen Poe on his back. "We recorded the album in Finland during the winter, so it was cold and dark. It's not necessarily depressing, but I've gotten used to it because I've lived there for some years. There are some heavy riffs that maybe needed some heavy subject matter, as well."

—CONTINUED ON PAGE 123



MICKEY HART AND ZAKIR HUSSAIN

EXPLORING A PERCUSSIVE
SONIC WORLD

By Blair Jackson

It seemed somehow appropriate that when the Grammy Awards introduced a World Music category back in 1991, the first winner was Grateful Dead drummer Mickey Hart for his extraordinary side project *Planet Drum*, which brought together some of the greatest percussionists in the world for a spellbinding rhythmic voyage. By the time he received that trophy, however, Hart had been beating the planet drum, figuratively, for a long, long time: In the mid-70s, he and tabla player Zakir Hussain formed one of the first serious world percussion ensembles, the Diga Rhythm Band.

Through his years in the Dead, Hart regularly brought in instruments from all over the world—Chinese gongs, Latin congas, African balafons, Tibetan bowls, Brazilian berimbau, Eskimo hoop drums, Egyptian tars, etc.—and occasionally invited drummer friends from around the globe to join him and bandmate Bill Kreutzmann during the extended improvised percussion segment that was a fixture of every Dead show. A unique blending of international timbres has marked all of Hart's solo recordings, from his music for *Apocalypse Now* (*Rhythm Devils Play River Music*, 1980), to *At the Edge* (1990), *Mystery Box* (1996), *Spirit Into Sound* (1999), the remarkable album by Kodo called *Mondo Head* (2001) and the two



The Global Drum Project, L-R: Zakir Hussain, Mickey Hart, Giovanni Hidalgo and Sikiru Adepoju

Planet Drum discs—*Planet Drum* (1991) and *Supralingua* (1998).

Hart's latest group and album—co-billed with Hussain—is called *Global Drum Project*, released in the fall on the Shout! Factory label, and supported by a very successful national tour of colleges. Joining Hart and Hussain in the band are two other master percussionists with long roots in the Hart/*Planet Drum* world: Puerto Rican conga phenom Giovanni Hidalgo and Nigerian talking drum master Sikiru Adepoju. On the album and onstage, they weave a hypnotic spell, creating sound tapestries with their utterly unique amalgam of age-old percussion instruments altered with the latest in electronic sound-processing gear. Though the base sounds on any given *Global Drum Project* jam may be a mixture of, say, talking drum, tabla, conga and Beam (a large mono-chord instrument strung with piano wire), once the different parts are effected in unusual ways the music takes on completely new charac-

teristics, as parts echo or repeat or morph into textural elements far removed from their source sounds. It's quite a pastiche, at once primal and sophisticated.

The album was recorded at Hart's Studio X near the tiny town of Occidental in rural Sonoma County, Calif., and it's there, in an office just above the studio's open control room, that I interview Hart and Hussain on a beautiful fall afternoon just before the beginning of their tour. I wonder aloud how these two percussion giants, each of whom seems to work constantly (Hussain tours regularly in the U.S. and abroad playing Indian classical music, as well as appearing on other artists' albums), decide when it's time to reconvene to make another CD.

"It's an idea or a vision, or it's a sonic dream that usually emerges from the crazy mind of Mickey Hart," Hussain says.

"The great and *evil* mind of Mickey Hart," Hart adds with a mischievous smile.

"You get a call," Hussain continues. "I have this thought.' Oh yeah? Okay.' And then you arrive here and there's one little thing that Mickey has discovered. It might just be a bell being hit. Just a bell being hit, but suddenly you are *inside* the bell; suddenly, you're seeing every little groove that the carver had made into it and you can see it all vibrate and you can see all the harmonics that bell is putting out, even though it's one tone. And suddenly it's not just a point, it's a line and that leads somewhere. That's what my experience with Mickey has been—to get inside each instrument and discover that world.

"It was in fact in that [studio] room down-

—CONTINUED ON PAGE 125



BARRY MANILOW'S "COPACABANA"

By Dan Daley

In the vast and murky limbo of hipsterdom, Barry Manilow has been both a punch line and a punching bag, a synonym for American pop-music schmaltz. Somehow, though, none of this managed to stop Manilow on his way to armfuls of Grammy, Emmy and Tony Awards and nominations, a still-unbroken run of 25 consecutive Top 40 hits and a place in the Songwriters Hall of Fame. The hits were many and big—"Mandy," "Even Now," "Weekend in New England," "I Write the Songs." In 1978 alone, five of Manilow's albums were on the charts simultaneously, a feat in pop music history matched only by Frank Sinatra and Johnny Mathis.

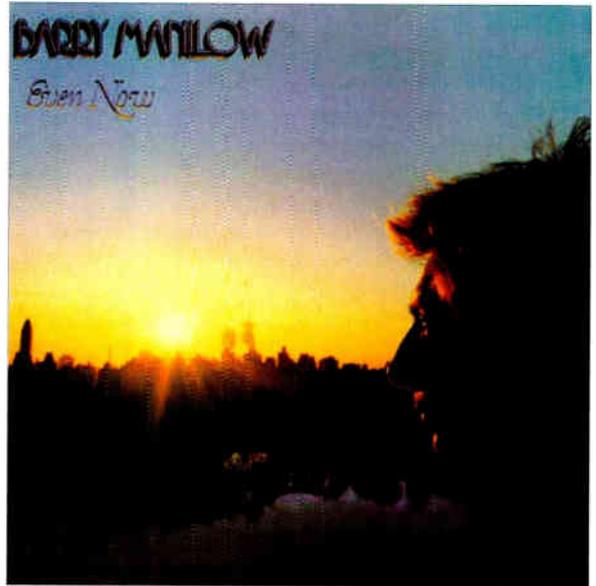
"Copacabana," recorded in July 1977 for Manilow's *Even Now* LP, stands out among the slew of hits. It is for the urban/metrosexual crowd what "Margaritaville" is for Parrotheads: an anthemic costume they can put on and get down with. It even won over the Recording Academy that year, garnering Manilow the Best Male Pop Vocal Performance Grammy.

The song was recorded at A&M Studios in Los Angeles, produced by Manilow and Ron Dante, who brought some of the crew from MediaSound in Manhattan (where he and Manilow had started working together in 1974), which included engineer Michael Delugg and bassist Will Lee. Derek Dunann assisted, recording Lee, drummer Ronald Zito, guitarist Mitch Holder, keyboard player Bill Mays and percussionist Alan Estes. The tracking took place in A&M's Studio D, in the rear of the building, which at the time was fitted with a 32-input Quad 8 console and monitors comprising Altec 604E speakers in a quad configuration. Vegas subwoofers and Mastering Lab crossovers powered by McIntosh 2100 amplifiers.

"That room was simply magical—it had the best sound of any room I've ever worked in," recalls Dante. "It had great live echo chambers and it was a fabulous studio to track and do vocals in. We had four other hits that came from those same sessions there, including 'Can't Smile Without You.' Barry and I went back last year to work on a '70s album and we used the same studio. [A&M is now Henson Studios.] It was very spooky; they had changed out all of the technology, of course, but it still had a lot of that A&M magic in there, 29 years later."

Manilow had written "Copa" in New York City with co-writers Bruce Sussman and Jack Feldman. He brought a piano-and-voice demo of it to a meeting in Palm Springs with Dante to review material for the album. The producer was skeptical at first of the song. "It sounded very un-Manilow," he says. "We had been doing big-sounding pop ballads and suddenly here he was with an uptempo, very rhythmic story-song. Then he told me, 'If this is going to be a hit, then it's going to be a very big hit,' and I thought, 'He's right. Go for it. Let's take a chance.'"

Delugg recorded the band bunched tightly together, with little separation between instruments. This was partially out of necessity—he was working on either a Scully or 3M M56



16-track deck (he doesn't remember which)—and because he believed in the synergy of musicians making eye contact when tracking. "Communication is still the paramount thing between musicians," he says. "Plus, we didn't have those 8-track cue mixers back then. I would send the players a basic cue mix through two or three aux sends, and if the drummer needed a little more of something, I'd boost it a bit in one of those. But once they figured out their parts, it was basically a jam session."

Delugg used relatively few microphones on the basic tracks, but does recall adding a pair of Sennheiser MD-421s on the piano. "That was different from the ballads," he says. "This was an upbeat song and I wanted to get more attack out of the piano."

Percussionist Estes came up with the rhythm figure that kicks off the song, and Dante says it was like a beacon for the vibe. "That was such a great band—that with just bass, drums, guitar, keys and percussion, we were able to create a very dense, rhythmic track that really, really cooked," he recalls.

Manilow is a master vocalist who was trained in the time-crunched, first-take hotbox of Manhattan's surging jingle scene in the 1960s and '70s, where he and Dante, also a jingle singer (and the voice behind The Archies), first met. On Manilow's records, lead vocal sessions were quick and usually done within a few takes. Dante remembers that "Mandy," Manilow's first hit, comprises the pilot vocal from start to finish, with no punch-ins. But with the "Copacabana" track (which Manilow arranged) and the vocal, Dante says there was an implicit understanding that the song shouldn't get pushed over the edge into out-and-out high camp. "He knew that kind of stuff cold, working with Bette [Midler]," says Dante. (Manilow had been Midler's musical director since her days performing in the demimonde of Lower Manhattan's bathhouses and co-produced her first album, *The Divine Miss M.*) "But we knew this had to stay pop, to not let it get into Gene Kelly mode, like Bette did with 'Boogie Woogie Bugle Boy.' It wasn't a novelty record. We had to keep it current but with some retro flavor to it. The percussion really made a difference with that.

But it could have gone over the edge, easily. It's still his big closing number live."

Manilow sang into a Neumann U87, Delugg's microphone of choice for him, with little processing—a touch of compression and a slight boost at 5 kHz. "He had this great midrange to his voice where you didn't have to do a lot to it," says Dante. Delugg agrees, adding, "Barry knew how to work the microphone when he sang. But one thing I did with him was always set it at exactly the same height every time, which made it easier to match the performance if we had to go back in at a later date to punch something in."

Still, "Copa" was new territory for Manilow, stylistically speaking. "I wasn't sure how he was going to approach this song," says Dante. "But one thing Barry did that made the vocal work was that he put it into the perfect key for a story, where the lyrics have a narrative quality. You can understand every word. To this day, people walk up to Barry or myself, and say, 'Her name was Lola.' It's not the title—it's the opening line. That's how good that vocal was."

It wasn't unusual for Manilow to deliver a complete vocal in a single pass, with no punches, usually within the first four or five takes. If a punch was necessary, Delugg would let the singer keep going for another eight to 12 bars rather than pulling up short at the gaffe—a neat psychological trick that kept the vibe positive. Manilow double-tracked the choruses, a process that went even more smoothly. "Once we had a keeper lead vocal, doubling Barry was like icing on a cake: he was that good at it," says Delugg. The track was sweetened by Butler's string and horn arrangements, guided by Manilow's input, and backing vocals from a trio comprising Ginger Blake, Laura Creamer and Linda Dillard.

Delugg remembers the mix of "Copacabana" as typical of the pre-automation era. "We were always low on tracks because Barry and Ronnie used to come up with lots of small ideas to add to the tracks on overdubs," he says. "I would place things on different tracks wherever I had room, like putting an extra percussion part on the same track as a guitar lick, and I made sure I kept good notes." In the process, the stereo piano tracks were combined to mono. Delugg and Dante ran the mix down numerous times, rehearsing fader and mute moves. "Copacabana," like many Manilow mixes, would have a few edits on the final master. "We usually would get 90 percent of it in a single pass, with one or two edits toward the end," says Delugg.

But the remix was even more interesting. It took place just at the nascent edge of the

dance-record and dub-mix era, and Delugg, like other engineers at the time, was feeling his way through it. They brought the multitrack safety back to MediaSound in New York and transferred it to the studio's newly acquired Studer A-80 24-track deck—getting 50-percent more tracks was like heaven for Delugg. Percussionist Maelin added more rhythms during an all-nighter in Studio A to meet Arista Records president Clive Davis' request for a version for discos. But the key to the remix was adding groove to the bottom. Delugg accomplished that by pulling out an old Electro-Voice RE38 microphone and having Maelin tap out quarter-notes to create a virtually new bass drum track. "I also hit it with a lot of EQ, boosting it at 50 to 60 Hz, taking out the mids and adding some top end for attack," Delugg explains.

The "Copacabana" remix had an interesting debut: On a Saturday night that autumn, Dante and Manilow took the dance mix of the song to the real Copacabana club, on East 60th Street on Manhattan's Upper East Side, where the club had been since 1941. They pulled a favor from the DJ, and at midnight the track was pumped through the nightclub's speakers.

"Everyone on the floor stopped dancing," Dante recalls. "I was getting this feeling in my stomach like 'Uh-oh.' Then, one couple started dancing and then everyone else jumped in. What a relief. We knew we had nailed it." ■

HIM

FROM PAGE 120

Los Angeles transplant Palmer set off for Finland during the winter. He expected cold and darkness and was not disappointed. He went skiing at Mammoth Lakes, Calif., near Yosemite National Park, for two days prior to traveling to acclimatize himself to Finland's freezing conditions.

"Personally, I find being dropped into a new city to make an album is an exciting prospect," he says. "It's hard to be away from family, but in return you can totally commit yourself to the music. The time lag was a bit of a problem. I was waking up at 5 a.m., and the band didn't like to start until 3 p.m. At the beginning, that was too much free time, but once music was recorded I used that time to edit and compile on my laptop [with Pro Tools LE] in the hotel. In Helsinki, I worked with Hilli, and this was great as he works a lot at Finvox and knew the studio well."

The producer reports that there were strong vibes in the studio when the group

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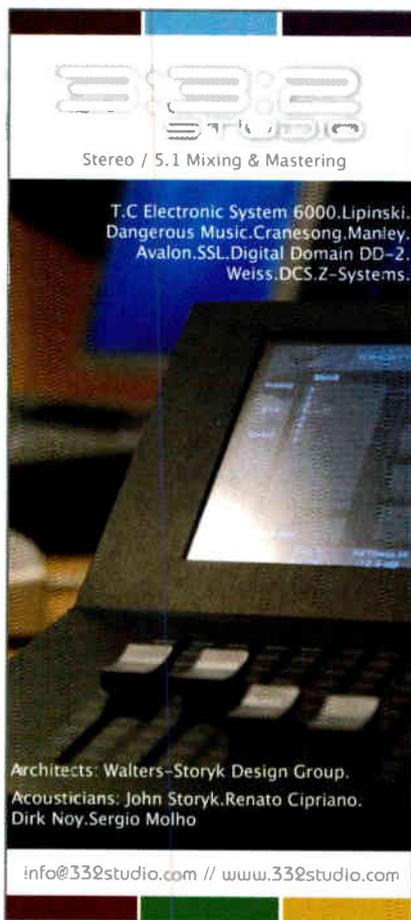
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set out to record *Venus Doom*. “We were all excited about the new material and the band are all great players, so we were just having fun with it,” he says. “We decorated the studio, drank a lot of coffee, smashed violins, ate reindeer and even had time to drink a few beers.” Smashed violins? “For stress, some people have a drink, some pop a pill, some take Yoga and some get a massage,” he quips. “I smash up classical instruments.”

Whatever works. At Finnvox, the group recorded in a large live room using an SSL AWS 900 console and DAW controller with a sidecar of Neve 1081 preamps. They monitored on Genelec 1031A speakers. When it comes to mics, Palmer says he’s no snob. While he is extremely fussy about what he wants to hear, “I couldn’t give a damn how I get to it!” he declares. “If it sounds good to me, it’s all good.” Palmer says that he likes “a lot of the classics,” and that the Shure SM57 is probably his all-time favorite microphone.

“I use it on guitar amps, snare drums and many times on a lead vocal,” he says. “I [once] tracked David Bowie’s vocals on an SM58. For overheads and room mics, I generally use Neumann 87s and maybe Neumann valve [tube] U47s for the room mics. For Ville’s lead vocal, we used a Neumann valve 67, a really nice one that the studio had. We tried many mics on Ville’s vocal



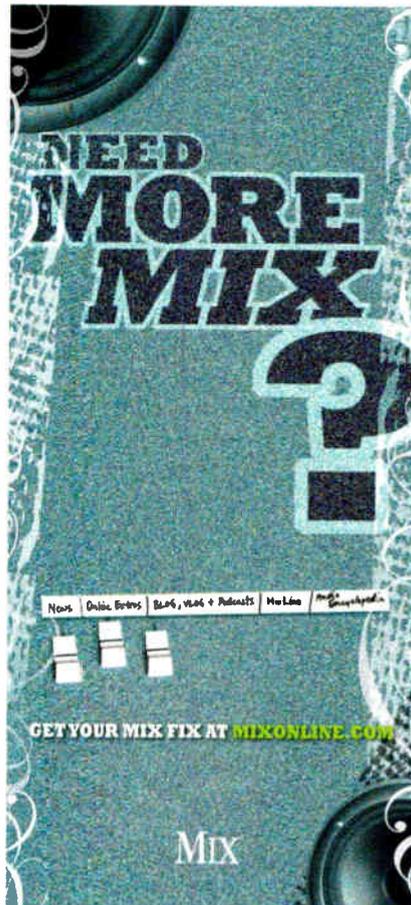
Ville Valo of HIM

textures, we tried a variety of other guitars,” Palmer notes. “We often used an old semi-acoustic guitar that Ville owns. It is from the ‘40s and is called a Levin, and it sounded great through an amp. It has a really special sound. For the low parts, we used a Danelectro baritone guitar. We also used a Telecaster for some solos and an ESP Baritone. Burton had a nice old Wurlitzer, and the Roland V-Synth and Phantom synths. I think he had a Clavia Nord Modular, also.”

The distortion that’s prevalent throughout much of the album came from a combination of amps. Palmer says that some songs “featured the Laney with a little Marshall and vice versa. I had it set so I could adjust the balance as the track began to take shape. Obviously, we could go for a different sound also by choice of guitar. For a lot of the clean parts and the textured overdubs, I often used a plug-in to create a distortion. I like the ‘classic’ [Line 6] Amp Farm plug-in, and I am a big fan of the Sound Tools bundle. It’s wonderful to be

able to fine-tune your plug-ins right up until the point of printing!”

Venus Doom includes some intriguing sounds beyond the regular rock instruments. Some screams from Valo are placed in background spots, while on the title track, a sample of a child screaming on a rollercoaster that Palmer recorded was used behind the main riff. Music box samples are also incorporated, notably on the ambient break



In the control room at Finnvox are, from left, engineer Hiili Hiilesmaa, producer Palmer, keyboardist Burton, Valo, drummer Gas Lipstick, bassist Mige Amour and guitarist Linde Lazer.

while we were tracking the acoustic B-sides, so when we came to do the album vocals we knew which mics we liked.”

Lipstick pounded on a Tama Starclassic kit, while Amour played a ‘76 Fender Precision bass through a Mesa Boogie amp and an old Prince combo. He also used a Hamer 12-string bass.

“Linde mainly used his Gibson SG guitar, but as we added overdubs, new parts and

of the 10-minute-plus epic "Sleepwalking Past Hope." "I think one sample was taken from an old music box my father found in Germany in the '40s," recalls Palmer. "It has an eerie quality." The other sample was created by Burton and used in the ambient middle section of the title track.

One track was not recorded in Finland, but at a famous Los Angeles hotel on the spur of the moment. Valo got some inspiration and picked up his acoustic guitar, and the producer captured him recording the minute-long "Song or Suicide," the shortest track in the band's history. The tune was inspired by a folk song from the '70s: "It's a quote from a folksy singer who died from a heroin overdose, Judee Sill," explains Valo. "She had a relationship that was really bad, and in an interview she just said it was either a song or a suicide, so she wrote a song about it."

"At this point, Ville was in a pretty dark place, and we were spending quite a few evenings at the Chateau Marmont just chatting and listening to music," recalls Palmer. "I had my laptop with Pro Tools LE and an Mbox around, so after a few too many drinks we decided to try and record in the bungalow. It was really fun, and it was just

an acoustic and vocal. It catches the mood well, and you can hear the cars moving along Sunset Boulevard at the end."

The album was mixed at Studio C at Paramount Studios in Hollywood, which Palmer says has been his studio of choice for a while. "I love the huge control room," he says. "I leave the room at the end of the evening without feeling like I have been closed-in all day. They have a very large J Series SSL and as much outboard equipment as you could wish for. The room is very true, so when it sounds good in there you are not in for any surprises later. The staff is very efficient and the room is very private."

Venus Doom certainly marks an important step in HIM's evolution. The sonic contrasts are more striking and the songwriting more mature. "Many albums are a reaction to the band's last work," offers Palmer. "*Dark Light's* more textured and warmer sound, I guess, are a reaction to the more edgy *Love Metal*. *Venus Doom* and its Black Sabbath riffs and complex arrangements are a reaction to *Dark Light*. I prefer *Venus Doom* because it is a step forward in songwriting and sonics. It is the sound of a band firing on all cylinders, not afraid to bring back the rock." ■

MICKEY HART/ZAKIR HUSSAIN

FROM PAGE 121

stairs that Mickey called me in, and said, 'Listen to this,' and it was a metal bell—*ding-ding-da-ding*—and then it went from that to being something else altogether. It was a mutant X-Men bell," he says with a laugh. "An X-Bell, and it morphed into a different tonal texture and went somewhere else, and it became rhythmic and a pulse appeared in it and all from that one little stroke. And that was the beginning of this crazy idea."

"That was the literal place this album started," Hart adds, "but the overall vision was, we've done acoustic records slightly processed, but now, with the smart [electronics], the thought was to take it out and process it very sophisticated with [Sound-Toys'] Echo Boy and different technologies. Now you can play *into* the process and perform the processes instead of doing it in post- [production]. So we thought that would be a worthy thing to go after instead of just putting reverb on it and echo and delay and all that, but actually come up with some sort of soundscape that we would go *inside* of and develop, with all the filigree and arabesques that you can create in that kind of



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-John Paterno

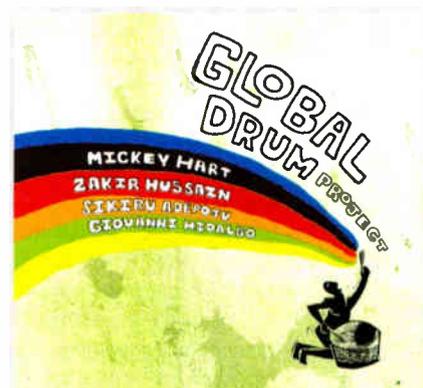
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sonic architecture. And do it in real time. So that was the overview.”

The tracks on *Global Drum Project* began as improvisations in the studio based around different rhythms, loops and/or combinations of instruments. “They go on for hours!” Hart says. “They’re all performances, and what we do is take a piece of the performance, six or eight minutes, and refine that and work with it more. You know who used to do this kind of thing? The band War. They used to play and play and work on these grooves, and then at some point they’d go back and chop a section out and it would become a

song. The Grateful Dead used to do it, too. You play and play and play and there’s a sweet spot you come to in the middle or the end or wherever, and you say, ‘Okay, here’s 10 or 15 good minutes.’”

Whereas veteran engineer Tom Flye has handled most of the tracking and mixing on most of Hart’s past projects, on this one he had a more supervisory role during the tracking stage, and the actual recording to Pro Tools was mostly handled by John Paul McLean, Robert Gately and Richard Fisher. Jonah Sharp—who is almost a fifth member of the group in their live shows, performing



processes from his own station onstage—also has helped Hart and Hussain understand and navigate through various electronic environments. When it came to mic choices and more traditional recording matters, however, the younger engineers happily deferred to Flye’s expertise; after all, Flye has had a critical role in developing Hart’s sound aesthetic through the years.

“We used a wide variety of mics on this,” Flye says. “There were a lot of [Sennheiser] 421s and 409s, some [Beyerdynamic] M88s; the M88s are good for bottom. The 421s work really well for tuned-typed drums—tablas, congas. But there are a lot of different sources. There are also some Audix D4s on there—they use them live and there are a few percussion tracks on the album that came from live performances.”

“Tom was still very involved,” Hart offers. “He’s got the ear and he has the sensibility; he’s my reference point. My ears are not what they once were. I can hear detail and my recordings still sound fine, but a lot of it has to do with Tom. I’ll say, ‘Tom, am I pushing too much at 8,000?’ Or, ‘Am I laying on this too hard?’ And he gives me the absolute truth. He’ll say, ‘Oh, Mickey, that gated reverb there is too severe.’ I like that about Tom. He also has the kind of telepathy where he won’t even have to say anything—he’ll just look at me and he’ll want to see if I blink. So he’ll suggest something and we’ll change it a little. He’s such a wonderful guy, and he has no ego. He’s only interested in excellence.”

During the sessions, which sprawled over many months, “[Flye] would come by and check every now and then. I have him come in and make sure I haven’t gone off the deep end, [see] if all the processing is in phase; something I might’ve missed. It’s like he makes house calls,” he says with a laugh. “So he’s familiar with the material before he starts mixing, but then he also comes in with a fresh ear and he finishes it off.”

As is the case with every Hart album, there was plenty of experimentation on *Global Drum Project*. Sitar parts are pro-



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cessed to sound like electric guitars; one track features Hart and Hussain beating on "extraordinarily resonant" hollowed stumps of a redwood tree and a 150-year-old chardonnay vine; the singing of natives from the Papua New Guinea rainforest is part of the ambience on one piece; on a couple of others (and in live performances), Hart added snippets of radio signals into the mix. "It's all about randomness," Hart says of his use of the radio as a sound-collage tool. "I turn on the radio and tune it into whatever I want to—in the case of this CD, it was the local AM news station. You don't know what's coming up, so it's random. Obviously, you could tune it into a Chinese station or a political talk show or anything. But I didn't choose it because it was so meaningful or something. I wasn't going for the literal translation. Then you put it through a delay, some reverb, or you can tap in delay factors at whatever tempo you want."

Traditionally, Flye has mixed Hart's projects on the Neve VR console at Studio X, but this time out he stayed in the box, using a Digidesign ProControl system, which made it a little easier to juggle both the instrumental tracks and the multitude of plug-ins used for processing.



PHOTO: JOHN WERNER

Global Drum Project in concert: sound manipulator Jonah Sharp, Hussain and Adepoju

"There's often 48 channels of instruments," Flye says. "Sometimes a few of those will be an instrument *and* its processing. And we had three engines going on [for ambiances]: a TC [Electronic System] 6000, a Quantec QRS and a Quantec XL, so there's two channels for each one of those, too. We've used the QRS, which is an old room simulator, a lot through the years. It's got a bottom that's really clear. In fact, it's one of the few digital reverbs I've ever heard that I actually kind of like the sound of, though I do turn down the high end a little bit. But it's usually part of the big ambience."

This is the first album of the many Hart

and Hussain have made together that carries both of their names, and as I leave the studio, I ask Hart about how their different personalities mesh. "Zakir is the sane one," Hart replies with a chuckle. "I am the man of chaos, he is the man of order. And we love each other's eccentricities. He can veer to the world of being too perfect, and I can go to the world of chaos. We meet somewhere in the middle and it comes out great. It's just like in the Grateful Dead: You can't explain the alchemy of it, the chemistry of it. I'm just fortunate that I can play with Zakir...and Giovanni and Sikiru. Any day playing with them I feel is paradise on Earth." ■



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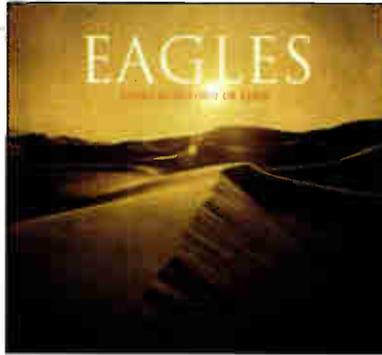
Eagles

Long Road Out of Eden
(self-released)

Far from being a typical cynical Eagles-bashing crit, I'm a fan dating back to their first album, and loved them up through *The Long Run* (and the *Hell Freezes Over* reunion), so I greeted the arrival of their first new album in 28 years with considerable excitement (and near disbelief). I feared that it might sound like four solo artists (fifth Eagle Don Felder having been jettisoned along the way) trading off on a bunch of dissimilar-sounding songs. But no, it really does sound like classic Eagles, with those creamy harmonies, sharp and memorable guitar lines, and leaders Don Henley and Glenn Frey as strong and self-assured as ever. A few songs here will find their way to the group's crowded pantheon of classics: "How Long" (written by fellow traveler J.D. Souther) is the group in country rockin' "Already Gone" mode; "Busy Being Fabulous" has some of that R&B bite that propelled "The Long Run." "Fast Company" is this album's "Life in the Fast Lane." "Waiting in the Weeds" is vintage Henley, maybe about a girl, maybe about a certain band... "Long Road Out of Eden," at more than ten minutes, is epic in length and scope—a powerful and poetic glimpse of war and America in the 21st century. It's followed by a lovely Frey instrumental, "I Dreamed There Was No War." The playing is crisp, the arrangements clean, the sonics top-notch, as always. There are a few minor missteps—some clichéd love ballads and a bit of over-earnest social commentary from Mr. H—but most of what's here is pretty damn good; definitely an unexpected surprise.

Produced by the Eagles, with Stuart Smith, Richard F.W. Davis, Scott Crago and Bill Szymczyk. Engineers: Mike Harlow, Davis, Hank Linderman, Steve Churchyard, Chris Bell, Mike Terry, Elliot Scheiner (mixing). Studios: The Doghouse, Samhain Sound, O'Henry, Henson, Mooselodge (all L.A. area); Panhandle House, Luminous Sound (both in Texas). Mastering: Bob Ludwig/Gateway Mastering (Portland, ME).

—Blair Jackson



Shaggy

Intoxication
(Big Yard Music Group)

Shaggy's breakthrough single, "ChurchHeathen" (included on *Intoxication*), focused a world-music spotlight on this unusual artist and his irresistible vocal stylings—a fusion of staccato, punctuated vocal rhymes and tempo-driven, melodic Gregorian monk-type chants. The backbeat fills a supportive role; combined with Shaggy's powerful lyrics, *Intoxication* gets you, well, intoxicated by the grooves and melodies. While much of the album is "radio-friendly," Shaggy does give us some pure reggae tones on "Bonafide Girl" and "Reggae Vibes." Big-name hip hop/R&B players make special appearances; stand-outs are Akon on "What's Love" and Nasha on "Those Days." This 17-track release puts the focus on what Shaggy does best—craft a great reggae hit with undercurrents of R&B and radio-friendly beats.

Producer: Robert Livingston. Engineers: Claude Reynolds, Stephen Siravo Jr., Andrew Thielk. Mastering: Paul Shields.

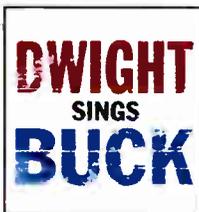
—Sarah Benzuly



Dwight Yoakam

Dwight Sings Buck
(New West)

We recently reviewed The Derailers' *Under the Influence of Buck*,



another wonderful tribute album in the tradition of George Jones' *Salutes Hank Williams* or Merle Haggard's Jimmie Rodgers collection, *Same Train, Different Time*. Like The Derailers, Yoakam's sound owes a lot to Owens, and he enjoyed a friendly, collaborative relationship with the Bakersfield icon. On *Dwight Sings Buck*, Yoakam pours his heart and his marvelous voice into hits such as "Act Naturally" and "Above and Beyond," with spirited backup from his touring band. They take few liberties with Owens' sound, but Yoakam's obvious devotion to this music adds emotional dimension to the tracks, especially his gorgeous rendition of "Close Up the Honky Tonks."

Producer: Yoakam. Recording engineers: Michael Dumas, Roberto Bosquez. Mixing: David Leonard. Recording studio: Track Record (N. Hollywood). Mixing studio: Glenwood Place (Burbank). Mastering: Stephen Marcussen (Hollywood).

—Barbara Schultz

Cy Curnin

The Returning Sun
(self-released)

For many, the era two decades ago when The Fixx was



a Top 10 band was a time when more creative music ruled the airwaves. Fixx lead vocalist, Cy Curnin, stands out as one of the most distinctive voices from those years of hits such as "One Thing Leads to Another." With *The Returning Sun*, Curnin celebrates turning the magic age of 50, and proves he still has a thought-provoking style of singing and songwriting. "Remember Me When I'm Gone" shows his ability to turn from thoughtful musings to aggression on a dime. Optimism reigns with the jangling guitars on "Fork in the Road," followed by the tense synth and drum loop underpinnings of "Hope Springs Eternal." Curnin truly soars on the title track, bursting out with beautifully intelligent vocal hooks.

Producers: Doug Beck, Cy Curnin, Clark Stiles. Engineer: Beck, Stiles. Mixer: Ernie Lake. Studios: The Yellow Room, The Tree House (both in NYC). Mastering: Dominic Maita/Airshow Mastering.

—David Weiss

Patrick O'Hearn

Glaciation
(self-released)

It's been awhile since a disc of ethereal, slow-

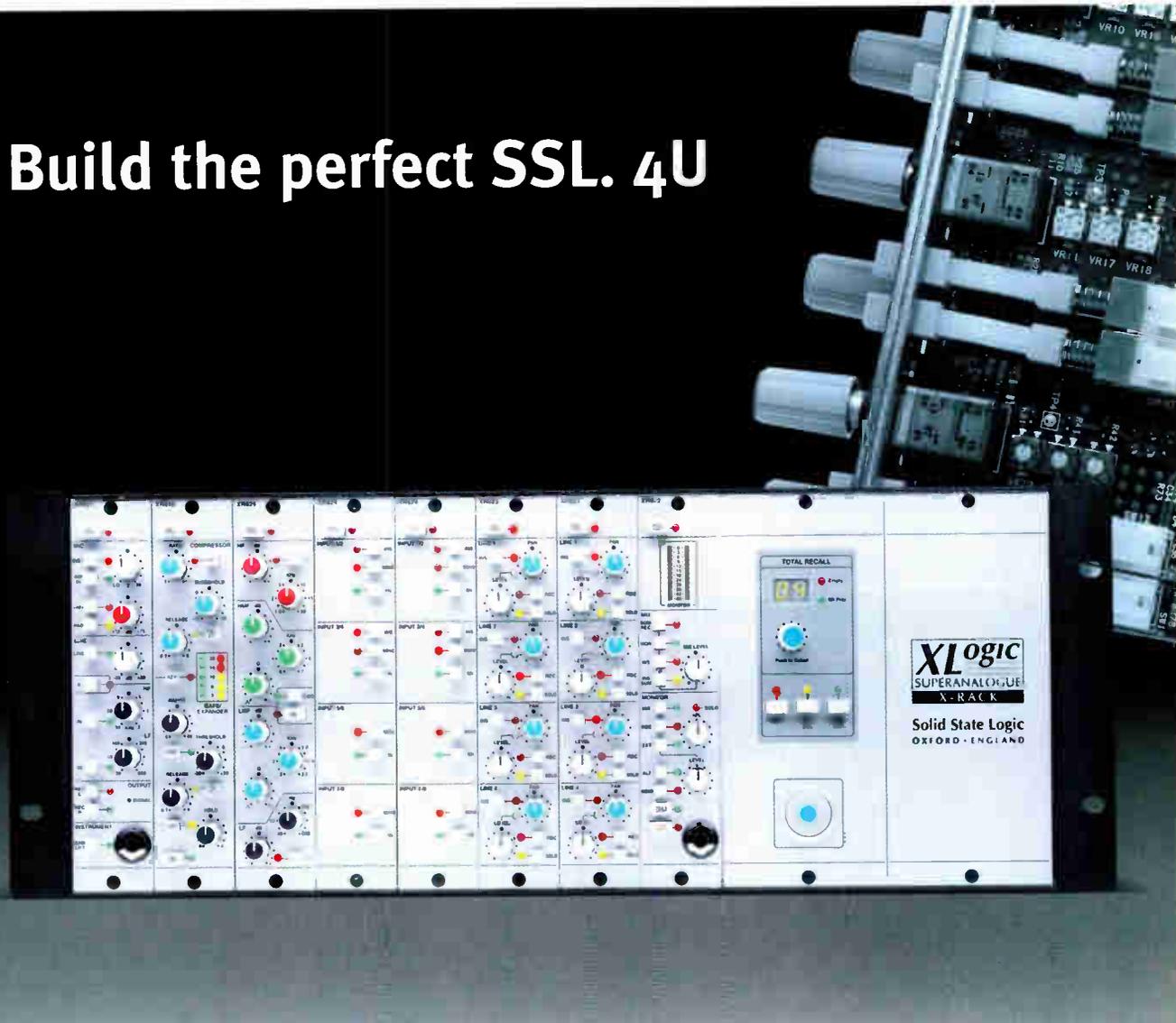


moving instrumental music (this once would have been called "new age") has captured my imagination like Patrick O'Hearn's *Glaciation* has. Like the glaciers and icebergs that adorn the lovely CD package, these compositions have a spare, mysterious, other-worldly beauty. I mean to pay this release a high compliment when I note that some of this music recalls the most evocative work of Brian Eno, in the way O'Hearn places the instruments in different ambient fields and the way the tunes unfold so naturally and majestically. But far from being just a keyboard/synth workout, this features many other textures, from pulsing basses to Hawaiian guitar (recalling Eno's gorgeous *Apollo*) to percussion. All in all, it's a wondrous trip!

Produced and performed by O'Hearn in his Nashville home studio, Lair Subterraneous.

—Blair Jackson

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L.A. GRAPEVINE

by Bud Scoppa

Snoop Dogg is rolling in high style these days, thanks to an unprecedented collaboration between West Coast Customs—the crew behind MTV's *Pimp My Ride* and TLC's *Street Customs*—and Mackie. Although Snoop had joined *Pimp My Ride* host Xzibit for some rhymes on the show's theme, the irrepressible MC entrepreneur had never brought a set of wheels to the Corona-based specialty house for a high-end makeover, so when WCC got a call from Slice, the rapper's manager, they were

up," he says, and the 13-by-6-foot area behind the cabin was still crammed with six rows of seats. It took some imagination to envision this funky set of wheels as a pro-level rolling studio. "I design extreme high-end car audio and video solutions every day," Utt points out, "but I'm not doing recording studios or working with those products." Realizing he'd need some expert help to get the job done within the two-and-a-half-week window dictated by the *Street Customs* production schedule,

Utt started doing some research.

"We'd heard that another shop had tried to build something on this level for Snoop," Utt explains, "and it failed miserably because they used a whole bunch of car audio products, which don't have the same dynamic sound as recording studio monitors. So we figured,

'Let's not try doing the same thing they did; let's go get exactly what Snoop uses,' and his manager told us they use Mackie [products] in all of their studios. So I figured the best thing to do was get Mackie's top engineers and walk with them, step by step, through the process. So we had the right setup to start with, and we didn't have any hiccups along the way.

"I was very impressed by all the people at Mackie," he continues. "They had engineers on the phone with me day and night explaining how it needed to be set up to make it work properly, and the guys were extremely helpful—it came out awesome,

—CONTINUED ON PAGE 134

NASHVILLE SKYLINE

by Barbara Schultz

Last year was a banner one for Starstruck Studios and its superstar owner, Reba McEntire, who recorded most of her smash *Duets* album there. Bon Jovi also locked out both music studios for a while, writing, tracking drums and overdubbing parts for their huge *Lost Highway* album. And *American Idol* winner Carrie Underwood is now a multiple American Music Award-winner for *Carnival Ride*, the album she recorded and mixed at Starstruck earlier last year. The studio remains a favorite on Music Row for live tracking and mixing, as well as some choice newer services.

"We're lucky because we have a lot of established artists with good budgets," says Starstruck studio manager Janet Leese. "A lot of big studios have gone by the wayside. The labels are continuing to crunch down on budgets, and our rooms are pretty high end so we need to get a certain rate out of them, but we're staying really busy."

Leese, whose background is in business administration, began her audio career in New York City, where she worked for (among other businesses) Quantegy Tape. "Once I was doing sales on the outside," she says, "I became fascinated with how to get on the inside of making records." She left New York for Nashville in 2000, and joined Starstruck in 2004 after a couple of years at Sound Kitchen. Her passion for her career is doubtless one of the big reasons why Starstruck is faring well. In her first year as manager of Starstruck, the facility's revenue increased by close to 50 percent.

The studio's two SSL 9000 J Pro Tools HD3 music recording mixing rooms—the Gallery and the Pond—are still Starstruck's bread and butter, but Leese acknowledges that with continued attention to maintenance and service, these beautifully designed rooms sell themselves. The studios benefit from repeat clients such as producer Mark Bright (whose production company is housed in the same building as Starstruck) and engineer Derek Bason, who tracked and mixed the Underwood release. "Mark and Derek are regulars



Snoop Dogg's new studio-in-a-van: stylin' inside and out



all over it. But this job would be unlike any they'd handled previously. Would they be able to turn Snoop's pipe dream into a reality?

Snoop had bought a 2007 Daimler Sprinter van—the high-roofed vehicle favored by FedEx—with the intention of having it customized into a combo mobile studio and video lounge. That ambitious undertaking would be quarterbacked by Chad Utt, WCC's audio/video manager. He'd handled a ton of over-the-top car audio custom jobs, but the closest his team had come to this sort of transformation had been outfitting a handful of stage trucks with performance and DJ rigs. But a full-on recording studio—now, that posed a whole new set of challenges.

When the Sprinter arrived at the shop, Utt realized he really had his work cut out for him. The van was already "pretty beat

NEW YORK METRO

by David Weiss

here," Leese says. "They're here almost every day of the year."

The studio's biggest growth area, however, has been its Broadcast Room, which is equipped with a Mackie 32-input console, three Sony Beta SP decks, an eight-line telephone hybrid for call-in/media tour projects, and tielines to the music studios for performance events. This part of the facility saw little traffic until recently, when Leese began working with veteran broadcast engineer Jim Jordan's Transverse Networks company, an independent contractor that provides broadcast project services. Starstruck and Transverse have an ongoing relationship where Transverse brings engineers in to support the studio's broadcast bookings. Jordan is also aided by Starstruck's newest staffer, a former intern from the Phoenix, Ariz.-based Conservatory of Recording Arts and Sciences named Aaron Kasdorf.

Kasdorf had interned at Starstruck for six months when a staff assistant engineer position opened up, and he was hired on full time. Under the tutelage of longtime in-house engineers Todd Tidwell and Chris Ashburn, Kasdorf was soon assisting on sessions for artists such as Sara Evans and Michele Branch. He also took every opportunity to broaden his skill set.

"When I was going to school, I wanted

—CONTINUED ON PAGE 134



From left: Starstruck's Todd Tidwell, Drew Headley (seated), Aaron Kasdorf, Janet Leese and Chris Ashburn

Beg. Borrow. Steal. Repeat. That hardly sounds like it should be the recording M.O. for a New York City sideman supergroup like Rudder (www.ruddermusic.com), but that's the way it went for their self-titled instrumental/space rock/funk debut. Take a look at how the recording of this ultragroovy disc went down, and you'll get a good idea of the fragmented workflow that comes with the typical New York City rock record today.

BEG

Keyboardist Henry Hey (Rod Stewart, Harry Belafonte, Bill Bruford) had to lay down the law to make sure the album got made at all. The nonstop schedules of his bandmates—saxophonist Chris Cheek (Paul Motion, Charlie Haden's Liberation Orchestra, Bill Frisell), bassist Tim Lefebvre (*Saturday Night Live* band, Chuck Loeb, Dennis Chambers) and drummer Keith Carlock (the Blues Brothers, Steely Dan, Sting)—certainly weren't making things easy.

"I was the musical director for Rod Stewart, and when he finished some touring I had the free time to force this thing to get done," Hey explains. "This is really a band: collective sound and collective music. When we play live, about a third of what we do is improvised. This collection of musicians has been together for a couple of years, but because we're all busy as sidemen we couldn't play together on a regular basis. But we had to commit to do this thing—otherwise, we were just going to continue playing a gig every four months and never record a record."

After agreeing on that, the group agreed on something else—the key to the album would be capturing the wallop coming out of Carlock. "That was most important for us—we just wanted the drums to sound like Keith," Hey says. "He uses unusual tunings."



From left: Rudder keyboard player Henry Hey, engineer Nic Hard and bassist Tim Lefebvre

"Keith's drums have no deadening whatsoever," adds Nic Hard, whose engineering and mixing skills would have a large impact on the Rudder record. "He uses single-ply heads for this open, ringy sound that's pretty much the opposite of what anybody else does. We wanted a large room sound."

Determined to get things moving, Hey pulled a typical New York City maneuver: He took 400 square feet of Williamsburg, Brooklyn, commercial space that he was renting and converted it into a recording space, with a Digidesign Pro Tools 001 set-up. "We wanted to have the liberty to not be billed hourly and explore stuff," he says. "Tim and I said, 'We have to start recording this,' so we rented some APIs, some Vin-techs, and we just started playing."

After six days of initial idea tracking at Hey's place, Rudder stepped it up another notch by congregating at Bushwick Studio (www.bushwickstudio.com). Founded by Josh Kessler, Bushwick is a split-level facility featuring an elite mic selection and a 500-square-foot live room with variable acoustics. Although its location in one of Brooklyn's more notorious neighborhoods (beware the packs of roving stray dogs) may give some pause, to the budget-conscious New York City recording artist it serves as a way to assure favorable rates over the more posh locations in Manhattan.

"It's a long rectangular room, but it ended up sounding really great for drums,"

—CONTINUED ON PAGE 134

SESSION SPOTLIGHT THE SADIES' NEW SEASONS

By Jeff Forlenza

Led by brothers Dallas and Travis Good, The Sadies are an eclectic band based in Toronto. The Sadies could be categorized as roots-rock or alt-country, but there are also elements of surf guitar, bluegrass and ballsy rock 'n' roll in their distinctive sound. The Sadies' latest release, *New Seasons* on Yep Roc Records, showcases the band's many influences and excellent musicianship.

Gary Louris produced the album and provided backing vocals on a number of songs. In the '80s, Louris and Mark Olson helped establish The Jayhawks as torchbearers of the alt-country flame ignited by The Byrds and Gram Parsons. It's fitting that Louris worked with a band at the forefront of the next wave of alt-country.

PHOTO: BETH HAMMILL



Engineer Ken Friesen

Engineer Ken Friesen tracked and mixed parts of the album. Friesen has a background in live sound, studio design and broadcast mixing, as well as recording and mixing album projects. His credits include engineering albums

for the likes of the Tragically Hip and Blue Rodeo. A fellow Canadian, Friesen worked with The Sadies on their live concert CD.

When it came time to record their next studio album, The Sadies chose to record part of the album with Friesen at Toronto's Woodshed Studios. (Other parts of the album were recorded, mixed and overdubbed by engineer Paco Loco at his studio in Spain.) Friesen was comfortable working at Woodshed because he designed and installed the studio. "The Woodshed worked well," he explains. "It is mostly one good-sized room with no separate control room. There is an iso booth, a couple of amp closets and some good baffles, all of which we used

PHOTOS: CHRIS SHREENAN-DYCK



Woodshed's Neve 8014 console and outboard gear



The Sadies are (from left) Travis Good, Mike Belitsky, Sean Dean and Dallas Good.

to record the album."

Recording tracks at Woodshed, Friesen (for the most part) stayed in the analog domain. "Pro Tools HD was used to overdub some additional parts onto songs that were mixed in Spain," Friesen says. "Some songs were transferred to Pro Tools to take advantage of the mix automation, but there was little, or no use, of Pro Tools' editing, plug-ins or pitch correction."

Friesen used Telefunken U47 and U67, AKG C24, RCA 44 and Coles 4038 microphones on the project. He recorded to 2-inch tape on a 24-track Otari MTR 90 Mark II recorder, and then printed mixes to quarter-inch tape on a Studer 820. Mixing the album was a team effort for The Sadies, with producer Louris, engineers Friesen and Loco, and mastering engineer Peter J. Moore all contributing to the mix. Friesen used Woodshed's Neve 8014 console with 1073 modules to mix some of the songs.

"They are living proof that rock is not dead," Friesen says of The Sadies. "The caliber of the musicianship is very high, so it made analog recording not only possible, but an absolute pleasure. Gary Louris' production was great and really helped the guys by drawing out their best singing of their best songs. It was fun to do it old school with no computer for the most part. It really makes it all more about guts and instinct, and less about thinking and perfection." ■



The main room at Woodshed Studio in Toronto

GOLDEN MASTERING FATHER AND SON HAVE HIGH STANDARDS FOR EVERY PROJECT

By Jeff Forlenza

Independent record labels, musicians, engineers and producers know about mastering engineer John Golden. He made a name for himself mastering albums for major-label acts, and especially independent bands, in the early '80s. These days, Golden works on a wide variety of mastering projects from his facility, Golden Mastering, in Ventura, Calif.

Golden learned his craft through his years at Artisan Recorders in Hollywood, Kendun Recorders in Burbank and later Hollywood's K Disc Mastering, where he put the finishing touches on entire catalogs for indie labels such as Sub Pop and SST.

"I became involved with the independent music scene after starting at K Disc around 1981," Golden recalls. "I found that not many mastering facilities took the independent punk and rock bands seriously and really did kind of a quickie mastering job. I remember working on some of the first Black Flag, Descendents and Minutemen projects with an engineer named Spot. He was amazed that I listened all the way through each project several times before cutting the lacquer! I guess that's how the word got out that there was this guy at K Disc that really cared."

After working at K Disc for 12 years, Golden decided to leverage his reputation and start his own facility. He opened Golden Mastering in 1993. In 1998, Golden's son, J.J., joined the Golden Mastering team, and he has become a respected mastering engineer in his own right. Keeping it all in the family, Golden's daughter, April, is the studio manager.

Golden Mastering is a two-room facility with SADIe Series 5 DAWs in both rooms. John Golden prefers listening on KRK 9000 speakers, while J.J. Golden opts for ADAM S3A monitors. Outboard gear includes Manley Variable Mu compressors, SPL EQs, Crane Song comp/limiters, Weiss EQs and Lavry A/D converters.

John Golden and J.J. Golden still do mastering for vinyl LPs. In fact, 25



J.J. Golden (left) and John Golden at the Neumann VMS-70 cutting lathe

to 30 percent of their work is cutting lacquers for LP projects on their Neumann VMS-70 cutting lathe. Oftentimes, clients who have already mastered their CD at Golden Mastering will also master for LP release there. Recent projects include John Golden mastering Sonic Youth's CD and LP reissues, and J.J. Golden mastering a New Pornographers album for CD and LP release.

"I really enjoy the variety of artists and styles of music," J.J. Golden says of his mastering work. "To be able to work on a '60s folk-rock album on Monday, a punk-rock album on Wednesday and a Hawaiian album on Friday keeps the weeks really enjoyable."

After four decades in the mastering biz, John Golden still strives for highest-quality masters no matter the project: "We are always on the look out for new equipment and ways of experimenting that give us the ability to enhance the project—possibly taking it to somewhere no one thought was possible." ■

TRACK SHEET

NORTHEAST

Yeah, Yeah Yeah were in Sear Sound (NYC) mixing with producer/engineer Nick Launay. The Killers were in with engineer Alan Moulder and co-producer Flood...Avatar Studios (NYC) hosted Stanley Jordan, recording with producer Al Pryor, engineer Todd Whitelock and assistant Colin Suzuki.

MIDWEST

Hank Neuberger's latest Springboard Productions (Chicago) project was a live Webcast and HD video production of two Dave Matthews Band shows at the Military Academy at West Point. Neuberger worked with filmmaker Danny Clinch and engineer John Harris, who recorded the audio from Effanel's L7 truck.

NORTHWEST

Studio 880 (Oakland, CA) hosted the first sessions of R&B

supergroup TGT (Tyrese, Ginuwine and Tank), who recorded vocals for an industry demo with engineer Brad Kobylczak. Session drummer/producer Brain Mantia laid down drum tracks for an upcoming Bootsy Collins release...At Laughing Tiger Studios (San Rafael, CA), Nicci Nix was writing, tracking and mixing for an upcoming release with producer/engineer Ari Rios.

SOUTHERN CALIFORNIA

Rob Chiarelli tracked and mixed a new album from Paula Abdul at Olllywood Studios (Hollywood), which was produced by Oliver Leiber...The Village continues to host sessions for KCRW's *Morning Becomes Eclectic*. Ariana Morgenstern produced the Swell Season, featuring The Frames' Glen Hansard and Czech pianist Marketa Irglova. Ghian Wright engineered and Vanessa Parr assisted. ■

Send "Track Sheet" news to bschultz@mixonline.com.



L-R: tennis great/host Andre Agassi with engineer Scott Peets and bass player Nathan East

AGASSI'S GRAND SLAM FOR KIDS

Remote facility Design FX recorded the Andre Agassi Grand Slam for Children at the MGM Grand Garden Arena (Las Vegas). The event benefits the Andre Agassi Charitable Foundation, which funds Boys and Girls Clubs, scholarships and more. Engineer Scott Peets and crew—Tim McColm, Jeff Shannon and Richard Landers—captured performances by Goo Goo Dolls, Matchbox 20, Tony Bennett and Jerry Seinfeld.

and it sounds amazing.”

For the studio hardware, the Mackie dudes selected an Onyx 1200F FireWire interface boasting 30 inputs and 34 outputs of 192kHz audio on the company's high-end preamps. Serving as control surfaces are a Mackie Control Universal Pro, Extender Pro and C4 Pro, with plug-in effects processors and virtual instruments. A pair of 1521Z two-way, 15-inch active speakers stand tall as the studio monitors. On the software end, they chose the Tracktion 3 Ultimate Bundle, which includes mixing and mastering tools, virtual instruments and sample libraries from IK Multimedia, Sonic Reality and others. A Sony VAIO SZ491 2.16GHz dual-core laptop with a 200-gig hard drive runs the software.

“There’s a sliding door on the right side of the van,” Utt says, “and right in front of it is the entire rack. And Snoop can actually stand up in there—it’s really a tall van—set it up the way he wants and run everything off the VAIO laptop.”

But there was one more critical issue to deal with before this rig could legitimately be called a mobile studio. “When you’re inside of a vehicle that’s made of extremely thin sheet metal, it’s gonna vibrate like crazy,” says Utt. “So we had to go through the entire vehicle and sound-deaden it with multiple layers of Dynamat, make sure that all the panels were dead, that we didn’t have any reverberations and that was a major step in the process.”

Utt, whose passions extend to home theater, was right in his sweet spot on the video lounge tip. He positioned a 46-inch Sony Bravia flat-screen right behind the driver and passenger seats, effectively hooking it up to a Sony Blue-ray DVD player, PlayStation 3 console and the VAIO laptop, which plays a dual role in the setup.

“We work a lot with Sony,” says Utt, “because they have every facet under one roof, not only mobile electronics but home electronics—from camcorders to flat-screens to laptops—and we use all that stuff in our conversions.”

For the 5.1 surround system, Utt went all Mackie, going with five HR624mk2 high-resolution studio monitors and an HRS120 12-inch studio subwoofer, which handles the low frequencies for the studio, as well. The subwoofer is stashed beneath a pair of plush black-leather seats adorned with Snoop logos, which Utt has placed in the prime viewing area in the very back of the van. “We put the two seats in the back so that he’d be able to lounge, relax, play videogames and do anything off the PS3, and watch movies in hi-def on the flat-screen in 5.1,” Utt explains.

The 5.1 processor, from a high-end home audio outfit called Outlaw Audio, “allows us to run two separate zones, one just for the recording studio and a separate zone for the 5.1—and it decodes all the 5.1 signals so it has the proper input,” says Utt. “I discovered Outlaw through my home-theater side projects, and they seemed to have the best receiver for this setup, so I called them up and told them what we were doing, and, once again, another company was more than willing to help out.”

Utt and his team came up with a way-cool final touch, tricking out the interior in black and mustard yellow—the colors of Snoop’s beloved Pittsburgh Steelers. The inch-and-a-half-deep shag carpeting on the floor—so thick it must be raked rather than vacuumed (to get rid of the seeds and stems?)—is black, as is the suede ceiling, with mustard-yellow trim on the walls and windows. “We always try to put some personal touches in there,” says Utt.

Snoop was as stoked about his transformed van as Cinderella was when that giant pumpkin morphed into a royal coach. “He’s actually used it to shoot a few music videos,” Utt notes, “and he’s had it in another TV show that he’s working on. It’s also got a bench on the right side that pulls out so he can take his kids back there with him. He takes it to his football practice and cruises around in it. He loves riding around in there.”

The Snoop segment ran in mid-November on *Street Customs*; check out www.westcoastcustoms.com/streetcustoms/index.html for repeat airings. ■

NASHVILLE SKYLINE FROM PAGE 131

to record and didn’t really consider broadcast,” Kasdorf explains, “but when I was an intern, I saw we had this broadcast studio that sat there because it was kind of a down time as far as broadcast bookings. I grabbed some manuals and started learning the stuff; Jim Jordan kind of took me under his wing, and I started shadowing him. Before I knew it, Transverse Networks was booking me to run audio on projects like the one we had last week: Garth Brooks came in on a Friday, and we did 32 cities of a satellite media tour. We have satellite-uplink capabilities, and he was promoting his Kansas City shows [and recently released *Ultimate Hits* collection]. That was a six-hour session, all live, where he had about enough time to take a sip of water between five-minute interviews. That was wild for me. Garth Brooks is the biggest and the best as far as country goes.

“Another thing we’re excited about that we’re just getting into,” Kasdorf continues,

“is Webinars—live interactive chats that are done on camera. Last night, we did one with Larry Carleton and *Guitar Player*. He was there with his guitar and there was a show host, and people could go online and type in questions. Larry was able to talk on camera and demonstrate different guitar techniques. It’s all part of a new approach to things.”

The Broadcast Room is also used for numerous projects unrelated to music: “CNN will do live shoots here, too,” says Leese. “If they’re covering a breaking story in Nashville, they might use our studio for a live feed. Janet Reno was in here for a news program. We’ve had people here on book tours.”

With the Gallery and the Pond consistently booked, and the Broadcast Room taking off, Leese has felt comfortable enough to put down roots in Nashville. She bought a condo just a couple of blocks from work, and enjoys walking her dog during her minuscule free time. Kasdorf has also settled in.

“It’s been a wild three years, but I feel so lucky to be building these stepping stones in my career and learning from amazing engineers,” Kasdorf says. “Every day you meet a new person, learn a new technique. It’s a great city, and everybody has been friendly and welcoming. It’s home now.” ■

NEW YORK METRO FROM PAGE 131

Hard says of Bushwick Studio, “From the moment we set up on the first day and I heard the music, I saw that the opportunities for creative engineering were endless.”

Hard tracked the drums with “more compression than normal,” using heavy LA-3A on the kick. Dual Royer 121 mics fed into Universal Audio mic pre’s and on to a pair of Empirical Labs Distressors, where high gain with extremely fast attack and release times mutilated everything nicely. “The idea was to get a big, open, wild drum sound,” says Hard.

Not to be outdone, saxophonist Cheek chimed in with unusual effects on his horn, including delay, Eventide Harmonizer, phaser and a Musictronics Mutron 3 filter. Bassist Lefebvre added to the psychedelia with his own secret sauce of pedal effects, including a Moogerfooger envelope unit. Hey came in playing Rhodes, a Nord Stage and soft synths from Native Instruments. “Some of the Rhodes tracks were double-tracked through Marshall stacks,” Hey rhymes. “That made it more punky and nasty, but I tend to lean toward darker, more messed-up sounds.”

BORROW

Tracking completed, the musical data would sit on a shelf for a good six months before

the men of Rudder could get together again at Hey and Lefebvre's houses to start reviewing the raw recordings. Many of the songs had been recorded as long-format jams that would have to be cut down.

"It was very daunting at first because we had a lot of material," says Hey. "It was a big weeding-out process. If you have 30 segments of music that are one-third jams, you can cut it [together], but then you end up with a Frankenstein. If you're tempted to edit something, you might because it's easy. We were unable to do that and came up with something more organic."

Song chunks in hand, Rudder didn't exactly borrow time at their mix facility of choice, Manhattan's One East Recording, but they did once again finagle a very good rate. With a vintage vibe, advanced outlook, an Amex 102 half-inch tape machine, a Motown EQ, RCA BA6A tube compressors and a gorgeous 24-input, 8-bus Neve 5316 console, One East fit Rudder's bill perfectly.

"The studio was set up for mixing and tracking from the get-go—I like to think of it as the best of the old and the best of the new," says studio owner Matt Wells. "The Neve console is from a German TV studio where it was never used; the EQs have the original grease from the studio. I've been col-

lecting outboard gear for years, specializing in vacuum tube and analog equipment."

Hard—a New York City-based engineer/producer with credits including The Church, Aberdeen City and The Bravery—immediately felt at home on One East's 5316. "It's on par with most Neves," he says. "You put something through it, and it sounds good. The mix was very much like when I used to mix records seven or eight years ago, in that we were relying mostly on outboard gear and doing a lot of manual rides. This isn't an automated console, so we tried to do a lot of hands-on, playing with delays as we went to tape. We did use some plug-ins, but we predominantly went about it the old way."

On a tight schedule that allowed just five 12 to 13-hour days to mix the album's 13 tracks, Hard and Rudder fed off the spontaneity of their method. "Where the music was jamming, there was an extent of that happening in the mixing," observes Hard. "On 'Circle of Jerks,' we did three takes and picked the one we liked. It's great to mix an instrumental record because it's more unlimited. You can try out some effects—see if it works, see if it sounds cool."

STEAL

After getting finished off in the master-



ing suite of Scott Hull, Rudder's debut is a growling psycho-funk collection that will steal your musical heart. Like so many independent New York City albums today, it was made through was a true hybrid of home studio, Brooklyn joint and world-class. ■

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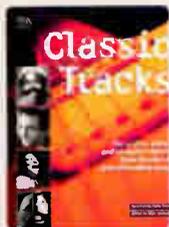


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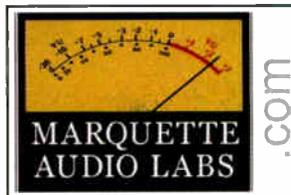
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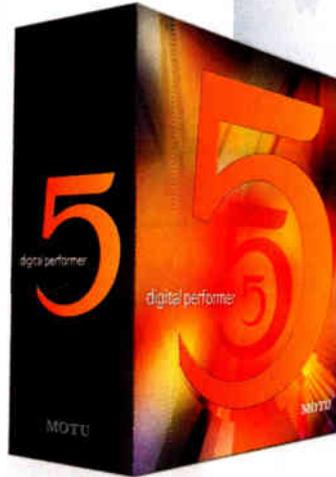
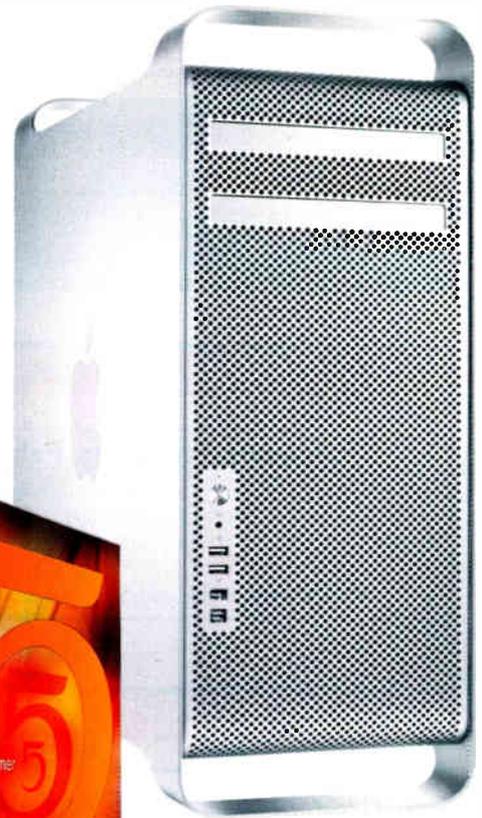
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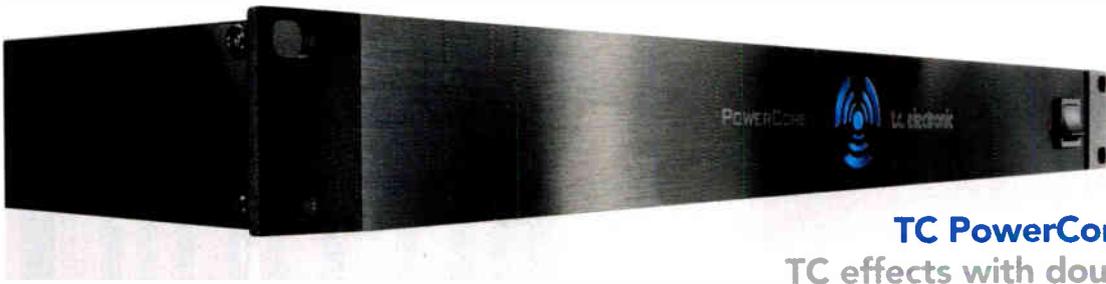
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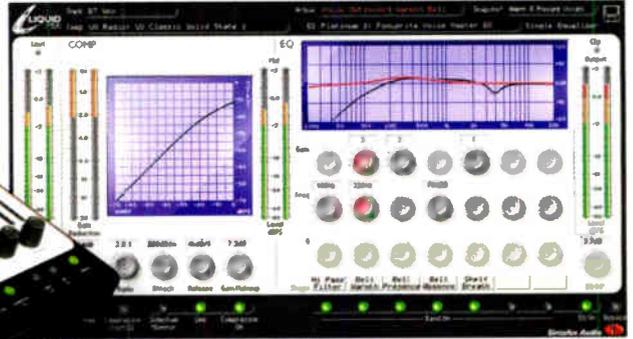
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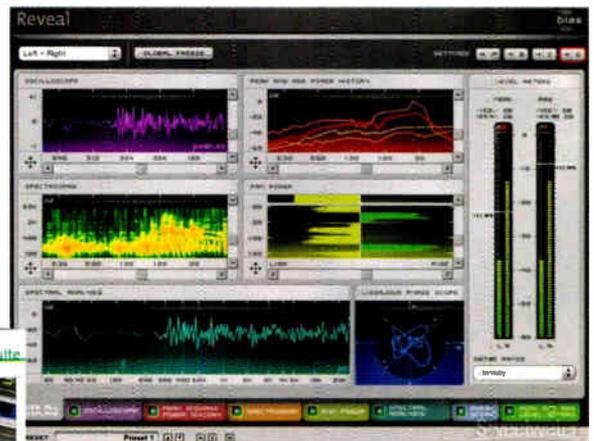
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DiGiCo's D1 and D5 Live Series comprise comprehensive, versatile digital consoles with outstanding sonic quality and intuitive operation. They can be found on prestigious productions ranging from Broadway shows to stadium rock tours. Here are a few tips and bits of advice I've picked up after mixing on these boards during the past few years.

GOOD HOUSEKEEPING

This is simple but I can't overemphasize its importance: Save all those changes you make to your mix several times during and then after soundcheck, and be descriptive in how you use names. The project folder could be the name of the city you're in, and the session file names and description reflect when they were done. Later, when you're searching for something, a logical file-naming system will make your life easier. For example, Project folder: ny; file name: sndchk1 ses; description: RadioCity FOH. It's also a good idea to keep a regularly updated copy of your commonly used sessions, preset files and socket files on a separate USB memory stick.

SESSION SETUP

When I'm setting up my initial session, I always allow for two additional mono and stereo sends than I initially need, if resources allow. The same applies to groups. It's useful to have a template setup that's close to what you'll finally need. It could be an FOH setup with your favorite effects sends and returns already assigned, or a monitors setup with graphic EQs already inserted across the aux sends.

MONEY, MONEY, MONEY

There's often a "money" channel at a show. If you have a lot of channels to deal with on different banks and want to keep track of the money fader, then copy it to the same fader position in each bank on that input surface and "gang" them together to make sure changes on one are reflected in all. They'll be automatically included in any control groups already set up for the original channel.

MORE MASTER EQ

Want a parametric and a graphic EQ across your master LR? Here's how: Insert

the graphic as normal over the master. In matrix inputs, choose the master L and R for inputs to matrix 1 and 2, respectively. Send L to matrix 1 output at 0 dB and R to matrix 2 output at 0 dB. Select your output socket via the matrix outputs. Raise matrix 1 and 2 faders to 0 dB. Insert processing channel 1 across matrix 1 output and then insert processing channel 2 across matrix 2 output.

Enable the parametric EQ. Raise processing channel 1 and 2 faders to 0 dB and—if desired—gang these channels so that changes are common to both parametrics. You now have a regular LR graphic and a 6-band parametric with which to play.

MADI HAPPY RETURNS

MADI lines offer a convenient way to send returns from the house to monitor boards. To begin, you'll need three MADI cables: one for MADI signals from the stage rack to FOH, one for word clock (although this is not needed with Version 4 software) and one for the return signals from FOH to monitor world. Next, you'll need to include a line in the sockets files at FOH and monitors: MADI 3 = 48. This will give you 48 ins and outs on MADI 3. Connect MADI 3 out on the FOH console to MADI 3 in on the monitor console. Now you can output your master L/R at FOH to MADI 3-1 and MADI 3-2, and these can be picked up on the monitor console and routed to processing and amplifiers onstage.

PLUG IT IN

Using plug-ins is easily done on a D1 or D5—all you've got to do is edit your sockets file and have MADI 4 declared as plug-ins 1 through 56. Then, using an RME HDSP MADI card in a PC or Mac lets you connect your DAW. Using the DAW provides access for eight units deep per channel. This allows you to connect up to 56 channels of plug-ins, either directly in your DAW package or as



Engineer/author Kevin Madigan on the job on a recent tour with a D5 Live and a D1 Live

extra VST bundles or third-party cards. The connection is just as simple: just two BNC cables. The plug-ins will appear anywhere they may be required on the console: send/returns, groups, auxes, matrix, etc.

RECORDING

You can easily record up to 112 channels of audio over two MADI lines. Again, all you need is a MADI card (such as RME's HDSP) in a computer running some DAW software. I use Steinberg Cubase 4, which records in the broadcast WAV format that's compatible with just about every pro digital editing system. Depending on what recording software you're using, you can program a macro on the DI/D5 to fire a MIDI patch to start/stop recording.

I recently worked on a project with a recording engineer who wanted a split directly to Pro Tools. At the time, I thought this might be a costly venture requiring a load of extra AES outputs in my stage rack until I heard about SSL's XLogic Delta Link MADI HD, which, as its name implies, is a MADI-to-Pro Tools HD converter. All I needed was this single-rackspace chassis, SSL's simple MADI opti-co-ax adapter, two BNC cables to connect to the console and two HD cables for my Pro Tools. This gave me 56 tracks of record and playback. If I want 112, then I just double up—easy. ■

Kevin Madigan is a touring sound engineer, system tech and sometime acoustic consultant based in Los Angeles and Dublin.



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To see the entire list, please go to <http://www.lynxstudio.com/10reasons>.



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