

# MIX<sup>®</sup>

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

# DESIGN & ACOUSTICS

*The Class of 2004*

*Surround Monitor Packages*

*Troubleshooting the  
Small Studio*

## PETER GABRIEL

*On the New Business of Music*

## ATLANTA RECORDING

*Boom Times In a Hot Market*

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# will.i.am

*of Black Eyed Peas*



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# End separation anxiety

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You know the drill. Generate separate multitrack audio tapes. Hand them off with the videotapes. Then wait—for sync hassles, editing-induced audio artifacts, and maybe even a *one-of-the-tapes-is-missing* call. Talk about audio-post-partum anxiety.

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The compact SSL analogue console that the world has been waiting for.

The powerful and intuitive DAW controller that the industry needs.

- Legendary SSL sound quality
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- Greater bandwidth than 192kHz recorders
- Ultra low-noise dual impedance mic amps
- Full monitoring system up to 5.1 surround
- Flexible signal routing
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- Assignable SSL dynamics section with gate, expander and compressor/limiter
- G Series Stereo main mix buss compressor
- Flexible processing order
- Metering on all channels and main outputs
- Direct access to all major DAW mixing, editing and automation parameters
- Direct control of Plug-In settings
- Dedicated control CPU to maximise performance
- Integral colour TFT display with dedicated control keys
- User definable controls on every channel
- High quality motorised faders to write/replay level moves in your DAW
- Simple switching between console layer and DAW control layer
- Full remote control implementation
- Operation independent of platform – works with Pro Tools, Nuendo, Logic Audio, etc.

# AWS 900

ANALOGUE WORKSTATION SYSTEM

## Solid State Logic

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## Command.

### PM5D

#### Numbers >

56 inputs and 4 stereo returns, 24 mix outputs, 8 matrix outputs, 96kHz 32-bit processing, 8 stereo effect processors, 12 graphic EQs, 4-band parametric EQ with dynamics and delay on all inputs, 8 band parametric EQ with dynamics and delay on all outputs, time code event automation, hundreds of scenes, recallable head amps...

#### Story >

The newest evolution in Yamaha digital mixers. A fusion of PM1D's core elements with the advances realized in DM2000 and PM5000. But with a unique ability to control outboard DME processors directly from the PM5D. True system integration.

**One point of control.**



## Control.

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24 channels of I/O in DME24, 64 channels of I/O in DME64, up to 10 of Yamaha's newest 96kHz DSP processors, new software allows direct control of crossovers, EQ, and delays from the PM5D digital mixing console, control via Ethernet, CobraNet™, USB, RS232/422 or MIDI, four models of remote control panels, cascade ports, GPI, Euroblock connectors...

The power of Yamaha digital technology harnessed into the world of programmable black boxes. An intricate network of DSP. Robust intuitive software. True integration of audio and control with PM5D.

**A processor that puts the console in command.**

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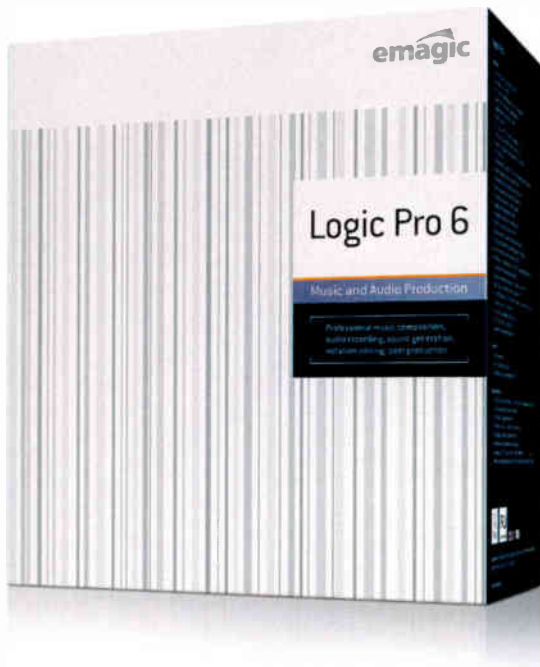
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# All in one box.



The most widely used program of its kind for professional music creation and audio production is now more attractive than ever before. The new Logic Pro 6 contains all Emagic's superb plug-ins and software instruments, making it not only the best-equipped music production software available, but also the one with the most unbelievable price/performance ratio. Emagic's considerable expertise and experience in music composition, audio recording, sound generation, notation editing and publishing, post production, and film scoring is now all in one box – in Logic Pro 6.



## Adjustable Power Seat

Featuring unprecedented control over response at the mix position, JBL steps forward with the new LSR6300 Studio Monitors, the first complete solution to tackle problems in the room. Our exclusive RMC™ Room Mode Correction system, including a hand-held acoustic analyzer (shown above in your seat), accurately measures boundary-induced low frequency modes so you can adjust the speaker's 1/10th octave parametric equalizer and correct the problems in the room. Designed from the ground up, the LSR6300's deliver ultra-flat response (+1/-1.5 dB), an exceptionally wide sweet spot free of spatial anomalies and an incredibly accurate window on your mix. Shielded, mountable, and THX® pm3® approved, for stereo or multi-channel, music or post, the LSR6300's truly put you in the power seat.

See your JBL Dealer today for a demo of this extraordinary new monitoring system.

**LSR6300 Studio Monitors – Mix Without Boundaries.**

Learn more about the power of the LSR6300 Studio Monitors at [www.jblpro.com/LSR](http://www.jblpro.com/LSR)



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World Radio History

# MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

June 2004, VOLUME 28, NUMBER 7

## features

### 32 Life Is Peachy

#### Inside Atlanta's Music Recording Scene

While Atlanta's music scene has been pigeonholed as R&B- and hip-hop-centric—especially with OutKast's soaring success—and thought of as a second-tier music market, it is home to numerous rock, blues, jazz and classical musicians who spend their time in top-echelon recording environments, both private and commercial. *Mix* digs into Atlanta's bustling music scene by taking advantage of Southern hospitality, studio-style.

### 38 Class of 2004

#### The Year's Hottest New Studios

Every June, *Mix* devotes special coverage to facility design and acoustics. This year's "Class" showcases some of the most impressive new and re-worked rooms to open since last summer.

### 44 Homeward Bound: The Move to the Small Studio

#### Part One: Isolation Issues and Speaker Placement

Acoustician Bob Hodas takes into account complaining neighbors, a shoe box-designed home studio and the laws of physics to provide tips and techniques for professional studio design in a home studio environment.

### 52 Packaged Surround Monitoring Systems for Studios

The old adage that great things come in small packages may not hold true for surround monitors. Increasingly, studio monitor manufacturers are offering complete 5.1 systems, be it designed from the ground up or "re-purposing" already existing models. *Mix* showcases what's available for all budgets and needs.

### 62 NAB 2004 Show Report

From April 17-22, nearly 98,000 audio, video, film and broadcast pros were in attendance for the annual National Association of Broadcasters Convention in Las Vegas. The *Mix* editors combed the floor for the hottest new audio products.



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**On the Cover:** Studio A at Pressure Point Recording Studios in Chicago was designed by Kierkegaard and Associates and features an isomorphic wall and an abundance of natural light. For more, turn to page 38. **Photo:** Paul Natkin. **Inset:** Marina Chavez.

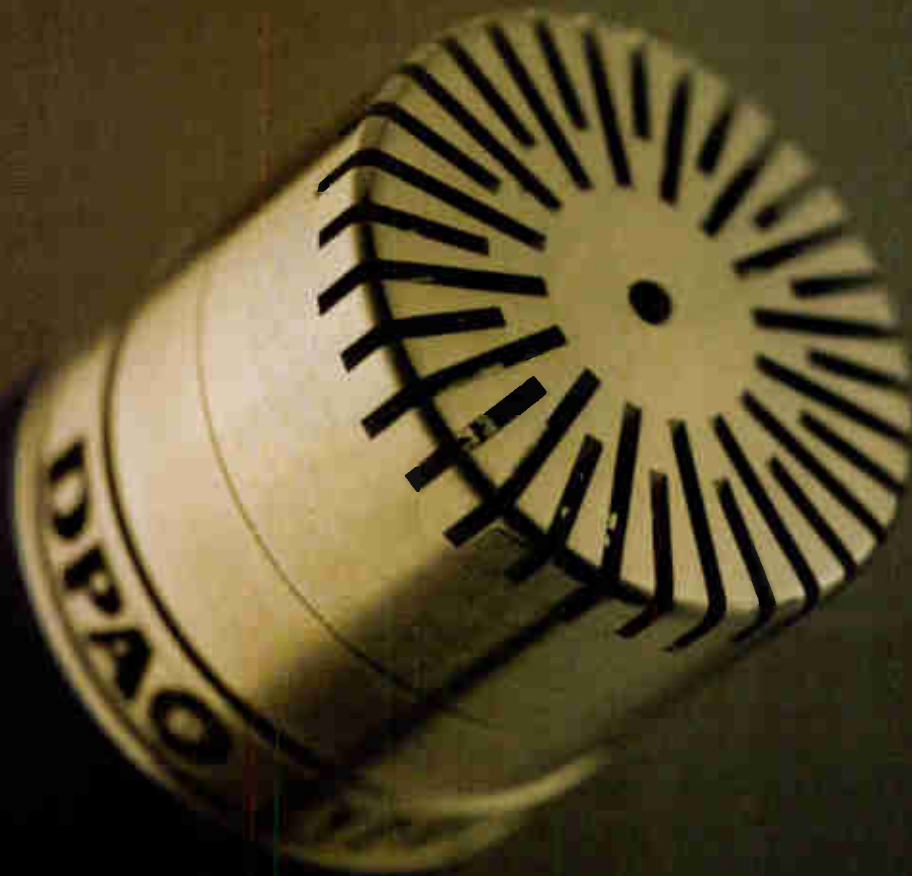


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In 1982, the 4006 was designed by Ole Brøsted Sørensen, then a design engineer at Brüel & Kjaer, now the Technical Director and Co-owner of DPA Microphones.

The omnidirectional condenser in its distinctive slim black livery was the first studio microphone to be released by B&K, the first model in the celebrated 4000 Series. The technical innovation of the 4006, giving precise performance and natural-sounding clarity in a mic of outstanding stability in any recording environment, has kept it a favorite among professional audio engineers.

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World Radio History

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MICROPHONES

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EXTRAS

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# NEW! US-2400

## The award-winning DAW controller with 2.5 motorized faders per finger.

Now you can use your mouse and keyboard for interfacing with on-screen CUIs — and use the wide-body US-2400 for what it's good at — mixing and hands-on control.



LED ring encoders give you hands-on "analog" of your DAW's pan and aux sends. A special channel strip mode and meters are provided for DAWs that support these functions.

Twenty-five, 100mm touch-sensitive, high-resolution motorized faders.

Twenty-four complete channel strips with rotary encoders plus

Joystick for surround sound panning.



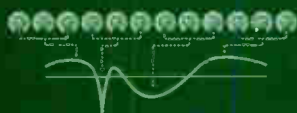
Mute, Solo and Select buttons on every channel beat the heck out of trying to mouse and click on-screen icons.

Touch-sensitive motorized faders have 10-bit resolution — FOUR times finer than many competitors' control surfaces. You get ultra-smooth fades. Hit the FLIP button and use the faders for writing automated pan or aux send moves while accessing channel levels on the LED rotary encoders.



With 24 hands-on channel faders, bank switching is kept to a minimum. But for *really* big projects, the US-2400 is ready to control up to 192 channels!

- ▶ Footswitch jack for punches
- ▶ In/Out point buttons
- ▶ Mac® OS X and Windows® XP compatible



- ▶ Adjust DAW software parameters such as 4-band EQ via the rotary encoders

Mute, Solo and Select buttons.

The new US-2400 is fully mapped for instant use with any DAW that supports HUI® or Mackie® Control protocols.

For more info on the first DAW controller with enough faders to handle a typical recording session without lots of bankswitching, e-mail us for a brochure at [tascamlit@teac.com](mailto:tascamlit@teac.com) or visit a TASCAM dealer.

Assignable Function keys can be set to Autopunch, Record arming, Undo, etc.



Recessed jog/shuttle wheel and solid-feeling transport controls.

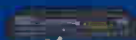


At 2004 Winter NAMM, the editors of Mix magazine selected their "hits of the show." We're proud that our US-2400 was one of them.

# TASCAM



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# Acoustic Paramedics

**M**ost of us took some kind of first-aid class, where we learned about applying direct pressure to a deep cut and whether we should put ice or heat on a bad sprain. But what happens when you're working in the studio and your mixes don't sound right: too bass heavy, too shrill or with vocals that are too loud or too soft? You could immediately call in some master acoustician to revamp the facility, but that might be like going to the emergency room for a zit, which is only permissible in the case of teenagers on prom night.

Assuming that you're not mixing on consumer speakers, your monitors are decent (a pretty big assumption) and you can actually hear (perhaps an even bigger assumption), the problem is most likely your mix environment. Unfortunately, your room can't tell you when it's sick, but before you call in the pros, here are some things to check out first.

The speakers are the heart of the matter, so make sure they're working properly. In a three-way system, a couple of blown tweeters won't be so obvious to the casual listener, but will definitely lead to overly bright mixes as you try to compensate for the "dullness" in your tracks. Also, make sure that the speakers are appropriate to the space: Huge monitors can easily overwhelm a small room. And beware of the "near-field myth": an urban audio legend that states that when listening to small speakers, the acoustics of the room are unimportant. True, the room effect is greatly diminished when listening in the near-field, but the space's acoustics are still a major factor in the sound, particularly when monitoring at high levels and/or using subwoofers.

Another myth? Low-frequency sounds lack directionality, which is true, leading to the false conclusion that subwoofer placement is unimportant. Putting the sub in the wrong spot can create all kinds of problems. These range from uneven bass response due to room nodes, phase problems when the LF energy in the crossover range from the mains and sub combine in the room at slightly different times, and too much bass when the sub's output couples with floors, corners and walls. Take some time to experiment and find the spot that works in your room.

Monitor placement is equally—if not more—important, and probably the worst place to put them is in the traditional console-top location. In many cases, speaker stands behind the console provide better results and offer more flexibility for optimum placement, especially in avoiding the first reflection from the console surface from reaching the listener. In my studio, the near-fields are mounted above the console and placed upside-down so the tweeter is exactly at ear level. Hey, it looks funny, but it works in my room.

Look around your room. Do you have unbroken parallel walls/ceilings that cause unwanted echoes? Do your monitors aim directly into a reflective hard surface? Does the mix sound the same at the sweet spot as it does from the couch in the back of the room? Here, the fixes aren't as easy as sliding a neoprene wedge under your near-fields, but armed with a little common sense and a basic understanding of acoustics, some small fixes can often produce big results.

George Petersen  
Editorial Director

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# Oh, we forgot something.



## The New ISA 430<sub>MkII</sub> Producer Pack

When we designed the original ISA 430 Producer Pack we wanted to include all the best features and circuits from the Focusrite ISA product family since 1985. And so we did! However, in the past three years we have had a few more great ideas. So the ISA 430 MkII is born. Have we forgotten anything? All we can think to add is a cherry on top!

### Principle feature set:

- Classic ISA transformer-coupled mic-pre; now with four switchable input impedances and inductor-induced "air". Extended version of the original ISA 110 EQ.
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# Letters to Mix



## DAW PROGRESSION/REGRESSION

I wonder how many people see the introduction of Digidesign's ICON [April 2004] as the complete failure of computer-based editing and mixing? We have had analog mixers for decades and digitally assisted mixers for quite a while. When computer-based mixing came along, instead of breaking ground, all we ever saw on our screens was a drawing of the analog mixers we already owned.

Sure, the image was familiar, but the model was also inherently limited. A handful of faders couldn't be grabbed at once without grouping them. Knobs couldn't be turned, so we learned to type in values. Now that the limitations of the audio console onscreen have been fully discovered, Digidesign (and others) have offered us a true regression—back to hardware. Are we really that limited in our imaginations that we can't devise a new and wonderful way to take better advantage of what computers can offer us?

Barry Hufker  
Hufker Recording

## MIXER VS. MIXER

Dear Chris Arbisi, What you don't know about making the Grammy® Awards happen could fill the Staples Center. You ask [in "Feedback," April 2004], "With technology so advanced and productions so well-practiced, why do we still experience major flaws in our audio productions?" At the Grammys, the crew was given four days to put together one of the largest live TV music shows ever. The Broadway musicals you compare this to have months to prepare, they do the same show over and over again, they're not in a sports arena and aren't broadcast live on TV. They do not have multiple bands, do not have speeches from celebrities and do not have 30 TV cameras.

Let me inform you as to the true magnitude of the music portion of the Grammys: [It featured] 14 bands, none of whom have less

than 40 mics onstage, some having upward of 80. It was mixed simultaneously in both stereo and 5.1 surround. There was sometimes less than three minutes between musical acts for an entire band's gear to be rolled out onstage and plugged in. Each band and its crew get to rehearse their act only once or twice in four days. Additionally, there is an entire part of the show that is not music that also needs to be rehearsed in the same four days and has its own massive audio requirements. I won't even get into the cameras, lights, sets and talent issues that arise.

Some of the very best engineers and crew in the world work on the Grammys every year. Every year it gets more complicated, and every year they are given less time to put it together. I am insulted by your comment that these people "can't run a mixing board." If you had any idea what you were talking about, you would know that there is much more to putting on a show like the Grammy Awards or the Super Bowl than just running a mixing board. The very same crew has been successfully making this show happen year after year, and you show them no respect for getting it right nine times out of 10.

Without realizing it, you've heard these engineers mix literally hundreds of TV shows. They do it every day. They are without a doubt the best in the business and they get little recognition for it. If you think you or anyone else could do better, I suggest you give it a try sometime.

Max Feldman and audio crew  
Grammys and the Super Bowl

## GRAMMY CLARIFICATION

Shure has always enjoyed the exciting talent and production delivered through the years by the annual Grammy Awards. The technical difficulties experienced at this year's show were a disappointment for many viewers, but to clarify comments referenced in the letter from Mr. Arbisi, Shure was not involved with the production errors of this year's event. Though audio equipment manufacturers often provide equipment to the production company, the setup and operation of such equipment is handled by the audio pros hired by the production company.

I agree with Mr. Petersen that it's often very chaotic when an event of this grand scale is produced, and there's limited time to ensure everything is perfect. We all hope that next year's Grammy broadcast will be free of technical gremlins.

Michael Pettersen  
Director, applications engineering  
Shure Incorporated

## LITTLE DISC, LOTS OF EXTRAS

With the record industry hurting in overall sales, it seems odd that two articles in the March issue never mention that bonus [tracks] exist. First off, the incomparable Ken Scott was interviewed in "Classic Tracks" in regards to David Bowie's *Ziggy Stardust* album. I purchased the 2003 multichannel SACD 5.1 mix a week prior to receiving the March issue. Ken Scott executed this incredible 5.1 mix! Never was this mentioned in the article, though. I know "Classic Tracks" is about original sessions, but if you're talking with the original engineer who also just remixed the session for discrete surround sound, why not mention and promote that, too?

Secondly, in "Cool Spins," the long-lived progressive rock group Yes had its *Going for the One* remastered CD reviewed. This article never mentioned the fact that it's been remastered with more than 30 minutes of bonus material, which took almost as long to mix as the original recording. The industry is trying to give consumers additional materials in the form of high-bandwidth discrete surround and additional bonus tracks, and not mentioning these points isn't helping the future growth of the industry.

Gary Pahler  
Louisville, Ky.

## SILENCE? GOLDEN.

A few years ago, I took a trip to Thailand where I hiked into the hill country to record the sounds of nature. While I could never entirely escape the occasional chainsaw or the sound of some distant villager's AM radio, I did find some very quiet places. So quiet that I could not only hear my blood pulsing through my ears, but for the first time, I discovered that my watch's second hand made a noise as it ticked off time. It was an amazing experience and made me realize how many details in our lives are missed because of our overstimulated, inherently noisy environments.

I hope Paul Lehrman's article "In a Silent Way" [March 2004] gets more people thinking about silence as something instead of the lack of something, and to recognize silence as an experience worth preserving. The Nature Sounds Society ([www.naturesounds.org](http://www.naturesounds.org)) thinks of quiet places as endangered habitat, and I encourage anyone interested in the preservation of these places to look them up.

Paul Lackey  
Sammy Studios

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## XLOGIC DEMOED AT CONWAY RECORDING

More than 100 people made their way to Hollywood's Conway Recording to see a live demo of the new SSL XLogic SuperAnalogue rack gear; XLogic dealer GC Pro hosted the event. The XLogic product line comprises the XLogic XL Channel, XLogic 5.1 Multichannel Compressor, XLogic 4-channel SuperAnalogue Mic Amp, classic G Series Stereo Compressor and a Mic Amp Remote. Since its release at AES 2003, 600 XLogic units have been sold. For more information on XLogic, see the "Field Test" in *Mix's* May 2004 issue.



*Pictured from left: Buddy Brundo, Conway Recording Studios owner; Tom Menrath, GC Pro director of business development; Gene Joly, Guitar Center senior VP, technology merchandise manager; David Angress, Guitar Center executive VP; Bryan Bradley, Guitar Center recording buyer; Phil Wagner, SSL senior VP Western operations; Rick Plushner, SSL president North America; and Don Wershba, SSL senior VP Eastern region*

## JAGGED EDGE BRINGS IN HIP HOP HEAVYWEIGHTS



*Producer Melvin Coleman (left) and chief engineer/production coordinator Joey P. working in Studio A at JOI Studios (Atlanta). Inset: Dale "RamBro" Ramsey*

Jagged Edge was recently in JOI Studios' (Atlanta) A room to work on their latest release, *Hard*. Chief engineer Joey P. and co-chief engineer Dale "RamBro" Ramsey tracked and mixed the album to Pro Tools MIXPlus. Vocals were recorded via Neumann U87s into an Avalon 737 preamp/compressor and then straight into the Pro Tools 888 interface. The production team also included mixer Phil Tan and producers Melvin Coleman, Bryan Michael Cox, Jazze Pha and Tha Corna Boyz.

According to Ramsey, "Jagged Edge came to us to rescue the album. They had already cut 16 songs on Pro Tools and they were well on their way to finishing the record. Joey and I came in and cut

an additional 40-plus songs."

Joey P. added, "We used a bunch of different boxes to get the perfect vocoder sound. After a while, I decided to go out to my car and grab the old Roland VS-880 that I had in my trunk. I connected it to an SM57 and a Korg Triton, and then producer Melvin Coleman sat down and gave it a shot. As soon as Jagged Edge member Brian Casey heard the sound, he quipped, 'That's it, man! That's the sound!'"

For more information on the two engineers, visit [www.JoeyP.com](http://www.JoeyP.com) and [www.DaleRamsey.com](http://www.DaleRamsey.com). For more information on the band, visit [www.jaggededge.net](http://www.jaggededge.net).

## LIVINGHEAD AUDIO CELEBRATES 15 YEARS

"Go back and hit the second chorus again, Jeff. That felt rushed to me," David Nichols said into the talkback mic atop his Focusrite/Digidesign Control 24 console. Behind the glass at Livinghead Audio Recording (Phoenix), the renovated industrial warehouse tracking room is plastered with posters, strung with Christmas lights and full of vintage instruments. Out in the middle of a Persian rug, Jeff Taylor (singer/songwriter/multi-instrumentalist) plays his Strat through a Marshall half-stack, into a Schoeps tube mic, through an API 312 mic pre, a Manley Vari-MU and one of two brand-new HD 192 I/Os into Pro Tools 6.2.2.

At this session, Taylor and Nichols are tracking guitars on Taylor's upcoming release, a collection of songs that marks Liv-



*Nothing but good times. Pictured in back row (L-R): Rex Anderson (producer), Grace Royce (staff engineer) and Bridget Gardiner (director of operations). Pictured front row, from left: Andy Beisner (senior engineer), Mike Hisson (senior engineer), Jeffrey Taylor (artist) and David Nichols (studio owner, producer and senior engineer)*

inghead's venture into independent record labels. Fifteen years in the studio biz, Nichols has built his world-class recording environment from home studio beginnings, focusing on local Arizona and independent artists while also catering to national acts.

# POST OPENINGS

## AUDIOENGINE, NEW YORK CITY

Audio post-production company audioEngine ([www.audioengine.net](http://www.audioengine.net)) unveiled its fourth room, Studio D, a 5.1 mixing and recording studio that is home to mixer/co-owner Rex Recker. The room was designed by Jim Maher of Soundhouse Design, who created a "mixer-in-the-round" environment: a specially designed console placing the mixer in the center of the space with seats on all sides. Mixing, recording and editing are centered on a Digidesign Pro Tools|HD3 system.



*Acoustical reflections in audioEngine's control room and vocal booth were handled by covering the windows with 7-foot-tall, clear Plexiglas diffusers. Seated: Rex Recker*

Studio D's construction marks one of the first times Dolby has worked with a commercial audio company to create a Dolby-approved 5.1 studio. Placing the vocal booth in the front of the room made correctly implementing the Dolby surround system a major issue for the design team. When the booth is in voice-over mode, the 5x7-foot glass is in view. When the sur-

round session begins, the center speaker raises into position on a motorized platform that includes a false wall with all of the acoustical absorption to equal the right and left speaker environment.

Audio is monitored through a 5.1 main system comprising JBL cinema speakers powered by Crown and Hafler amplifiers, KRK V4s for near-field stereo and the built-in speakers of Sony's KV-32HS510 for consumer television reference.

## DALLAS AUDIO POST

Audio production studio Dallas Audio Post's new 6,000-square-foot home features three 5.1-ready control rooms and recording booths and a 3.5-terabyte storage area network. Features include a digitized music library, a centralized editing system, office and entertainment areas and a DVD/surround television lounge.



*Dallas Audio Post owner Roy Machado joins a producer and voice talent in one of his new control rooms.*

According to studio owner Roy Machado, "We're now targeting the large advertising agencies in Dallas because many don't know the quality of our work or that we can handle whatever broadcast pro-

duction needs they may have." Hispanic production is another target for the studio, as its entire staff is bilingual.

# LITTLE KIDS JUST WANT TO ROCK



*Pictured at Manhattan Center Studios are, from left: Victor Burks, engineer Bonzai, Liberty DeVitto, Brian Hardgroove, Dave Wish (Little Kids Rock's founder, seated) and solo artist Paul Brill*

Little Kids Rock, a nonprofit music education program that provides free instruments and instruction to public school children, has completed another recording session for Little Kids, Big Fans: Stars United For Music Education. Two tracks were recorded at New York City's Manhattan Center Studios.

The new CD features high-profile artists covering versions of songs written by Little Kids Rock's students, including new tracks with Liberty DeVitto, percussionist for Billy Joel; Public Enemy's Brian Hardgroove; and Victor Burks of the Fine Arts Militia.

"It is so fulfilling to work and record with these creative and dedicated children," DeVitto said. "It's really great to see their eyes light up as their ideas and songs come to fruition."

## ON THE MOVE



**Who:** Ken Thornhill, Bennett Studios (Englewood, NJ) studio manager

**Main responsibilities:**

overseeing promotion and studio bookings, and day-to-day management of the three-room facility

**Previous Lives:**

- 1996-2004, record production manager at Soundtrack Studios (New York City)

**The one profession that I would like to try would be...**a tour guide on a motorcycle.

**If I could be a part of any recording session, it would have been Miles Davis' "Bitches Brew" as a fly on the wall.**

**The one object in my office most like my personality is...**a quartz crystal.

**Currently in my CD changer:** Soulfly, Tool's *Aenima*, Bob Marley's *Rastaman Vibration* and Rage Against the Machine's *The Battle of Los Angeles*.

**When I'm not in the office, you can find me...** riding my motorcycle.

## BERNIE'S ALL HEART

Heart's Ann and Nancy Wilson recently mastered their first new studio album in almost a decade, *Jupiter's Darling*, at Bernie Grund-

man Mastering (Hollywood). Heart's new album is slated to be released this month on the Sovereign Artists label.



*Pictured (L-R): assistant mastering engineer Scott Sedillo, mixer Patrick MacDougall, producer/songwriter Nancy Wilson (foreground), co-producer/songwriter Craig Bartock and mastering engineer Brian "Big Bass" Gardner*

## STEINBERG MEDIA CELEBRATES 20 YEARS

Founded in 1984 in Hamburg, Germany, Steinberg set the MIDI sequencing scene with its Pro 16 (pictured) sequencer for the Commodore 64 computer; this program would later become the Pro 24 for the Atari platform. From these roots grew Cubase Atari in 1989

and Cubase for the Mac in 1990 and then to Windows in '92. Steinberg continued to offer revolutionary products with the 1996 introduction of VST for Apple's then-new PowerMac processor and two years later for Windows. In 2000, Steinberg geared up the surround and post communities with Nuendo, whose code was soon ported over to Cubase SX and SL. Last year, Steinberg was bought by Pinnacle Systems, bringing Steinberg technology to the digital video prosumer.

*Check in next month's "Current" for more companies celebrating their anniversaries.*



## WORKING ON THE EAST SIDE



*Pictured from left: Co-producer Lofey, assistant engineer Stephen Joseph, Mariah Carey, co-producer Ali Dee, studio co-owner Fran Cathcart and engineer/music supervisor—and American Idol judge—Randy Jackson*

Co-producer Lofey and crew are currently at work on Mariah Carey's forthcoming album at New York's EastSide Sound, which has re-opened its new facility after spending 32 years at its old locale—only a few blocks away. The new studio can be found at 150 Forsyth St., New York, NY 10002, 212/226-6365, [www.eastsidesound.com](http://www.eastsidesound.com).

## INDUSTRY NEWS

The NSCA membership elected a new Board of Directors: **Randy Vaughan**, president; **Nancy Emerson**, VP; **Andy Musci**, secretary/treasurer; and boardmembers **Keith Jones**, **Mike Bradley** and **Al Kesler**...**Guitar Center** (Westlake Village, CA) promoted **Gene Joly** to senior VP, technology merchandise manager...With more than 16 years of **Akai Pro** (Pomona, CA) experience, **David Whittle** has been promoted to the company's general manager...Previously with **Euphonix**, **Rich Nevens** joins **Digidesign** (Daly City, CA) in the newly appointed position of director of worldwide console sales and will be based in Los Angeles...**Shure** (Niles, IL) has created a **Personal Audio Business Unit (PABU)** and a **Personal Audio Portfolio Management group (PAPM)**, two teams responsible for sales, marketing and product management of the company's consumer products. Personnel involved in these two groups include **Shawn Stahmer**, general manager, PABU; **Brian Woodland**, director of sales, PABU; and **Scott Sullivan**, category director, PAPM...**Audio-Technica** (Stow, OH) announcements: **Glenn Roop**, director of professional product sales; **Kal Mullens**, director of strategic account sales; **Global Sales Management** (Miami), exclusive rep for the Latin American market; and the exclusive U.S. and Canadian distributor for **Garwood Communications** (Philadelphia)...New York City-based **Sterling Sound** hired **Scott McConville** as its chief technical engineer...**FORM** (Los Angeles) has

signed **Anthony M. Bongiovi** as a director for future high-def DVD productions of music performances and videos, and TV commercials...**LOUD Technologies** (Woodinville, WA) appointed **Mark Madison** to group manager for the newly created EAW Commercial group. In other company news, **Tony Rodrigues** fills the newly created role of business development manager.



*Gene Joly*



*Rich Nevens*



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## NOTES FROM THE NET

### Virgin Hooks Up With MusicNet

Virgin Digital has partnered with digital music provider MusicNet to bring a digital download store and subscription music club into the Virgin Digital service, [www.virgindigital.com](http://www.virgindigital.com). With more than 70,000 tracks offered, consumers can purchase music a la carte or through a small monthly fee (amount undisclosed). Each payment option will be available on the Net, in its retail stores and on mobile phone/CE devices. "Passionate music fans have made it clear that they want their music when they want it, where they want it and how they want it," commented Sir Richard Branson, founder of the Virgin Group of companies. "Well, we've heard them. We're going to redefine the way that our customers relate to their music."

### Online Conservatory Gets a Fresh Look

Jordan Rudess' Online Conservatory ([www.jordanrudess.com/oc\\_splash.html](http://www.jordanrudess.com/oc_splash.html)) has expanded the site's exercises, which were developed via private lessons with students and in articles for various magazines. Im-

proved portions of the site include enhancing the section on standard keyboard fundamentals; adding hundreds of MIDI notation and MP3 files; and reworking the Notation section with Sibelius notation software (allowing the viewer to display a separate window with the notation in pdf format). The site was co-developed with Progressive Transcriptions



## ANGEL MOUNTAIN BRINGS IN BET

Angel Mountain Productions (Bethlehem, Pa.) was tapped to host two 60-minute tapings for BET Jazz Network's weekly show *Studio Jams*. Each show features different jazz greats (Larry Carlton, Pat Martino, Béla Fleck, Joey DeFrancesco and others) gathered in a studio environment while performing and improvising to some of their favorite tunes. Producer Tom Emmi, who is in the second season of the series, recently worked with guitarist

G.E. Smith, drummer Anton Fig, electric violinist Tracy Silverman, saxophonist Jeff Kashiwa, guitarists Chuck Loeb and Joe Bonamassa, Demetrios Pappas (piano/keyboards), Edgardo Cintron (percussion) and electric bassist Chico Huff. Audio engineers Carl Cadden-James and Dave Arellano tracked in Control Room A on an SSL XL 9000K Series console, while the camera crew taped the shows in



Pictured from left: Chico Huff, Joe Bonamassa, Tracy Silverman, Anton Fig and Demetrios Pappas

the scoring stage.

"Musicians love [the show]," commented producer Emmi. "They love the challenge and the freedom they have to take the music in the direction that feels right at the time. We purposely try to mix it up a little each time and invite players who will bring an interesting and unique perspective to the session."

Comments from the players included those from guitarist Loeb ("The place is very beautiful and well-equipped, and the staff was really amazing, very accommodating and helpful.") and saxophonist Kashiwa ("This is one of the best studio rooms I have ever recorded in. The room responds very well acoustically.").

Plans are underway to release a *Best of Studio Jams* compilation DVD with performances from many of the first season's episodes.



## MIX L.A. OPEN GARNERS SPONSORSHIPS

The Ninth Annual Mix L.A. Open charity golf tournament, scheduled for Monday, June 14, 2004, at the Malibu Country Club, is being strongly supported by the audio industry. Confirmed sponsors include Absolute Music, Audio-Technica, Design FX, Harman Pro/JBL Professional, KRK Systems,

Moonlight Mastering, Record Plant, Shure Incorporated, Warner Brothers Studios and Yamaha Corporation of America. A limited number of playing spots are still available. Call Karen Dunn at 925/939-6149 or visit [www.mixfoundation.org](http://www.mixfoundation.org).

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# Four For '04

## The St. Croix Cool Toix Awards

Let's get right to it. These are my less than \$1k tech toy winners. Have fun—next month I start my long-threatened series on virtual everything.

First off, let me establish that none of us, you the readers nor me the perpetrator, are geeks. None of us are nerds. We are cool people who have a minuscule but professionally cultivated geek *component* in our personalities. We are strong, socially sought-after individuals who are confident enough in who we are to openly admit our preferences for the finer absurdities that techno-society offers. We may choose 4 gigaHz over 3, 24 bits over 16, blue LEDs over red—we choose the technically superior solution. And let's admit it: We like toys. So here are some toys to like.

### BEST CONTROL-THE-UNIVERSE DEVICE

Who needs another universal remote? Actually, who even needs to *read* about one?

Well, this one is different. In fact, the Harmony SST-659 is so different that it has achieved what all the others promised but never delivered. *It has become my only remote.* All the others (and no, I am *not* revealing how many there were) are now on vacation in the closet.

This remote is not a slick, color holographic touchscreen voice-command networking monster. It's not even that cool-looking, except for its impressive backlighting. In fact, it's pretty simple, and that simplicity is what makes it work.

To start with, it is properly shaped. It fits in your hand, something you can't say for the high-dollar touchscreen units.

Second, and perhaps this is its greatest feature, there is no touchscreen. It has real buttons. This means you can learn to use it by feel, just like you used to back when you only needed one, two, five or eight remotes.

The button layout is clever, and their functions never change. Fast-Forward and Play are labeled as such, and perform predictably for your TiVo, VCR, DVD or 128-track DAW.

There is an LCD screen with six physical soft buttons. Many things happen here, including TV listings if you want them, help, gear-specific functions and anything else you might want to put there.

But the real innovation lies in two unique ideas. First, it *knows* what's going on. They call it Smart State Technology. I called and thanked them.

Like a lot of you, I have too many video devices and my A/V switcher has too many inputs. Add scalers, audio processors and RF switchers, and it quickly becomes unmanageable. Or so I thought. This remote actually keeps track of all of the input and output states on every device in the rack and fires off huge *properly timed* macro

chains that make complicated switching and setup a simple one-button deal.

And how does it learn all this? Well, that's the monster innovation. All your neighbors teach it for you.

You buy the remote, bring it home, go online to [harmonyremote.com](http://harmonyremote.com), tell them what gear you have, plug your remote into your Mac or PC's USB port, and you are done. A huge database of all the gear anyone else has, along with all the timing quirks that show up when you try to control all this gear, is used to program your remote. As new gear comes out, the Harmony people learn about it from other users and build a database. Amazing. You can even manually teach it IR commands by aiming your other remotes at it if you need, and there is a place

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who are confident enough in  
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the finer absurdities  
that techno-society offers.

online to edit and modify equipment definitions to your heart's content. I even have it controlling my old Quantec reverb. If you do get lost, customer support is beyond top-notch.

There are several models, including a new 688. Check them out.

### BEST FIND-A-WAY-AROUND-THE-UNIVERSE DEVICE

Zaphod Beeblebrox could have used this.


If you go anywhere improbable, you should have a Garmin Street Pilot 2600 Series GPS/navigator. These things are by far the best portable automotive units you can buy. They have an insanely bright touchscreen interface that is so intuitive it's almost scary. They work the way you think they should. They just make sense.

They have every feature you could want, including heads up in both nav and map mode (what you see on-screen is what you see out the windshield), something the others don't offer. The screen displays are user-definable and tell you the next street before you can see it. The woman inside speaks real English (no hokey fake





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World Radio History

speech) clearly enough to understand on a Harley.

I use a 2610. It's totally portable—you just plug it into a cigarette lighter and stomp the gas. It even has a beanbag mount that actually sticks to your dashboard during questionable cornering exercises and nitrous-assisted acceleration.

And when you get home, you can of-flood the day's insanities into your PC and print out maps, tracks, exact speeds, vectors and times to take to court. In fact, this thing was on my bike when I was hit, and two months later, it happily showed a track of me instantly decelerating and beginning a new airborne vector in the opposite direction. Nauseating, actually.

And that brings up another point. These things are well built. This one went through my face and still works perfectly.

If you are considering adding a nav to your car, this is the one.

**BEST COMMERCIAL-ELIMINATION DEVICE (AUDIO)**

I have repeatedly said that I never listen to radio. This is—well, *was*—accurate. Every car audio system that I have built in the past 15 years was built sans RF. Cassette, DAT,

MD, CD, DVD, MP3, AAC—sure. But radio? Of course not. Lame audio and screaming commercials for stuff I don't want guaranteed that. Same at home.

But change is the only constant. I now listen to the radio all the time. I even put a muffler on a straight-pipe V8 so that I could better hear RF tunes. And what brought this about? Digits, my friends. Ones and Zeroes, in exactly the right order.

I have been both an XM and Sirius subscriber for many months now, and I love them. I feel like I did when I was 10, walking around in the Arizona desert with my little GE AM radio up to my ear. Except I don't look quite as stupid now, and this time, there is audio below 4 kHz and above 6.

Neither XM nor Sirius are perfect, but at least both save their most nasty compression for speech and make some effort to preserve music. Not CD-quality, but absolutely good enough for rock 'n' roll, both have now switched to totally commercial-free music. Mostly. No noise, no static, rare dropouts. 20 to 20, no waiting. Way too many channels. Every song displays artist and title while playing.

The programming and attitudes differ, as do the features. XM is a bit more like radio

used to be, with jocks who know their stuff and tell you interesting little details while simply skipping all the commercials. They have regional traffic reports, live 800 request lines and refer to the East and West Coasts as different sides of town. They tell you about live gigs. There are little jingles. It feels like the old days—only much, much better.

Sirius is a bit more...oh, I hate to say this, serious. It has NPR and other "intellectual" programming, along with a very different feel. It is more like an infinite iPod. The songs of your chosen genre just keep coming, endlessly, with almost no talking at all. Nobody tells you stories. The programming feels damned-near perfect. Feels like the new days.

XM or Sirius, choose your poison. Either makes radio fun again. Better yet, skip the heavy metal channels altogether.

And speaking of the radio itself, check out the new Roadie. This little cassette-sized XM receiver can be used both in your car and in your house with your home system.

It offers more user presets than almost all the high-dollar dash built-ins, and has all their cool genre search functions. It even

—CONTINUED ON PAGE 155

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# Loud and Louder in London

## How to Build an Audience for New and Newer Music

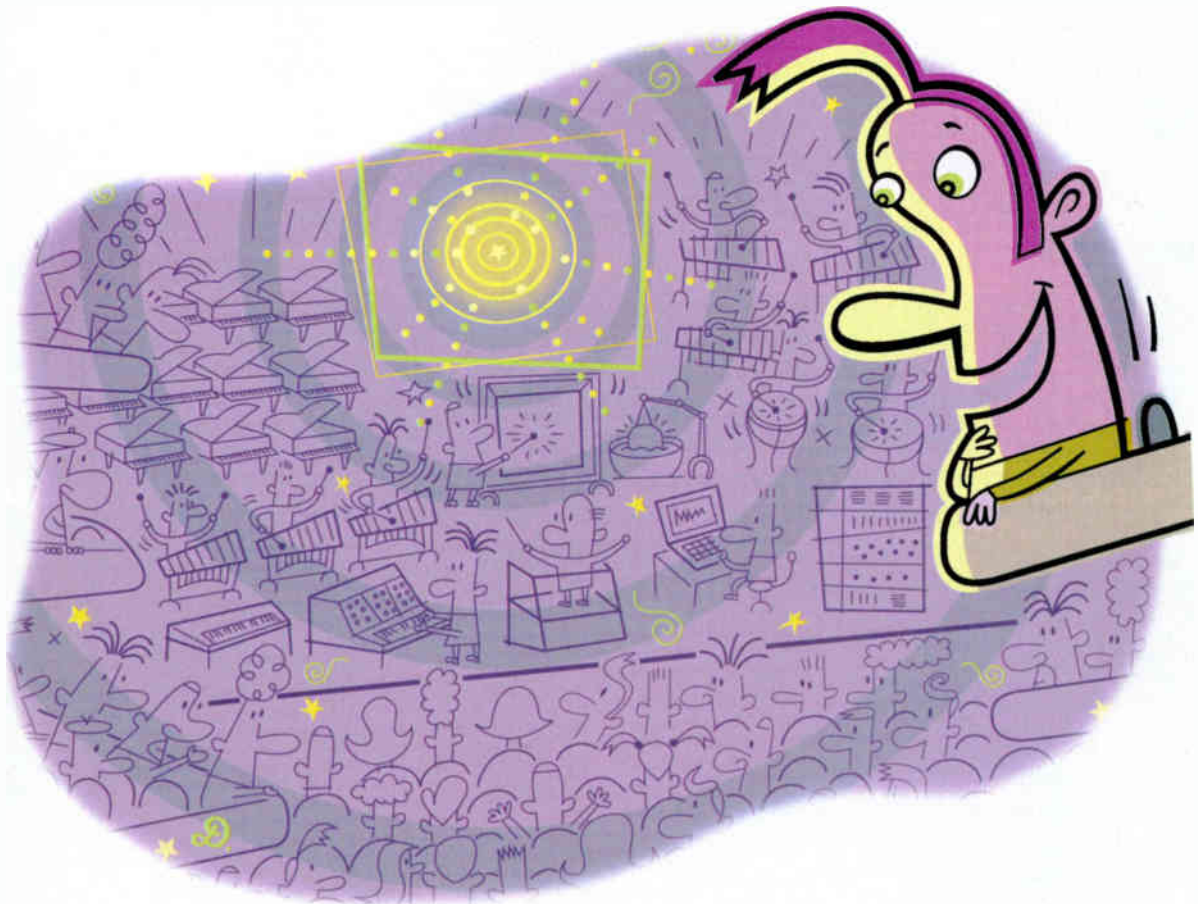


ILLUSTRATION: JACK DESROCHER

I just flew in from London, and boy are my ears tired. No, not because I was packed into a five-across coach seat for six hours with 31 channels of supremely lo-fi audio. It's because during the six days I was in England, I went to one of the loudest and most interesting concerts I've been to in a long, long time. And masochist that I am, I went to it twice.

Actually, I was there by invitation, as there was a piece on the program that I had something to do with. The group doing the inviting was the London Sinfonietta, probably the top avant-garde "classical" ensemble in the UK, who had joined forces for the event with electronica label Warp Records. The concerts were part of a two-week electronic music festival called Ether, which also featured shows by Tangerine Dream, Kraftwerk and legendary jazz producer/psychedelic composer David Axelrod. Opening night took place at the 2,800-seat Royal Festival Hall, which from the outside looks like an airplane hangar, but on the inside is gorgeous. It's on the south bank of the Thames, right next to the Millennium Eye, the huge, incongruous Ferris wheel that is re-

placing Big Ben as a symbol of downtown London; the Tate Modern Museum, housed in a gigantic former power plant; a circular IMAX theater that can be seen for miles; and the new Salvador Dali museum in the old County Hall. Quite a neighborhood.

After the opening concert, the show hit the road, with performances in Coventry, Basingstoke, Brighton and Liverpool. The first, fourth and fifth shows were sold out, the others nearly so. Alas, I could only stick around for the first two because I couldn't afford to take so much time away from my teaching day gig.

The concert featured music by some of the great avant-garde composers of the 20th century—John Cage, Edgar Varèse and Steve Reich—and live performances by two of today's innovative electronic artists: Tom Jenkinson, who goes by the name Squarepusher, and Jamie Lidell. Every piece had a visual component: Squarepusher and Lidell were producing live video while they played, while the other works had films specially made for the occasion projected behind the ensemble. Presumably, these were for the benefit of those younger au-

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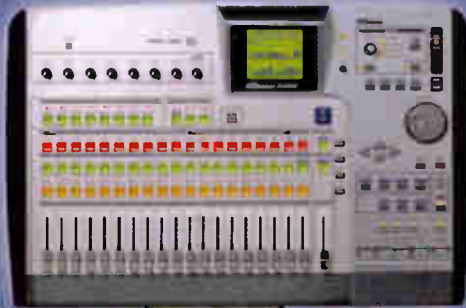


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dience members who are not used to the idea of experiencing music without something—other than the players—to look at. They worked.

And, oh yes: They were also performing a new version of George Antheil's 1924 *Ballet Mécanique* for player pianos, percussion and sound effects, which I had realized and edited to match the film of the same name, by French Dadaist Fernand Léger and American cinematographer Dudley Murphy. The two *Ballet Mécaniques* were originally conceived to be presented together, but because the technology to sync them didn't exist at the time (among a lot of other problems), they never were. That's why I was there: It was the first time

David Sheppard, the principals at Sound Intermedia who work with many avant-garde groups in the UK and Europe, hadn't even run the video yet. But when they got around to doing so at the next day's rehearsal, all they needed to do was find the timecode number of the film's first frame, line up the first beat of the sequence and—as for some reason they like to say over there—Bob's your uncle.

The players, some of London's top percussionists, were nothing short of astounding. David Hockings, the lead xylophonist (yes, when you have four xylophones, one of them has to be lead), asked me whether a particularly tricky scale, which had 20 notes fitting into three quick beats, could

The two *Ballet Mécaniques* were originally conceived to be presented together, but because the technology to sync them didn't exist at the time, they never were. That's why I was there: It was the first time this version would be performed, synched to the film, by a professional ensemble, and they wanted me to be around in case there were any problems.

this version would be performed, synched to the film, by a professional ensemble, and they wanted me to be around in case there were any problems.

Which, in fact, there weren't. Compared to some of the other pieces on the program, *Ballet Mécanique* was a logistical piece of cake. Usually, the piece requires up to 16 MIDI-controlled player pianos, but to keep things simple (and because the audience's attention would be on the film), the Sinfonietta and their intrepid electronic music and sound consultants, Sound Intermedia, arranged to play those parts on a rack of Kurzweil, Roland and Akai samplers. The film was on Betacam video, and its timecode track fed a SMPTE- (actually EBU-) to-MTC converter, which, in turn, was hooked up to a G4 PowerBook. The PowerBook ran a Digital Performer sequence that contained all of the player piano parts and triggered a Reason bank that contained the sound effects (sirens, bells and airplane propellers) and a click track for the conductor, all of which emerged from the computer via a MOTU 896 audio interface.

When I arrived in London three days before the first concert, Ian Dearden and

be played as a glissando—one mallet stroke sweeping across the keys—or whether they should try to play the individual notes. I told him that in all of the previous performances, the players had taken the easy way out and glissando'ed, but he just smiled and ripped off a perfect 20-note scale. And then the whole section did the same thing in unison.

Most of the time when it's played, the *Ballet Mécanique* is the most complicated work on the bill, but that was not at all the case here. The stage was literally packed with hardware. Between the Antheil and other pieces on the program, an enormous array of instruments was required: four xylophones, two grand pianos and four bass drums for the Antheil; a "water gong" (a gong lowered into a bathtub), a thunder-sheet (an old highway sign boasting a large white-on-green arrow) and another dozen instruments for Cage's *First Construction in Metal*; six marimbas for Reich's *Six Marimbas*; a couple dozen instruments for an instrumental transcription of music by Aphex Twin; and some 37 noisemakers for Varèse's *Ionisation*. The producers wanted

—CONTINUED ON PAGE 156

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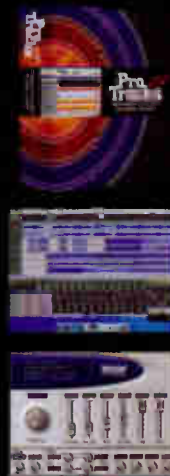
Pro Tracks Plus is an easy-to-use, comprehensive 32-track recording suite that includes all the modules you'll need to track, edit, process, sequence and mix your masterpiece. Not only does it include intuitive non-linear editing, plug-in support, and acidized looping features, it contains a full featured MIDI sequencer with outstanding event editing and powerful automation features as well as soft synth support.

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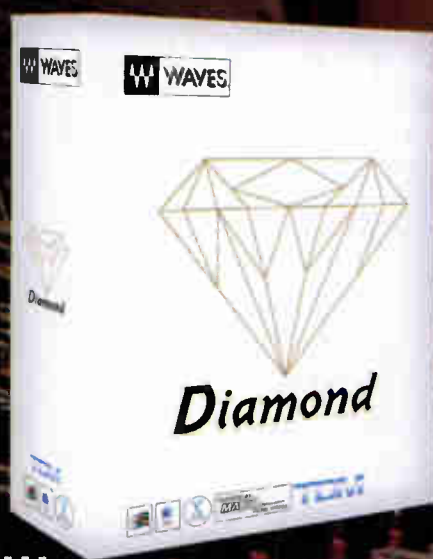
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# Life Is Peachy

BY STROTHER BULLINS

## Inside Atlanta's Music Recording Scene

*Ruby Red Recordings owner Butch Walker has manned his SSL-equipped Studio A for his projects and those for major-label artists.*

**O**n a deceptively quiet street located in a pleasant neighborhood near downtown Atlanta, Butch Walker is staying ultrabusy at being loud. The suddenly ubiquitous, simultaneously incognito Walker—a successful rock producer, engineer, songwriter and artist—has spent the afternoon listening to his work with pop idol Avril Lavigne, discussing his upcoming Epic solo album and reminiscing about recent productions for Sevendust, A Simple Plan, Midtown and Default, all while deftly dodging a ringing mobile phone. Walker makes it clear that Ruby Red Recordings—his impressive two-studio, SSL-equipped recording spot—is not for everyone.

“This place will never be an advertised, fully commercial facility,” explains Walker. “It’s going to be an invite-only studio. If I don’t get a good feeling from someone, then they’re not coming here.” Think that’s an interesting business plan in this new recording industry? Don’t question Walker, because it’s working well for him in his favorite town.

Walker’s is only one of the unique stories within Atlanta’s music recording market. After visiting a variety of Atlanta studios, it quickly became clear that virtually every studio in town has an equally original compelling theme, each featuring an entertaining cast of creative, passionate characters. From the city’s unusually large number of private production facilities (OutKast’s Stankonia Recording and Dallas Austin’s DARP Studios, to name a few) to vibed-out, fully commercial studios with conscientious business plans, Atlanta is a recording city unlike any other.

### ATLANTA’S MUSICAL DIVERSITY

The impetus behind Atlanta’s unique recording market has always been its dynamic music scene. Although most have R&B and hip hop in mind when thinking about the music of the ATL (an idea recently reinforced with the worldwide success of OutKast), the city boasts and hosts a huge collection of talented artists of all genres. While urban music producers glean lots of media attention in Atlanta, rock producers such as Brendan O’Brien also call the city home and frequently bring high-profile superstar artists like Pearl Jam, Korn and Bruce Springsteen to town. (The majority of Springsteen’s Grammy™-winning album, *The Rising*, was recorded in Atlanta.)

By being the unofficial “capital” and culture



PHOTO: JOHN KOWNACKI

center of the South, Atlanta also attracts a variety of independent musicians specializing in blues, jazz, classical and every other style imaginable. While the recording scene isn't as large as it is in cities such as Los Angeles or New York City, the music created in Atlanta is arguably as diverse and does not perpetuate preconceived notions of musical style like, for instance, Nashville might. Simply stated, there's more going on in Atlanta than you're probably aware of.

Atlanta's role as an important secondary market for music recording poses interesting challenges to each of its studios. It is clear that this city has proven to be a hotbed of innovative and financially lucrative musical productions, but for the town's studio scene, operating like facilities in New York, Los Angeles or Nashville isn't, and never was, an option. As a result, the biggest complexes feel strangely "grass roots" when compared to equally built and equipped rooms in larger markets. On the flip side, smaller facilities seem to operate on a grander scale.

At Tree Sound Studios, one of Atlanta's larger, multigenre facilities, sessions run the gamut of possibilities: Superstar lockouts by folks such as Elton John and Whitney Houston happen alongside spec-deal sessions with unsigned local talent.

***At Tree Sound, you'll find just about anybody music-related walking into its Studio A.***



PHOTO: MARCH GREENE

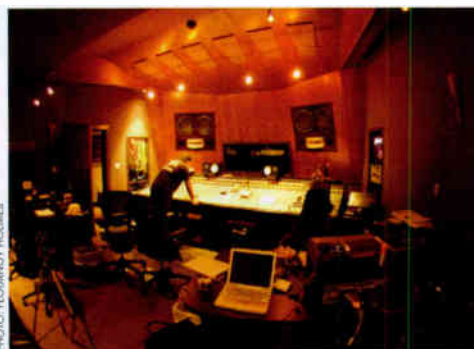


PHOTO: TIGOURNOV HOLMES

***View from the fishbowl: ZAC Recording's SSL-equipped Stonehenge room***



PHOTO: COURTESY OF RUS BERGER DESIGN GROUP

***From record label to studio owners: Patchwork's owners have seen a flood of hip hop and R&B clients.***

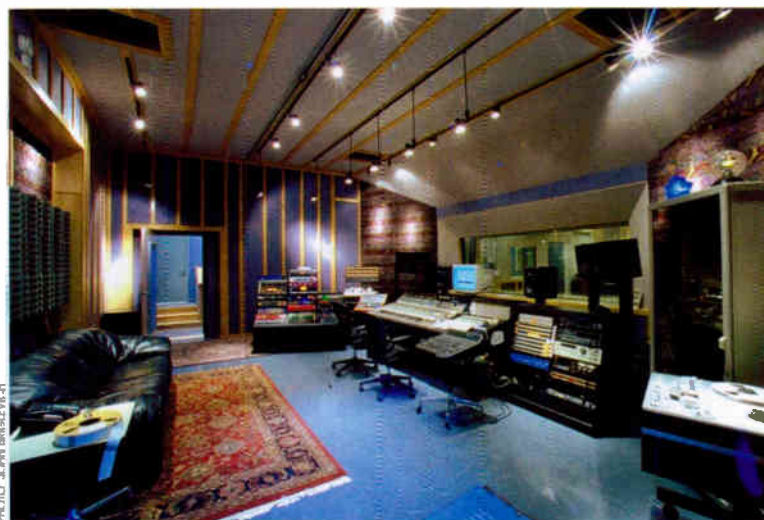


PHOTO: JOHN BRIGLEVICH

***Sonica Studios' control room, where you'll often find engineer John Briglevich working on any and all projects.***

At Tree, you can find private production rooms leased to independent engineers and producers, and on Tree's second floor, Atlanta-based A&R reps, management companies and other industry-related businesses inhabit offices.

This, according to Tree studio manager Nina Baldrige, helps make the studio a synergistic place to work. "There's more to it than the room and the gear," she explains. "There's a community of music professionals here and it benefits everybody. [Local producer/engineer] Rick Beato was originally considering building a studio in his house. After thinking about it, he told me, 'Let's do it here instead.' It's a place where everybody is scratching everybody else's back."

A somewhat similar arrangement is happening over at ZAC Recording, engineer Jim Zumpano's recording community, located near trendy Buckhead. While the studio was originally conceived as a fully commercial, multiroom facility. Zumpano has allowed his business plan to

# Life Is Peachy

evolve. "During the years that I've built this place, the business model of recording studios has fallen apart, from the label structure all the way down to kids making their first recordings. I built my place on the old model." Acknowledging this, Zumpano is leasing three studio spaces to indie engineers, while continuing to book his large SSL-equipped studio and a mid-size Pro Tools/ProControl room. "So I'm still 'commercially' working it, although I'm not the one out there searching. I've got the rooms rented, and I've become a bit of a landlord."

Even the Atlanta recording studios with more traditional business models seem to offer more than "big room, big console" appeal. Legendary studio Southern Tracks has been rocking for more than 20 years, and studio co-owner Mike Clark considers the studio's unpretentious, relaxed environment as important as its extensive classic microphone and outboard gear collection. "It's not corporate," Clark says, "and things aren't so palatial, like, 'Oh, don't touch that.' I hate to use the word 'vibe,' but that's what it is." Southern Tracks' comfortable environment obviously works well for many; according to Clark, the one-studio facility with a 2,800-

square-foot tracking room stays booked 300 days a year.

In 1995, Atlanta Falcon Bob Whitfield and business partner Curtis Daniel III founded Patchwerk Studios shortly after launching their own record label. The duo's

I don't know about other studios, but I feel that we're all friends. It's just one big community and we all feed off of each other.

—Ruby Red's Christie Priode

studio quickly became the commercial facility of choice for many hip hop and R&B clients recording in the city, and has since hosted a wide variety of very successful projects. In Atlanta, a city with an unusually large number of private, producer-owned production rooms, Patchwerk built its reputa-

tion on being a world-class studio for everyone and is always ready to do what is necessary to make its clients happy, as many of them—or their producers—have facilities of their own. "This is everybody's studio," declares Daniel. "And even though some of these artists have their own studios, they work here, too. It's all in the name: Patchwerk; we're ready to work. That's our image."

A perfect example of a premier Atlanta private facility is R&B superproducer Jermaine Dupri's Southside Studios. Originally built for Dupri by Sony Records, the studio, with a reported \$5 million price tag, is more like "a cool hangout," according to studio manager Brian Remenick. Besides its Studio 440 design and an SSL 9K console, Southside boasts creature features such as a ½-scale indoor basketball court, two bedrooms and a private garage. "Since we don't take outside clients, Jermaine can just pull into the garage, walk in and start working without having to see anybody," Remenick says.

The private setup is similar at Ruby Red Recordings, albeit on a slightly smaller scale—and without an indoor basketball court. "Honestly, it's the same basic situation for both me and Jermaine, except we're

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## Life Is Peachy

from two different worlds musically," Walker says. "We just work on more of an 'indie' rock budget, which goes to show how much money is in R&B and how much is in rock 'n' roll!"

However, Ruby Red is not so private that Walker doesn't find ways to get involved with Atlanta's up-and-coming musicians and bands. The studio's full-time engineer, Rusty Cobb, is a producer in his own right, and works at the facility on non-Walker productions when scheduling allows. "Half the reason I got this place was to give bands a place to record using their own money," says Walker. "I give special rates to struggling musicians whenever there's time available."

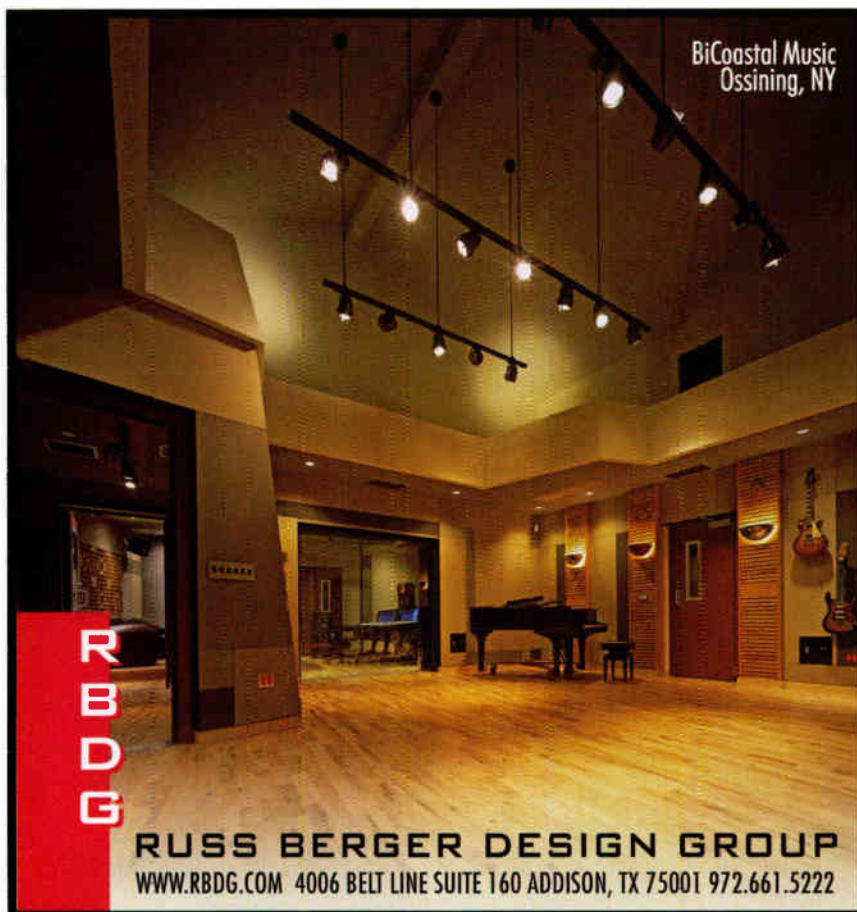
While not private, engineer John Briglevich's Sonica Studios is a place where the owner is often involved in the sessions. If a client is working at Sonica, you can bet that Briglevich is interested in the music. "I'm not the absentee owner," he claims. "I'll do whatever it takes, from playing on records to helping out with the engineering. I have a lot of pride in this place, and it is basically a reflection of me."

While this sort of owner involvement in a studio usually happens in smaller, project-type studios, Sonica is far from a project facility. It features a custom API console, large rooms and mounds of classic gear, amps and microphones—all of which are proudly "not on lockdown," according to Briglevich. This laid-back philosophy echoes the recurring theme of the relaxed, yet serious Atlanta studio: "In Atlanta, we know where our place is. It's a secondary market and none of the studios are ostentatious. They are all predicated on function, first and foremost."

### SOUTHERN HOSPITALITY IS REAL

No matter who you talk to, if you're discussing Atlanta's music industry, the subject of "Southern hospitality" will arise. It clearly isn't just a cliché, because many involved in Atlanta's studio business find it to be one of the most appealing aspects of working in their town.

"Southern hospitality is real," exclaims Baldrige, a veteran of the Los Angeles recording scene. "L.A. has a real clique as far as studios are concerned, and while there's a clique here, there's a big difference in how we deal with each other. For instance, I know that I can call Mike at Southern Tracks if I need something. I'm here for him, and he's there for me. Also, I may say to someone, 'I can't get you in right now, but Jim Z at ZAC might be available.' We all know what our capabilities are as far as sessions are concerned, and we all help each other out."



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Southern Tracks chief engineer Karl Egsieker checks out the SSL 4072 G+ in the newly remodeled studio.

The camaraderie even extends to lending each other equipment as needed, as both Briglevich and Ruby Red studio manager Christie Priode point out. "It's always, 'Hey man, I've got this high-profile client coming in. Do you have this particular mic?'" says Briglevich. "There's a lot of that, and I think it filters from the top down."

"I don't know about other studios, but I feel that we're all friends," says Priode. "It's just one big community and we all feed off of each other."

Baldrige often sees the hospitality and relaxed atmosphere positively affect her clients at Tree. "It's that vibe that totally sets Atlanta apart," she explains. "We sit outside all the time. The Indigo Girls would sit out on the lawn, reading books until, 'Oh, it's time for my overdub.' I sat out on the lawn and played guitar with Ed [Kowalczyk] from Live while they were here. That doesn't go down in L.A.!"

#### DOING BUSINESS IN THE NEW ECONOMY

Of course, not everything is peachy in the Atlanta studio scene. They've been dealing with the same economic woes and business challenges facing other recording facilities throughout the industry. Particularly in Atlanta, commercial studios aren't competing with each other as much as with private facilities, many of which comprise artists and producers operating out of their homes.

The problem isn't really about producers such as Dupri or Walker having their own recording spots. According to Baldrige, it's the sheer number of workstations in the hands of those who really aren't engineers (or who don't employ adept ones) in the first place. "When the economy shifted and when more people started to build studios in their basements, we had to diversify. It is a con-

cern now—it seems like everyone has a Pro Tools rig at home. Thankfully, many of those people realize that a professional studio environment is priceless."

Daniel agrees: "For the longest time, the standard was yourself. You're up against yourself until they say, 'We're going to build a place like this at home.' Once they get that, and when they have a bad experience, that's when they appreciate us, our work, sessions starting on time and real engineers."

Filling open calendar dates became a little easier for Zumpano when he started focusing a bit more on indie and unsigned artists. While he admits that his studio ignored this potential income stream in the past, it is now an integral part of his business. "This is now my plan for survival, and it helps me shield myself from the down time. I used to be just a label guy, a big dollar dude. The little guys couldn't afford me, and it didn't really matter because the label thing sustained me. With less of that source now, we've gotta do this."

While many have re-evaluated the way they attract business, most feel that business is better in Atlanta than in other markets. With an ever-increasing amount of music being created and less commercial facilities compared to other cities, there seems to be a light at the end of the tunnel and, hopefully, enough to go around.

"The grass-roots music industry is thriving in Atlanta," says Baldrige. "New bands are forming all the time, and so there's a 'damn the torpedoes, full speed ahead' kind of attitude prevalent with a lot of the studio owners. We're hanging in there to see what happens."

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

# "The Deuce"



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# The Class of 2004

## The Hottest Rooms To Open During the Past Year

### Pressure Point Recording Studios, Studio A

Chicago is booming right now. Millennium Park is up and ready for the summer season, Trump Towers is a go, and condos and commercial development are springing up everywhere. And now, right in the heart of the booming South Loop along the famed Record Row, Pressure Point has opened a world-class recording space, label and

talent arm to revitalize the city's music industry. After purchasing the building two years ago, Pressure Point principals embarked on a massive undertaking for the second and third floors, adding to the studio's Amek room on the first floor.

Kierkegaard and Associates designed the space, which includes two studios (the main room on this month's cover, featuring a tunable isomorphic wall and plenty of natural light), a 5.1-ready SSL 9000 K control room with Neve 1073 sidecar and custom Augspurger monitors, five iso

spaces and a lounge fit for recording royalty. Exotic woods, hand-dyed silk, glass tiles, and granite and marble fixtures all contribute to the Moroccan-Indian motifs throughout.



PHOTO: P. KIERKEGAARD

### Magnolia Studio

The studio bau.ton-designed Magnolia Studios (Burbank, Calif.) was upgraded and remodeled, introducing raised ceilings, new acoustic interiors and three studio suites—each with tracking and mixing capabilities. Other upgrades included translucent corrugated Fiberglas wall finishes, a large skylight, velvet drapes and black Ardex concrete-finished flooring. The A room features an SSL 9000 J Series console, a Pro Tools|HD system, TEC:ton sound systems main monitors and subwoofers with dual TAD TL1601b woofers, and a series of Bryston amps.



PHOTO: EDWARD COLVER





PHOTO: DAWN DRAKE

### Cedar Rock Studio

Designed and built by Alan Drake, Cedar Rock Studio (Shelburn, Ind.) strikes a balance between down-home comfort and technical savvy. The 4,000-square-foot facility features 32-foot-high cathedral ceilings, large windows, and cedar and stone design elements throughout. Focusing on rock, pop, country, blues and Christian music, the facility comprises a main tracking room offset by four large iso rooms that feature Auralex Metro and DST acoustical treatments. The control room features a 48-frame Trident Series 80 5.1-capable console with Uptown 2000 automation, Dynaudio 212 and Tannoy 215 monitors, and iZ RADAR Nyquist 24/192, Nuendo software and 2-inch analog 16-track recorders. The studio's private living quarters are network-equipped and video-capable. Other amenities are in-house graphic design capabilities, a photo studio and a roomful of vintage guitars and amplifiers.

### Icon Sound

The Miami-based Icon Sound, designed by Ross Alexander (of Synergetic Services), owned by producer/songwriter Steve Morales and opened in March 2004, offers amenities such as a lounge, complete movie theater, living accommodations and a pool. The studio has been insulated, and custom wood wall box LF traps and slat diffusers have been installed for live end/dead end effect. A large window lets natural light into the studio, which is home to a Pro Tools|HD system, an SSL 9000, custom three-way Alexander Monitor System with TAD components, and a combination of Bryston, Chevin and BGW amps. The iso booth is separated from the tracking room by floated wood floors and multilayer wall construction.



PHOTO: DAWN DRAKE

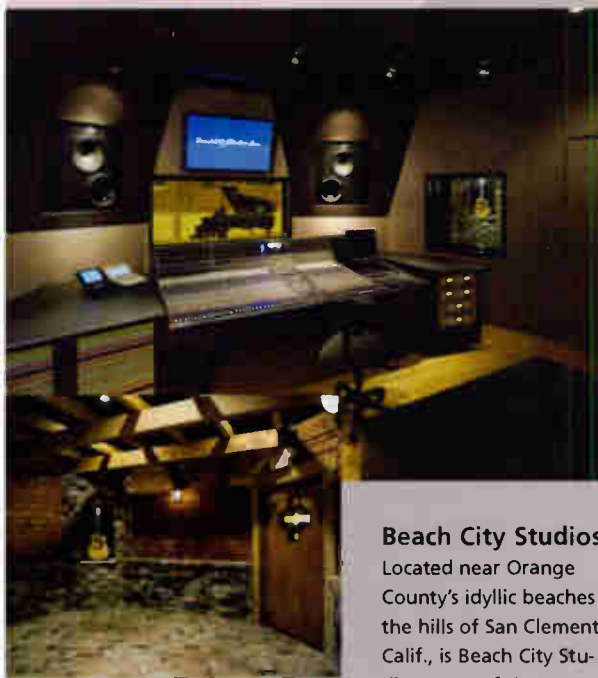


PHOTO: ANDREW COLLIER

### Beach City Studios

Located near Orange County's idyllic beaches in the hills of San Clemente, Calif., is Beach City Studios' state-of-the-art

recording and mastering facility. Opened in April 2003 and designed by Chris Pelonis, the facility features both a 48-channel API Legacy Plus console and Yamaha DM2000 console, and Pro Tools|HD3. The studio boasts a blend of high-end gear that ranges from Pelonis Signature Series monitors and amps to Mackie HR-824 and Yamaha NS10 monitors, a slew of outboard gear—including from manufacturers such as Avalon, Manley, dbx, API—to a mic closet full of B&K (DPA 4006 and 4011), Neumann (M150, M149, U47 and U48), Manley (Stereo Gold Reference and Mono Reference Gold) and Shure (SM57) models.

### BiCoastal Music

The Russ Berger-designed Based in Ossining, N.Y., BiCoastal Music (Ossining, N.Y.) was built in a wooded residential area close to Manhattan. Warm, natural light permeates the space. The control room features an SSL C200 console with 96 analog and 128 digital I/Os, and a custom Russ Berger Design Group 5.1 monitor system. Recorders include Pro Tools|HD3 with an SNS Fibre Drive System and MCI analog 2-track machines. Notable outboard gear includes pieces from Daking, Manley, Millennia, Vintech, TC Electronic and Chandler. The tracking room boasts a 22-foot vaulted ceiling, while separate drum and piano alcoves (inset) are home to a DW drum kit and Steinway Model A Grand Piano, respectively.



PHOTO: CHRIS BERGER



# The Class of 2004



## JA Castle Recording Studio

The Walters Storyk Design Group developed JA Castle Recording Studio (Utica, N.Y.) over a two-and-a-half year period, transforming the historic building (originally a Church of the Nazarene built in 1926) into a fully functional recording facility. The studio features natural acoustics in its 42x42-foot live room, with 35-foot ceilings, wood surfaces and floors that

act as a giant bass frequency absorber. The Castle offers a mix of vintage and modern outboard gear, Yamaha DM2000 console (with meter bridge), Apple PowerPC G4, Genelec 1038A main speakers, 1031 near-field monitors and 7070A subwoofers, Alesis Masterlink recorder and a full mic closet.



## Studio B Mastering

Studio B Mastering (Charlotte, N.C.), designed by the Russ Berger Design Group within an existing warehouse space, houses a Crookwood custom console and Pro Tools system, Dunlavy SC V monitors powered by Cello Performance II amps and outboard gear that ranges from Manley to Tube-Tech to Millennia and Ampex. Distinctive acoustic treatments, such as the pyramid diffusers (pictured), have been illuminated with accent lighting, while sound isolation walls support a cap isolating ceiling.

## Todd-AO Hollywood, Stage 2

From senior VP of engineering Bill Johnston and the Todd-AO staff comes the newly renovated Todd-AO Hollywood Stage 2, featuring 7.1 theatrical surround mixing, HD video and film dubbing capabilities and dual Todd-AO 70mm projection screenings. The main stage renovations added a dual-engine AMS DFC console, six Tascam MMR-8 recorders, eight Tascam MMP-16 players, six dedicated Pro Tools systems, Soundmaster synchronization, JBL theatrical monitoring and Bag End ELF subwoofers with bass extension. The stage also features in-house-designed custom furniture, a new lighting design, two new producer's workstation booths and modified sidewall diffusers to even out reflections and update the design motif.



## Randy Ezratty Home Mixing Suite

Located in a secluded brownstone in New York City's Chelsea district, the Francis Manzella-designed Randy Ezratty Home Mixing Suite is a private work environment that opened in August of 2003. Engineers Kevin Killen and John Harris have been in working with a list of loyal clientele spanning various genres. Featuring Pro Tools|HD with ProControl, ADAM S2A monitors and ADAM 1 subwoofers, the studio is equipped for 5.1 SACD production. The front wall features heavy bass traps and RPG Abfussors for early reflection control.

## Sonoma Mountain Studio Estate

Located in Sonoma, Calif., on the grounds of an exclusive gated compound, SMSE opened in July 2003 with a very specific client in mind: artists looking for privacy, absolute luxury and a high-end experience. Designed by Art Kelm and owner Bill Zabit, and located in California's wine country, the studio features 20-foot cathedral ceilings with maple, black walnut, cherry wood and natural stone accents. The main room and its two large iso rooms are all visually connected. The vintage Neve 8048 console is complemented by a host of gear, including PMC BB5A monitors, Studer A827 24-track recorder, Digidesign Pro Tools|HD3 workstation and Apogee converters, while a Grotrian grand piano, extensive guitar collection and custom Sonor drums stand by. The five-building estate includes a main house, two guest houses, tennis court, pool and entertainment suite, with a sports yacht in nearby Sausalito.

PHOTO: EDWARD COLVER



## Underdog Entertainment's The Underlab

The Underlab was designed by duo R Squared (aka Reeck & Rietveld) and Steve "Coco" Brandon for the J Records-affiliated R&B and pop-focused production team, Damon Thomas and Harvey Mason Jr. The Hollywood facility comprises Studio A, which boasts an SSL C200, Pro Tools HD3, Logic Version 5 and custom Augspurger monitors. Studio B and C house Euphonix consoles—a CS 2000 and CS 3000, respectively—Mac G4s and Pro Tools MIXPlus, and are supported by custom Augspurger monitors and a slew of high-end outboard gear and mics. Studio A has direct line of sight with the piano booth, while Studio B features line of sight to the vocal booth. An additional four writing rooms are in the facility.

PHOTOS: VINCE VALDES



PHOTO: MIKE ROTHEN

## On the Path

Designed by Chris Pelonis and owner Alan Kozlowski (co-founder of Santa Monica, Calif.'s POP Studios), On the Path's meditative and organic feel lends itself as a live performance venue, 5.1 mixing stage, recording studio, multimedia art gallery and event center. The facility features a line-up of high-end gear from manufacturers such as Digidesign, Studer, Lexicon, TC Electronic and Neumann. The space also features Pelonis Signature Series monitors and Tannoy AMS10 near-field monitors. Architecture services provided by Bret Thoeny (BOTO Designs).



PHOTO: EDWARD COLVER



## Sound Storm Cloud 9

SoundStorm Cloud 9 (Burbank, Calif.) has a main structural shell that features a prefabricated modular isolation system and acoustical interiors. Designed by Lawrence P. Swist and engineered by Bruce Black and Carl Ware, the stage features a Euphonix System 5-F console, two 48-channel Pro Tools|HD 3 Accel systems, four Tascam MMR-8 digital recorders, JBL ScreenArray Cinema Loudspeaker System with matching surrounds, Crown CT Series amps, Stewart 9x16-foot microperforated film screen and a JVC D-ILA projector.

# The Class of 2004

## The Schools

PHOTO: CHRIS BAILEY



### Conservatory for Recording Arts and Sciences, Studio D

The Conservatory for Recording Arts and Sciences' (Gilbert, Ariz.) new Studio D features a Pro Tools|HD 3 Accel workstation, including Digidesign 192 I/O and 96 I/O, and TC Electronic System 6000 and Focusrite Control 24. The (Jeremiah & Associates) Jerry Davis-designed space houses M&K 2510P speakers, MPS-5410 subwoofers and LFE-4 bass management controller, a Martinsound MultiMAX EX monitor controller, SRS Circle Surround encoder/decoder and Summit Audio Element 78 Mic Pre/EQ. Studio D also boasts twin 45-inch Panasonic HDTV rear-projection TVs and Stewart 11x7-foot THX electric roller Cinema perforated screen.

### University of Massachusetts, Lowell

Designed by Bob Alach (Alacronics), the multipurpose recording/critical listening/surround mix space at UMass Lowell features a main room, an iso booth and a small guitar closet. The room includes 48 mic lines, a Furman 6-channel cue system and variable acoustics via sliding wall panels. The facility's aligned mains include SLS S1266 three-way monitors, Bag End D18E-1 Dual 18-inch ELF subwoofer systems and a Bag End ELF-1 8Hz 2-channel low-frequency integrator. Mixing and mastering is accomplished via mobile production system using Yamaha DM2000, Steinberg Nuendo 32 I/O DAW, Genex GX9000 HD recorder and Merging Technologies Pyramix 8-channel DSD workstation.

PHOTO: DAVID RING




### NYU Clive Davis Room

The Clive Davis Department of Recorded Music and its Clive Davis Room are the newest addition to the Tisch School of the Arts at New York University (New York City). The space was designed by Troy Germano (Studio Design Group, N.Y.) and Dave Bell (White Mark Ltd., England); all equipment was supplied by Dave Malekpour of Pro Audio Design (Boston). Gear includes an SSL XL 9024 K Series analog console, Studer A-827 24-track analog recorder, Pro Tools|HD 3 with ProControl and a 22-inch Apple Cinema screen. Other equipment ranges from KRK E8 monitors and S12 subs for 5.1 monitoring, Eventide DSP7000, Tube-Tech EQ, TC Electronic M4000, GML 8200 EQ, Universal Audio LA-2A and 1176 limiter/compressor, Avalon 737, API mic pre's, Sony DAT recorder, HHB CD recorder and a variety of microphones.

PHOTO: BOB ALACH





One of music's most prolific producers, CMA- and Grammy®-Award-winner **Tony Brown** (right) has produced more than 100 albums, and lists among the beneficiaries of his talents such names as Lyle Lovett, Trisha Yearwood, Reba McEntire, Vince Gill, George Strait, Jimmy Buffett, and Steve Earle. Now, as senior partner of Universal South Records, he helms the careers of up-and-coming artists like Joe Nichols, Amanda Wilkinson, and Bering Strait.

Producer/engineer and digital pioneer **Chuck Ainlay** has worked steadily as one of Nashville's top pro audio leaders for artists as diverse as George Strait, Willie Nelson, Mark Knopfler, Emmylou Harris, Vince Gill, Reba McEntire, Trisha Yearwood, Steve Earle, Lyle Lovett, Peter Frampton, and Everclear. In the process, he's collected numerous awards and accolades, including several Grammy nominations.

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# Homeward Bound

## The Move to the Small Studio

### PART ONE: ISOLATION ISSUES AND SPEAKER PLACEMENT

Bob Hodas is one of the top acoustical consultants in the business, known for his 30 years of experience in detailed testing and measurement techniques, plus amazing ears to boot. He's first-call for studios all over the world, tuning rooms and tweaking speakers, and he's published dozens of articles on the subject. Lately, however, he's been busier than ever tuning project studios: As more producers and engineers make the transition to home rooms, they realize how difficult it is for mixes created at home to translate to the commercial studio. For those considering building a studio in their existing space, Hodas shares his tips in this two-part design series. In part one, he discusses the unique isolation challenges in existing rooms and details the finer points of speaker placement. Next month, he breaks down room treatment and EQ.—Eds.

Most people don't understand that converting a bedroom into an accurate recording mixing room is more difficult than building a facility from the ground up. The process may not be fast or cheap, although sometimes we get lucky. As the audiophile community discovered long ago, you can't just put a pair of speakers into a room and expect it to sound good.

There are a number of issues that engineers need to pay attention to if they want a professional, accurate home working environment. Home studios are plagued with the same problems as large facilities—and some small spaces are even gnarlier. If you've been reading articles in *Mix* or have visited my Website ([www.bobhodas.com](http://www.bobhodas.com)), some of what I say here might sound familiar, but it is all worthwhile because the laws of physics haven't changed much in the past 20 years.

The most expensive issue is isolation, but we also need to look seriously at room orientation. Next is symmetry. First-order reflections definitely need to be addressed and, of course, that monster problem of how to control the bass. (I'll address these two topics in Part 2.) For this article, let's assume that your room has parallel walls—your basic shoe box.

#### YES, SIZE MATTERS

A room's dimensions are the first restriction when building a home studio. This is the first issue that all studio designers face when working from the ground up, but in most homes, you're stuck with what you've got. Designers calculate room modes for rooms with parallel walls, so be aware that the charts shown here are based on assumptions that won't always apply to every room.

In these measurements, the assumption is also made that a room is infinitely contained; i.e., a concrete bunker. The less contained a room is, the more low frequencies will pass through the walls. Of course, you will be subject to the first peaks and dips of the wavelength, but some of these frequencies (starting with the lowest) are going to pass right through walls and windows and just keep on going. Wavelengths that escape are not going to bounce back into the listening area out-of-phase to haunt you in the form of cancellations. It all depends on the stiffness and density of your walls. Some studio designers even work this concept to control the room response by letting some bass escape. It doesn't work too well if you have neighbors who are on the receiving end of all the bass you just let out of your house without a license. Or, maybe you need isolation *from* your neighbors—or airplanes. Depending on how they are built, walls may vibrate and absorb some frequencies. Studio designers may also use this technique, although the safest bet is to build your walls as stiff as possible so that they don't flex. You can always add strategically placed membrane absorbers once the room is scoped out.

The mode charts also assume that the speaker is against or in the front wall. This works for some home studios, but obviously not many. The speaker's distance from the walls is going to determine reflections that will mix in with the direct signal either in or out of phase, causing dips or peaks in the response. The seating place-

BY BOB HODAS



PHOTO: ROBERT WOLSOCH

*Scott Freiman's Second Act Studios, built on the third floor of a historic Westchester County home in Irvington, N.Y. Design: John Storyk/Robert Reilly*

ment determined by the mode chart isn't necessarily the right spot to put that chair. And don't forget that you must have parallel walls and floor/ceiling: No cut-off corners, no L shapes, no angles, no wet bar along the sidewall, no open walkway into the next room. A big rack of gear right behind the mix position doesn't help much, either.

If your room has parallel walls, your speakers are on the front wall and your studio is in the basement or just very well-built, then there is merit to the charts here. And as I stated above, even if you don't fit this criteria, checking these factors is not a bad place to start. JBL offers a free, easy-to-use and accurate Excel-based calculator on its Website at [www.harman.com/wp/index.jsp?articleId=131](http://www.harman.com/wp/index.jsp?articleId=131).

Most home studio owners will be stuck with the existing room dimensions, but if you have the freedom to move a wall, consider creating a room size that fits into the Golden Ratio: a ratio of length-to-width-to-height that minimizes the effects of modes. It spaces them so that they do not pile up, causing large bumps or dips in the frequency response. There are a number of well-accepted ratios depending on the room's volume. You can play around with the mode calculator mentioned above to find a good ratio that works within your current room size restrictions or use a program that helps determine an ideal room size. I use two programs: AcousticX from Canadian designers Pilchner Schoustal ([www.pilchner-schoustal.com/old/acoustic-x/index.html](http://www.pilchner-schoustal.com/old/acoustic-x/index.html)) and RPG's Room Sizer, located at [www.rpginc.com/products/roomsizer/index.htm](http://www.rpginc.com/products/roomsizer/index.htm). Once your room size is scoped out, it's time to see if you can make noise in it.

#### **KEEP IT QUIET**

Isolation is key: Unless you live alone, you generally can't make as much noise as you want at all hours of the day. This also applies if you have neighboring apartments. Ad-

dressing isolation in an existing house structure is a difficult issue. Most homes are not built with much sound isolation in mind, and the hollow walls and stud spacing are not ideal. Unless you are prepared to build a room within a room, you will never be totally isolated from the rest of the house or your neighbors. Many of my clients know their neighbors and made arrangements to listen in the neighbor's house while they had the music cranked in their studio. This will give you a good idea of how much work you have ahead of you.

On the cheap, you can do several things: Replace your interior door with a solid-core exterior door. Make sure you address the air spaces around the doors with some type of insulation. Remember that any little air space will leak sound like a sieve. This also applies to your HVAC ducts, but most home studio budgets can't accommodate that. If budget allows, purchase medium-priced, mid-quality doors that are used in home theaters, such as the ones available at [www.owenscorning.com/around/sound/products/door.asp](http://www.owenscorning.com/around/sound/products/door.asp).

Basic isolation can be added to the walls and ceiling by simply adding another layer of mass. If you're going to go to this amount of trouble, instead of using  $\frac{5}{8}$ -inch Sheetrock, try MDF or Wonderboard. These materials have much more mass than Sheetrock. Be sure that when you install an extra layer, it is glued and screwed and that the new seams do not overlay the existing seams. A new material on the market, called QuietRock and QuietWood, has a significantly increased amount of isolation. For more information, visit [www.quietsolution.com/construction-building.html](http://www.quietsolution.com/construction-building.html). I recommend it, and you may find that you will simplify the construction process with this material. Any of these wallboards can be made more effective by floating them on a resilient channel. This creates an insulating air space and isolates the new wall movement from

# Homeward Bound

the existing wall—very effective, and, of course, more labor and money. There are various forms of this channel, so shop around. Visit [www.silentsource.com/rsic.html](http://www.silentsource.com/rsic.html), [www.kineticsnoise.com](http://www.kineticsnoise.com) or [www.auralex.com/sound\\_isolation\\_rc8/rc\\_discussion.asp](http://www.auralex.com/sound_isolation_rc8/rc_discussion.asp) to get started.

I hope I don't have to tell you that two or three layers of glass are better than one. Glass is expensive, but if your neighbors

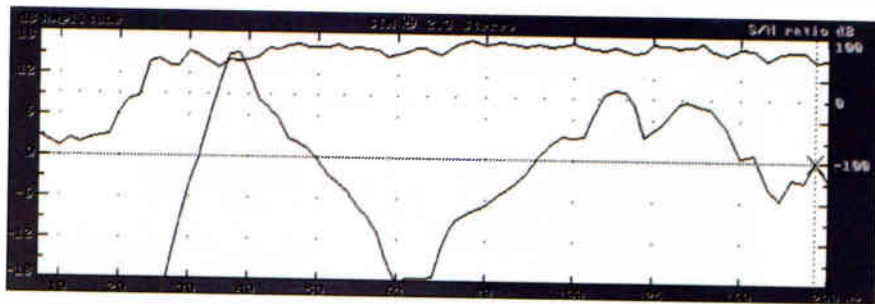


Figure 1: Bass response of a speaker against a short wall, 8 to 200 Hz

complain, you're history. Find a good window dealer that carries insulated windows.

Unless you plan on floating a floor

(which is expensive), you'll have to live with structure-born transmission. It is tough to control, but an alternative is to treat the ceiling in the room below you with Quiet Rock, but that will still only give you minimal low-frequency isolation because the bass will travel throughout the house via supports.

## PLACING THOSE SPEAKERS

The old wives' tale that states, "having speakers in your face eliminates room problems" is a crock: There is no escaping the laws of physics. Before you can think about acoustic treatments, you need to optimize the speaker positions in your room. This is the single most important thing that you can do to improve your system response. It is very important that you become extremely familiar with your speakers. Take a good look at the manufacturer's frequency response charts. Remember that these are anechoic measurements, and as soon as you put your speaker in a room, the bass response will start to change significantly. Bass response will build up even more when you place the speaker against the wall or in a corner. But the response charts are useful for knowing the speaker's limitations. For example, Yamaha NS-10s can roll off dramatically after 100 Hz, so you don't have to be too concerned about deep bass problems when positioning them. Using a wall or corner may even be to your benefit. You will also want to pay close attention to the recommended position for proper phase alignment. For some speakers, it's directly aligned with the tweeter; for others, it's a point between the woofer and tweeter. It depends on the design, so check the manufacturer's literature. When you position your speakers and listening position, make sure this alignment point intersects your ear position.

Again, I am assuming that your room has four walls with equal spacing; i.e., the common rectangle—no L shapes. Step one is determining which wall your speakers should be on. If your room is square, then this doesn't matter. If your room is rectangular, then there is no rule of thumb as to whether you should put your speakers on

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# Homeward Bound

the long wall or the short wall—it all depends on the dimensions. This is not an easy thing to figure out without an analyzer. It will take some time and effort, but the payoff is tremendous. The speaker distance from the front and sidewalls will also dictate the listening position. This is one of those “chicken-or-the-egg” situations: All of these factors are interactive, so plan on moving things around a lot.

To figure out which wall to use, place the speakers on two intersecting walls: one on the short wall and one on the long wall. Place the speakers at listening height in an approximate left or right speaker position as if you had stereo speakers. (Remember the chicken/egg problem.) Run a mono send from your CD player to one speaker at a time and seriously listen to the bass. Keep yourself centered between the sidewalls, and move forward and back six inches at a time. Your distance from the speaker will play a part in the frequency response. You should also move the speaker forward and back and side-to-side six inches at a time in this process. You should be able to get a feel for which speaker has a flatter bass response. Remember, more bass is not necessarily better! Listen for smooth and connected bass from mid down to low.

Now you've done the hard part! While finding the proper wall, you also found the proper speaker and listening position. Take measurements of the winning speaker distances from each wall and set the speakers up symmetrically. Figure 1 on page 46 and figure 2, above, are examples of just how different the walls can be and what you should listen for. Remember that there is no rule of thumb here; sometimes the speakers will perform best on the long wall and other times they'll be better on the short wall. Sometimes they want to be right against a wall. However, I've never seen a room where putting the speakers in corners worked.

If you don't want to go through the process mentioned above, you could hire a guy like me to do the math, analyze your room and tell you where your speakers should be placed. Or you could buy Room Optimizer by RPG Inc. ([www.rpginc.com/products/roomoptimizer/index.htm](http://www.rpginc.com/products/roomoptimizer/index.htm)) and try to figure it out yourself. While these calculations work quite well in theory, they are neither perfect nor fool-proof. The program is based on perfectly symmetrical rooms with walls that do not flex or pass signal. I normally compare the direct measurement

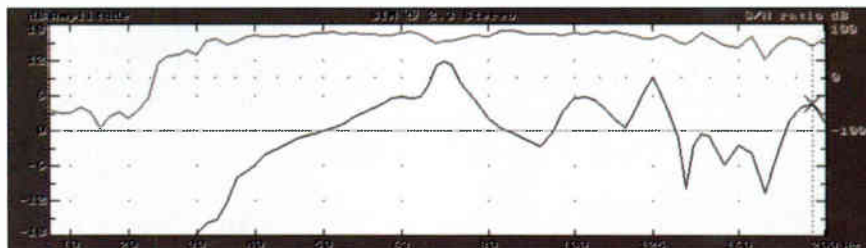


Figure 2: Bass response of a speaker against a long wall, 8 to 200 Hz

results with my calculations, and have found that the RPG program is often very close; I usually only make minor changes to positions to fine-tune the system. But there are times when, due to construction, for example, the program doesn't get the job done and an analyzer and your ears are needed.

I can't stress the idea of symmetry enough. If your speakers are not placed symmetrically in the room, then they will

distances from the walls, then the cancellations will occur at different frequencies. You wouldn't put one speaker on the floor and the other on a stand, would you? (This is also true for first-order reflections above 400 Hz, which will be addressed in Part 2.) Figure 3 demonstrates what happens to the bass when speakers are placed asymmetrically in a room. One speaker looks great (red curve), but the other (blue curve) is in

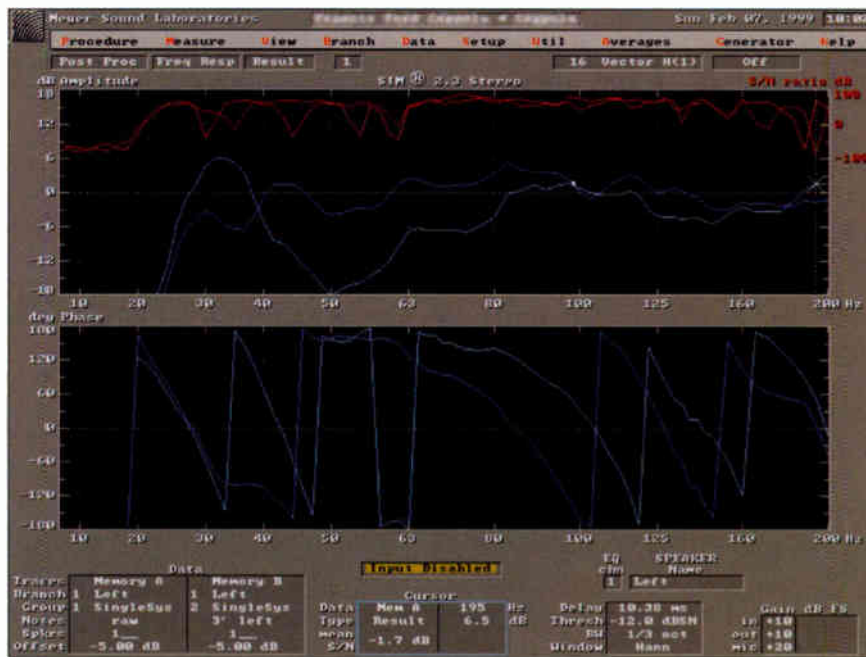


Figure 3: Bass response after speakers are placed asymmetrically in a room

have different frequency responses. This means that your music will sound different in the left and right speakers, your center image will be off-center and your depth of field will suck. So make sure that the left and right speakers are equidistant from the sidewalls. The same applies to the speakers in regard to the front wall.

Why is the above true? Below 200 Hz, your speakers are fairly omnidirectional. The signals that bounce off the walls and ceiling are going to mix in with the direct speaker signal. This delayed bounce will cause comb filtering. The time delay, and thus, frequency of interaction are dependent on the speaker distance from the walls. If the left and right speakers are different

bad shape. If you try to treat the above bass problem acoustically, you will run into trouble. A treatment that works for one speaker will not work for the other, and perhaps make it even worse.

Pay attention to the placement of your equipment in the room. Most people don't consider this factor, but having a bunch of gear on the right side of the room and nothing on the left is going to change the way the speakers behave. Try to design a layout that is balanced side-to-side as much as possible. Remember, it's all about symmetry! Next month, I'll tackle room reflections and acoustic treatment, including the tough task of bass control.



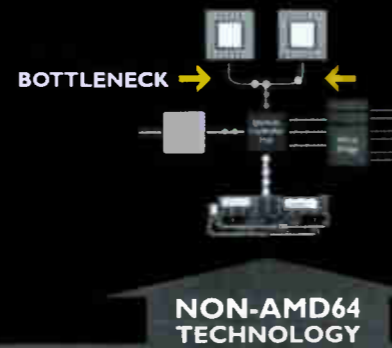
# The Choice of the Pros

The Dual AMD Opteron™ Processor Platform

# AMD

## COMPETING TECHNOLOGY

- Doesn't take advantage of AMD64 architecture
- Requires Memory and I/O to compete for bandwidth
- Limits scalability by front side bus bottleneck



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# AMD

Welcome to the World of AMD64



The ranks are growing. **Who's next?**

## DWEEZIL ZAPPA

Dweezil Zappa, composer, guitarist, engineer and son of early musical pioneer Frank Zappa, is powering the Zappa Utility Muffin Research Kitchen studio in Los Angeles with AMD Opteron processors.

"I'm excited that we have rebuilt the studio. I'm also excited that during the process, we discovered AMD. We've been waiting for years for the right combination of power and flexibility. Now that we have it, we can't wait to get started on projects that we previously considered impossible."

Dweezil uses dual AMD Opteron processor-based digital audio workstations (DAWs) to create new music and prepare new digital masters from the catalog of his father for new DVD-A surround sound formats.

"We have several digital options at our studio, but the workhorse is the new AMD64 technology-based DAW64 that we installed. It's better than anything we've used before," said Dweezil. "We could work 20 years just on projects from the vault but I have my own projects too. The 64-bit-capable AMD Opteron processor provides the computational horsepower required to handle huge amounts of source material, tons of tracks, effects and virtual instruments. AMD processors are helping us create a fully digital production pipeline including powering our Web site...Zappa.com."



"Unbeatable 32-bit performance, 64-bit readiness and the ability to scale to ever increasing processor loads makes AMD Opteron processors the ideal platform for music production facilities using Yamaha's sonically superior O2R96, O1V96 and O1X Digital Mixing Consoles. We believe the future of computer-based music production is the seamless integration of our hardware products with high-powered digital audio workstations like the AMD Opteron processor-based DAW64 into one creative workflow environment."

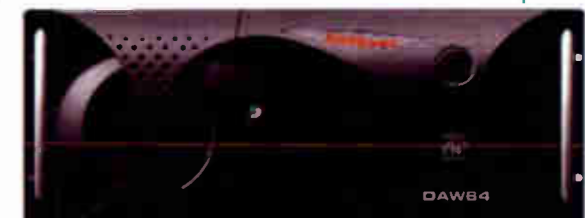
Athan Billias, director of marketing technology products, Yamaha Corporation of America



formerly RackSaver Incorporated

"This isn't just deploying a new technology; this is leaving an everlasting mark on our culture."

Robert Murphy, director of marketing, Verari Systems



AUDIO

For more information, please visit [www.amd.com/amdopteronme2](http://www.amd.com/amdopteronme2)

# Introducing The AMD64 Masters Group



AUDIO



## CHUCK AINLAY

"This machine has got untapped power and speed like no other computer I've ever worked with. Even with tons of tracks and plug-ins running at 96k, the AMD Opteron™ processor-based DAW gives new meaning to the words 'reliable' and 'pro.'"

**Credits:** Mark Knopfler, George Strait, Mary Chapin Carpenter, Peter Frampton, Emmylou Harris



## FRANK FILIPETTI

"For me, it's always been about speed. The main reason I moved from Mac to Windows® was simply, irreversibly, about speed. This machine has speed in spades."

**Credits:** James Taylor, Rod Stewart, Barbra Streisand, Korn, Fuel, Courtney Love and Hole, Luther Vandross, Luciano Pavarotti, Elton John



"NUENDO hosted on an AMD Opteron processor-based system is the platform of the Pro for digital audio production. Superior sonic integrity, stability, production power and an ability to host an unprecedented number of plug-ins and virtual instruments on NUENDO is a direct result of AMD64 technology."  
*Dave Fabian, managing director, Steinberg North America*



"For Verari, the AMD Opteron processor opened the door to a new business segment. Within a few months of introduction, Verari was supplying AMD Opteron processor-based workstations and servers to world leaders in the film and media industry."  
*Robert Murphy, director of marketing, Verari Systems*

## ELLIOT SCHEINER

"I've been working with the dual AMD Opteron processor-based DAW for many months now and I've found it to be remarkably reliable and quick, and the most versatile box I've ever worked with."

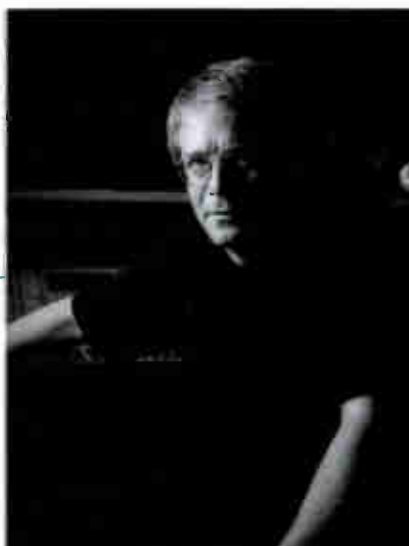
**Credits:** Steely Dan, The Eagles, Fleetwood Mac, Flaming Lips, Beck



## PHIL RAMONE

"AMD Opteron processors provide incredible speed in a professional environment. System dependability is always the hope of uninterrupted work. It has met the new standards we dream of."

**Credits:** Frank Sinatra, Billy Joel, Paul Simon, Elton John, Barbra Streisand



## GEORGE MASSENBURG

"I've had limited experience with high-end PCs, so I was unprepared for the performance of the AMD Opteron processor-based DAW64. Various applications, starting with development environments for both Nuendo and Pro Tools, have moved onto the platform without a hitch. We were delighted to find that one of our main graphics applications ran incredibly fast on the DAW64."

**Credits:** Linda Rondstadt, Little Feat, Earth, Wind & Fire, James Taylor, Lyle Lovett

## RORY S. KAPLAN

"I have been a user of computers in music production since the late '70s. Always an issue is the power and stability of a system that is needed to keep the creative flow. With my AMD Opteron processor-based system, I am no longer a victim of technology. I am enjoying the creative process that the system allows me. It's clear that in high-resolution audio production, AMD is a must in any system."

**Credits:** Chick Corea, Michael Jackson, Joe Cocker, Stevie Wonder, Herbie Hancock, Brian May/Queen



## FRED MAHER

"The dual AMD Opteron processor-based system has provided me with unbelievable performance and is stable as you push it to the limit. For me, that means more plug-ins, more virtual instruments and total stability throughout the life of the project. And that's just in 32-bit mode!"

**Credits:** Matthew Sweet, Scritti Politti, The Breeders, Lloyd Cole, Korn, Ice Cube



## ROB HILL

"I usually work totally 'inside the box.' This means lots of MIDI, lots of virtual instruments, and tons of effects. I have always pushed my computers to the absolute limit. With my new AMD Opteron processor-based system, I have not yet found that limit."

**Credits:** Everlast, Cypress Hill, Xzibit, Northern State, Zayra

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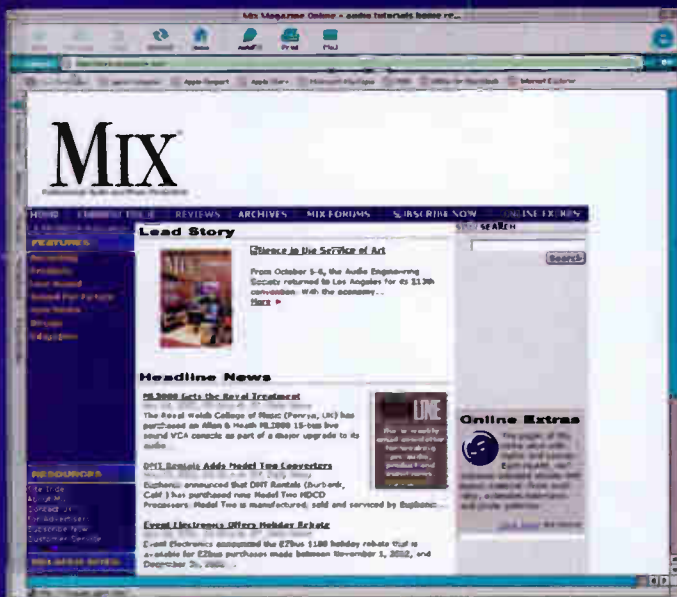
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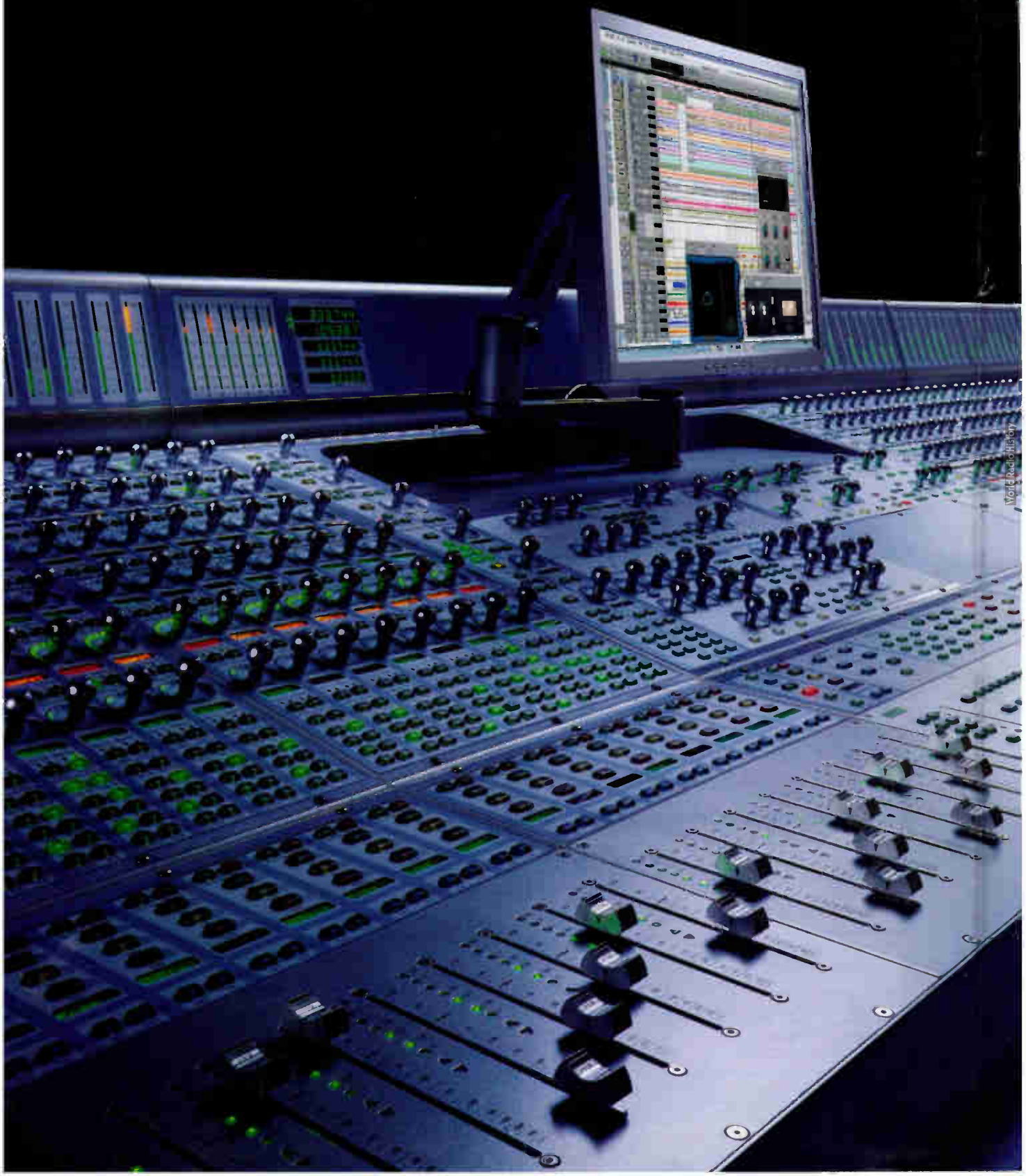
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# SURROUND

## Monitoring Systems

**S**hopping for the perfect monitors is a complicated process that's unlike buying any other professional audio gear. One sizable challenge is deciding which system type will integrate best into a particular (or in a variety of) work environments. What is "required" is a proverbial can of worms in itself, encompassing personal taste, consideration of the personal tastes of others—i.e., clients—and a litany of other factors, both aural and monetary. Unfortunately, the task of auditioning monitors too often occurs in environments that are dissimilar to the spaces in which they will actually be used. After all of this—and dealing with a few issues overlooked here—the best pair of monitors for a particular scenario can hopefully be found. If you're considering a multichannel monitoring setup, get ready to consider a host of variables.

### The Package Approach for Studios

To address the fact that even the most accomplished audio pros sometimes teeter at the edge of sanity before buying a new multichannel monitoring system, many manufacturers now offer complete surround packages at one price point. Most of these systems include familiar models, while other packages are designed from scratch as a set. As price points vary dramatically from package to package, you'd be hard-pressed not to find something that comfortably fits both your needs and budget.

Not all studio monitor manufacturers are represented in this article. While reasons vary as to why some don't offer all-in-one packages, many companies that opt out feel that multichannel configurations are best built via individually selected components. Nevertheless, many engineers have successfully met their multichannel listening needs—and eliminated a few headaches—by purchasing one of the innovative surround packages listed here.

The Alesis ([www.alesis.com](http://www.alesis.com)) ProActive 5.1 (\$499) is an affordable, THX-approved 5.1 system. While it won't hold an aural candle to high-end systems costing thousands of dollars, it offers plenty of features, satisfactory sound and much value for a low amount of dough. The 450-watt ProActive 5.1 system includes four 65W satellite monitors with a 69W center speaker, a 188W powered subwoofer and the Digital SoundTouch Control Center with

wireless remote. The SoundTouch controller has a LCD status screen and offers built-in Dolby Digital and DTS hardware decoding, gain control and much more. On the rear of the unit, source inputs include digital optical, digital coaxial, 6-channel analog direct inputs and a stereo analog input.

Distributed by Transamerica Audio Group ([www.transaudiogroup.com](http://www.transaudiogroup.com)), ATC's SCM20ASL Pro 5.1 package (\$22,900) includes five active SCM20ASL Pro monitors with an active ATC Sub 1/15 Pro subwoofer. Combining two decades of innovative speaker design with the latest advances in materials technology, the ATC system is a unique, ultrahigh-quality surround system that just so happens to be extremely portable. The three-way SCM20ASL Pro monitor employs ATC's Super Linear magnet structure in its 6-inch mid/bass drive unit and is coupled with a 1-inch tweeter. The SCM20ASL Pro's active two-way amplifier design incorporates separate dual amp blocks in each cabinet and can deliver continuous SPLs of up to 108 dB measured at one meter. At the monitor's rear, a selector panel provides five LF boost settings and a flat reference setting. The ATC Sub 1/15 Pro subwoofer offers a custom-built 15-inch woofer driven by a massive, built-in 1,000W amp. The sub's versatile interface provides simplified setup with phase, level, lowpass and contour controls.

Quickly becoming known as multichannel suppliers, Blue Sky International ([www.abluesky.com](http://www.abluesky.com)) offers the Sky System One 5.1 package (\$4,245), which includes five SAT 6.5 bi-amplified monitors, the Sub 12 powered subwoofer and a BMC Bass



ATC SCM20ASL Pro





Blue Sky System One

Management Controller. Using Blue Sky's computer-optimized crossover and bass-management networks, the system is THX pm3-approved. Each shielded, aluminum-framed Blue Sky SAT 6.5 monitor features a 6.5-inch hemispherical driver, a 1-inch dual-concentric diaphragm tweeter with integral wave

guide and is powered by two 100W amps with electronic crossovers. The SAT 6.5's frequency response is 80 to 20k Hz,  $\pm 3$  dB (200 to 10k Hz,  $\pm 1.5$  dB) and offers a rear panel power switch, gain control with LED power indicator and balanced XLR input. Specifically designed to complement the SAT 6.5 monitors, the Sub 12 subwoofer features a cast-aluminum frame, a 12-inch forward-firing driver with a 2-inch voice coil and a 200W amplifier. The Sub 12 has a frequency response of 30 Hz to 200 Hz,  $\pm 3$  dB (anechoic) and a typical response of 20 Hz to 200 Hz, measured in a 3,000-cubic-foot room. The Blue Sky Bass Management Controller offers comprehensive bass management and remote volume control, featuring fully balanced I/O, defeatable bass management, individual output mutes, individual and master calibration, and expandability from 5.1 channels to a maximum of 10.2.

Dynaudio Acoustics' ([www.dynaudioacoustics.com](http://www.dynaudioacoustics.com)) AIR Series is designed for those engineers who want integrated DSP and networking capabilities to be a part of their monitoring system. All components in an AIR system are connected through the TC Link network, which distributes control information and audio in between all system components. This allows control of a multi-channel setup from the sweet spot using the AIR Remote controller or AIR SOFT software for Mac or PC platforms. The expansive AIR Series includes many models, along with a specially configured, 192kHz-supporting digital 5.1 system: the AIR 15-5.1 Pack 2D192. This package includes three "Digital 6" AIR 15 master monitors, two AIR 15 slave monitors, one AIR Base-2 dual 10-inch subwoofer, an AIR Remote and AIR SOFT. The AIR 15 is a two-way active monitor featuring a 10-inch woofer and 1.1 soft-dome tweeter. AIR master monitors have front panel LCD screens and data entry buttons, and their rear panels handle one or two input signals. TC Link ports on the masters allow connection to AIR slave monitors that utilize link I/O ports. The included 200W active subwoofer with dual 10-inch drivers is designed for use in small to medium rooms with the AIR 15 monitors and uses TC Link for features such as integrated bass management and presets. The AIR 15-5.1 Pack 2D192 lists for \$12,145. Analog and 96k

## By Strother Bullins

versions of the AIR 15 5.1 kits—the AIR 15-5.1 Pack 2A and AIR 15-5.1 Pack 2D—are priced at \$11,845 and \$11,345, respectively.

Largely known for its two-way 2-channel OWL Monitoring Series that uses patented "Embracing Sound Experience System" technology, EMES (dist. by Synthax, [www.synthax.com](http://www.synthax.com)) has also chosen to embrace multichannel customers by offering two surround packages. Its Pink tv 5.1 system (\$4,999) includes five Pink near-fields and one Amber subwoofer, while the Violet HR 5.1 kit (\$8,999) includes five Violet near-fields and one Amber HR subwoofer. The small, lightweight Pink tv active monitor features two identical 80W amplifiers, matched drivers and adjustable parameters such as dip switches for sensitivity, bass and high-frequency control. The Pink tv has a 5.5-inch woofer, 1-inch neodymium tweeter and offers a frequency response of 58 to 19k Hz,  $\pm 2.5$  dB. The Violet HR active monitor comprises a 7-inch carbon-composite woofer, a 1-inch Neodyme tweeter and dual 100W amplifiers. Completing the EMES multichannel packages, the Amber active subwoofer features a 10-inch, dual-coil, long excursion driver, dual 140W amplifiers, a 80/150Hz highpass filter and dip switches for level and phase control. The Amber sub offers 38 to 2k Hz frequency response. Similar to the Amber, the Amber HR subwoofer offers a slightly larger cabinet size; as a result, it has a 6Hz lower system frequency response.

Genelec's ([www.genelec.com](http://www.genelec.com)) 1029.LSE PowerPak multichannel monitoring system (\$4,200) is a complete 5.1 solution and is rapidly finding its way into studios sold on Genelec sound and quality. The 1029.LSE PowerPak features five Genelec 1029A two-way, bi-amplified active monitors, one Genelec 7060A LSE Series Active Subwoofer and a Genelec Acousti/Tape, a frequency/wavelength measuring tape for accurate multichannel configuration. Also included is a setup guide, which offers speaker placement, wiring and fine-tuning tips. Powered by a pair of efficient 40W amps, the compact Genelec 1029A monitor has a frequency response of 68 to 20k Hz ( $\pm 2.5$  dB), features a 5-inch woofer and  $\frac{1}{2}$ -inch hard dome tweeter, and offers front-mounted volume control and rear panel bass- and treble-tilt room response controls, all housed within a die-cast aluminum case. The 7060A LSE sub—designed for multichannel monitoring—features a single 10-inch proprietary driver with a 120W power amp, has a frequency response of 29 Hz to 85 Hz (120 Hz),  $\pm 3$  dB, and offers Genelec's 6.1 bass-management system with an LFE signal input and selec-



Dynaudio Acoustics AIR 15

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## SURROUND Monitoring Systems

table 85/120Hz lowpass filter.

Norway's Griffin Audio Design (dist. in the U.S. by Francis Manzella Design, [www.fmdesign.com/fmgriffin.htm](http://www.fmdesign.com/fmgriffin.htm)) offers the Griffin 2 Surround Monitoring System (\$11,750), featuring five Griffin 2 loudspeakers and one Griffin 2 subwoofer. The passive system showcases dual 8.5-inch magnesium cone woofers and a ribbon tweeter in each G2 loudspeaker, and is capable of delivering details from ultrasoft to 115 dB SPL at three feet.



EMES Amber HR subwoofer

Designed to be a perfect match for high-resolution SACD and DVD-A work, the tweeter is placed in a symmetrical magnetic field and comes with a simple passive filter in between it and the two midranges. The G2's strongly braced 3/4-inch fiberboard cabinets are extremely rigid and are compact enough for use in smaller facilities. The G2 has a frequency response of 40 to 25k Hz,  $\pm 1.5$  dB and handles 200 to 500W at 4 ohms. According to

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World Radio History

# SURROUND Monitoring Systems

Manzella, a fully active G2 surround system will be available by mid-summer.

Hot House Professional Audio ([www.hothousepro.com](http://www.hothousepro.com)) offers two surround monitoring packages, the ARM 265 5.1 system and PRM 165 5.1 system, geared toward use in medium/large and small/medium control rooms. The mid-field Hot House ARM 265 system offers flat-frequency, wide-bandwidth response provided by five bi-amplified ARM 265 monitors, an ASB 215 Active Sub-Bass system driven by the SBX Subwoofer Crossover/Controller and the Model Two Thousand High-Resolution Control Room



**Griffin 2 loudspeaker**

Amplifier, a 1,200W/channel amp. The system's monitors are available in black, red or golden-oak veneer. According to Hot House designer Richard Rose, the PRM 165 surround monitoring system is "ruler-flat over nearly six

of its eight-and-a-half octaves." Along with five PRM 165 near-field monitors, three Model Four Hundred amplifiers and either an ASB 112 subwoofer with onboard power or an ASB 115 subwoofer/SBX Crossover Controller/M500HV amplifier combination are included. All cabinets are finished in matte black. The ARM 265 system lists for \$29,999. The PRM 165 system with the ASB 112 subwoofer is \$14,999 and increases to \$19,999 with the ASB 115 subwoofer. Teflon wiring and full-isolation mount systems are included for both systems.

The innovative LSR6300 Series of studio monitors from JBL Professional ([www.jblpro.com](http://www.jblpro.com)) includes two 5.1 monitoring packages: the LSR25P/5.1 (\$3,315) and the LSR6328P/5.1 (\$7,775). The LSR25P/5.1 kit includes five compact, bi-amplified LSR25P reference monitors—each featuring a 5.25-inch woofer and 1-inch tweeter—and a 250W LSR6312SP powered subwoofer. The LSR25P has 100W of low-frequency power and 50W of high-frequency power, while the LSR6312SP sub features a 12-inch woofer and a full feature set designed for multichannel audio production. Offering the same subwoofer as the LSR25P/5.1, the LSR6328P/5.1 kit includes five bi-amplified LSR6328P monitors featuring 8-inch woofers and 1-inch tweeters. The THX-approved LSR6300 Series boasts three new technologies to overcome problems associated with sub-par room acoustics: Linear Spatial Reference, RMC Room Mode Correction and boundary compensation. Insuring that the mid- and high-frequency content at the mix position is accurate, JBL's Linear Spatial Reference technology includes a  $\pm 30$ -degree horizontal,  $\pm 15$ -degree vertical radiated response engineered into the system, which also happens to be virtually flat. RMC combats low-frequency standing waves by including a circuit in LSR6300 Series subwoofers; once calibrated, low-end performance improves at the mix position. Finally, boundary-compensa-



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# SURROUND Monitoring Systems

tion circuitry is included in the LSR25P and LSR6328P to correct frequency response and overcome spectral shift when the system is mounted on a wall, in corners or on workstation surfaces.

M-Audio's ([www.m-audio.com](http://www.m-audio.com)) affordable Studiophile Series of monitoring systems now offers to those aspiring to multi-channel projects a new option via the LX4 Surround Sound System. By combining the previously available LX4 2.1 System (\$349) and the LX4 5.1 Expander (\$199), a com-

plete 5.1 system is born. The LX4 Surround Sound System comprises five ported LX4 passive satellite monitors and the LX4 subwoofer, which houses the system's active crossover matrix. The subwoofer's 125W power amplifier handles the entire surround system: 60W is designated for the sub and 27W is allowed for each satellite. The subwoofer has an 8-inch woofer, and each satellite monitor contains a 4-inch polypropylene woofer and 1-inch Mylar tweeter.

For smaller studios, video post and DAW applications, NHT Pro ([www.nhtpro.com](http://www.nhtpro.com)) offers the M-00/S-00 Combo, a \$1,749 surround package that combines five of its

popular M-00 (pronounced "moo") monitors with the S-00 subwoofer. The M-00 is a compact, powered (75-watt) two-way system with a 4.5-inch woofer and 1-inch fabric-dome tweeter in a rugged cast zinc-aluminum enclosure. Other features include magnetic shielding, XLR, TRS and RCA input connectors, and a variety of options for stand or wall mounting. The matched S-00 subwoofer combines a long-throw, 8-inch woofer in a compact 13x10x13-inch cabinet with 125 watts of onboard amplification for performance down to 39 Hz.

Acoustician/facility designer Chris Pelonis ([www.pelonissound.com](http://www.pelonissound.com)) has joined forces with speaker manufacturer Tannoy to present the Pelonis



**PMC DB-1A**  
loudspeaker

Signature Series, a monitoring system based on custom dual-concentric driver technology. A decade in the making, the series offered the first WideBand main monitor, which was introduced to the pro audio industry in 2002. WideBand versions of Pelonis Signature Series monitors produce frequency responses up to 45 kHz, while low-frequency drive units used in the PSS EB (extended bass) models comprise custom-built Kevlar drivers with full 2-inch excursion. According to Pelonis, his monitor systems are designed to be the only monitors in the room. The series offers seven 5.1 packages featuring a variety of two- and three-way active monitor models coupled with 15-inch, 18-inch or double 18-inch active subwoofers. Every PSS install is personally performed by Pelonis, and each system's crossovers are created by Pelonis for each individual studio space. Package prices range from \$30,000 to \$90,000.

Known for its unique transmission line (TL) monitoring systems, British manufacturer PMC ([www.pmccloudspeaker.com](http://www.pmccloudspeaker.com)) offers the PMC Mix Pack (\$7,995), a fully matched, active 5.1 kit featuring five PMC DB-1A loudspeakers and a SubTLE1 subwoofer. TL technology effectively creates a long tunnel within a monitor by using internal partitioning. The tunnel folds throughout the length of a heavily dampened cabinet, and at the tunnel's end, a hole vents into the room. As a result, the cabinet yields an extended LF

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BLUE SKYING?

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# SURROUND Monitoring Systems

range and dramatically reduces any extraneous coloration of the sound. According to PMC, the DB-1A loudspeaker is the world's smallest TL monitor design with an effective line length of five feet within its very small cabinet. The 100W DB-1A features a 5.5-inch low-frequency driver, an aluminum, ferrofluid-cooled HF driver, and a frequency response of 5 Hz to 25 kHz (+0/-3 dB). The SubTLE1 Subwoofer in-



**SLS HT6.5W  
powered subwoofer**

cludes two 6.5-inch shielded custom drivers driven by a 150W low-distortion amplifier. The subwoofer incorporates an effective TL of 9.5 feet, allowing the TLE1 to produce a flat frequency response down to 22 Hz.

SLS Loudspeakers ([www.slsoundspeakers.com](http://www.slsoundspeakers.com)) offers the SLS HT400 5.1 Surround Sound Speaker System (\$3,000), a package centered on the lauded PRD NEO3 planar ribbon driver, which is known for super-smooth, upper-end clarity. The complete



**Tannoy Ellipse iDP monitor**

surround system includes four passive HT6.5S two-way speakers, a passive HT6.5C dedicated center-channel speaker and the 150W HT6.5W powered subwoofer. All full-range speakers included in the package are video-shielded, bi-wireable and feature gold-plated terminals, custom grilles and high-polish ebony piano lacquer finishes. The 8-ohm HT6.5S speakers feature a 42 to 25k Hz frequency range, a 6.5-inch woofer, a PRD NEO3 ribbon tweeter and handle 100W RMS (200W max). The 4-ohm HT6.5C has dual 6.5-inch woofers, a PRD NEO3, a frequency range of 48 to 25k Hz and handles 150W RMS (300W max). SLS' HT6.5W subwoofer has a 6.5-inch, high-excursion woofer with rubber surround, a response of 25 to 150 Hz with a 50 to 150Hz variable low-pass crossover and an internal amp with a power handling of 150W RMS.

Two striking surround systems from Tannoy ([www.tannoy.com](http://www.tannoy.com))—the Ellipse 8 iDP™ 5.1 (\$14,995) and Ellipse 10 iDP 5.1 (\$16,995)—are built from the company's visually striking monitor series, the Ellipse. Incorporating Tannoy's WideBand technology, the Ellipse range features three-way active monitors utilizing Dual Concentric drivers and a separately housed Super-Tweeter™. Also, Tannoy's included iDP (Interactive Digital Programming) technology offers DSP-based room-optimization capabilities. The Ellipse 8 features 8-inch dual drivers, the Ellipse 10 features 10-inch dual drivers and both models deliver frequency responses extending above 50 kHz. Both the Ellipse 8 and Ellipse 10 offer two-way amplification via a 200W amp for the woofer and a 200W amp for the tweeter/Super-Tweeter combination. The Ellipse 8 iDP 5.1 system includes five Ellipse 8 monitors with a powerful 1,500W active subwoofer—the Ellipse TS212 iDP—which features dual side-firing 12-inch aluminum cones. The Ellipse 10 iDP 5.1 system also features the TS212 iDP sub and is completed by five Ellipse 10 monitors. ■

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

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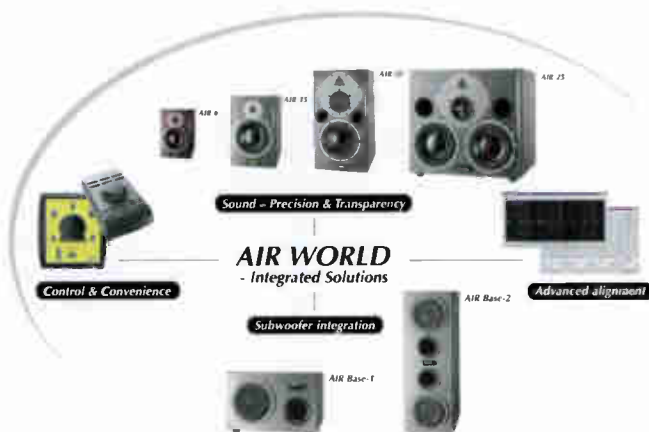
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PHOTO: RENEE ADJUAR

## Product Hits From

# NAB 2004

**F**rom April 17-22, 2004, nearly 98,000 audio, video, film and broadcast pros went to Las Vegas for the annual National Association of Broadcasters Convention. For five days, hardy attendees endured jam-packed exhibit halls, interminable

taxi lines and the pleasure of paying \$225/night for a hotel room that just days before was \$59. However, for those seeking the latest technologies, the quest was worthwhile. On the video side, the hot topics were affordable HD production systems (such as Apple's Final Cut Pro HD) and new tapeless ENG cameras using solid-state memory cards (such as Panasonic's DVCPRO P2 format). On the audio side, we found plenty of cool goodies. Here are a few.

### CONSOLES: BIG NEWS!

In past years, the talk at NAB centered on desktop video, HDTV and DVD authoring. To be sure, these were all present, but this time, the buzz was consoles: big consoles.

During the show, Digidesign's (www.digidesign.com) booth in the Avid pavilion was packed with people checking out its new large-scale ICON mixing environment for Pro Tools, which was previewed in *Mix's* April issue.

Mindful of the growing DAW controller market, Solid State Logic (www.solid-state-logic.com) unveiled its AWS 900, a 24-channel desk that

uses the same components as its XL 9000 K Series consoles. The 8-bus, \$85,000 list board is to be sold through GC Pro dealers and includes control of various DAW platforms and plug-ins, as well as a serious analog console with 24 mic preamps, switchable E/G Series 4-band parametric EQ, assignable dynamics, moving faders and more. (See the "Technology Spotlight" on page 118 for more details.)

Mixing film? AMS Neve's (www.ams-neve.com) updated, speed-supercharged DFC Gemini pairs its top digital film console with the new CineFile™ dubber to create an integrated edit/mix system for high-end facilities. A year ago, DiGiCo (www.digiconsoles.com) showed the mid-priced Soundtracs DS-00 scalable, medium-to large-format digital console. Now, it's delivering the specialized FP-00 film section option, giving users true film-style control with dedicated paddle switching (recall of all paddle functions during the session). Harrison's (www.glw.com) MPC-3D updates the original MPC, with 8-band EQ per strip, integral TFT screens displaying the multi-operator IKIS automation platform with 10 EQ shapes and expanded dynamics control selectable from standard pointing devices or optional TouchPen interface, 40-bit digital processing and up to 768 channels per digital core.

Studer's (www.studer.ch) new Vista 8 console combines the broadcast features of its Vista 6 with the dynamic automation of the Vista 7. Vista 8's Control Bay center section—housing a Vistonics screen with 40 rotary encoders, switches and 12 faders—can control inputs, outputs or groups, and general and global functions, and provides assignable high-res metering. New versions of Euphonix's (www.euphonix.com) flagship 5-B digital broadcast desk allows 96 channels/24 buses on a single mixer core. The new 5-BP supports up to 310 assignable channels with mix automation, allowing one

By Kevin Becka  
and George Petersen

Above: Showgoers packed in to see Digidesign's new ICON console.  
Below: Mackie dXb+400





DPA WindPac 4000

system to handle both on-air and audio post chores. Also new for System 5 is a **Soundmaster** ([www.soundmaster.com](http://www.soundmaster.com)) ION option for sync and motion control of up to 16 devices/ transports.

After three decades of supplying high-end broadcast gear in Europe, **Lawo** ([www.lawo.ca](http://www.lawo.ca)) has established a North American office and is targeting the U.S. market with the mc<sup>2</sup> 66, a mid-priced digital console that merges an ergonomic control surface with a central core routing matrix of up to 192 fully equipped channels and 144 summing buses. It comes in 48x8, 56x8 and 64x8 fader configurations with a lean Linux control operating system, a 3,072 I/O matrix and 7.1 surround support. Decidedly more affordable, **Mackie's** ([www.mackie.com](http://www.mackie.com)) dXb•400 post and broadcast digital console features a 96x96-channel I/O matrix, 72 96kHz channels with DSP (36 at 192 kHz), 24 mic buses with dynamics, full 7.1 surround monitoring with fold-down function, mix-minus busing, on-board Universal Audio LA-2A and 1176 compression and much more.



Holophone H2-PRO

#### DAWS: STILL HOT!

The PCM-H64, **SADiE's** ([www.sadie.com](http://www.sadie.com)) high-end multitrack DAW for post and music, is built around the new TNG3 processor card, offering real-time editing, EQ, dynamics control and full surround mixing of 64 channels of 48kHz/24-bit audio (or up to 16 channels at 192 kHz). I/O options include analog, digital and MADI at standard or higher sample rates. The system is scalable and can carry up to four cards, offering 12 Gflops of raw audio DSP processing power in a single computer.

**Fairlight** ([www.fairlightau.com](http://www.fairlightau.com)) announced QDC-XT, a powerful new engine for its DREAM workstations and Constellation digital console, as well as Version 3.2 software and a Virtual Studio Runner feature set that speeds communication, networked

file exchange and workflow within the studio. Also, Fairlight's Plug-In Manager 6 hardware opens the system to using a suite of 80 low-latency VST plug-ins. You can't call them just a "workstation company" anymore.

**Adobe's** ([www.adobe.com](http://www.adobe.com)) Audition 1.5 is a DAW optimized for video, but is also impressive as an audio-only production tool. The Windows-only app offers ReWire and VST plug-in support, sampling rates up to 10 MHz, 128 stereo tracks, 500 royalty-free production loops, pitch correction and clip time-stretching. Other features include unique offline panning, extensive MIDI support and an integrated CD burner.

The HR Series of PCX sound cards from **Digigram** ([www.digigram.com](http://www.digigram.com)) feature 24-bit/192kHz converters, eight input/outputs, sample rate conversion and greater processing power (including extra DSP for future developments). The cards can be purchased with either digital (PCX881HR) or analog (PCX882HR) I/Os.

**Apogee's** ([www.apogeedigital.com](http://www.apogeedigital.com)) small but impressive X-Series-HD card piggybacks on its Rosetta 800 8-channel AD/DA interface, offering direct connection to Pro Tools|HD Core or Accel cards; in essence, tricking the system into thinking it's a Digi interface. The \$599 card includes an expansion port to daisychain multiple Apogee devices. The setup

also allows Rosetta to be used next to Digidesign's 96 I/O, 192 I/O and Prism's Dream ADA-8.

#### SURPRISES BIG AND SMALL

As reported in the April *Mix*, **Dolby** ([www.dolby.com](http://www.dolby.com)) debuted Dolby Digital Plus, an enhanced AC-3 audio compression scheme designed to pack more audio into ever-smaller data pipelines. Just before NAB, the Advanced Television Systems Committee (ATSC) elevated the protocol to Candidate Standard status as part of its work on next-generation broadcast and transport systems. The codec wars have been heating up as of late, with SRS, Microsoft,

Telos and DTS all muscling in on delivery for broadcast, DVD and the Internet.

**Holophone's** ([www.holophone.com](http://www.holophone.com)) H2-PRO is its next-generation multichannel surround microphone. Housed in a tough 7.5x5.7-inch, egg-shaped body, the mic has inset condenser capsules (5.1, plus top and center rear) for capturing discrete 5.1, 6.1 and 7.1 sounds. The feeds terminate in standard XLRs for connection to your mixer, preamps or recorder.

**DK Audio** ([www.dk-audio.com](http://www.dk-audio.com)) taught its old dog a new trick with a remote sensing platform for its modular MSD600M family of audio meters. This 19-inch frame separates the I/O and measurement hardware from the user interface, connected via a Cat-5 umbilical. Freed from encumbering cables, the UI can be mounted freely in any position, even in tight spaces.

**DPA** ([www.dpamicrophones.com](http://www.dpamicrophones.com)) generated a lot of interest with the debut of WindPac 4000, an ultralight (9-ounce), water-resistant windshield. The zepplin-shaped device combines a universal shock-mount that holds up to two mics and a collapsible, flat-folding windshield. The fabric blocks wind noise in gusts up to 70 mph while allowing accurate sound reproduction and audio transparency.

The first name in location recorders, **Nagra** ([www.nagra.com](http://www.nagra.com)) demoed ARES-513, a compact field recorder that stores stereo signals to 16-bit/48kHz Broadcast .WAV files on PCM-CIA or Compact Flash cards. The \$2,000 deck runs on a Lithium Ion pack or AA cell, and has balanced analog I/Os and a USB output.

There was more at NAB, so watch our upcoming new products sections for more innovations from the show. Meanwhile, the convention returns to Las Vegas from April 16-21, 2005. Book those hotels now! ■



SADiE PCM-H64

# Peter Gabriel

## Music Pioneer Embraces Surround and Online Distribution

Much has been written about Peter Gabriel during the years: A founding member and theatrical front man for the progressive art-rock group Genesis from 1967 through 1974, Gabriel has had a successful solo career for a quarter-century and has made a name for himself as a rock video pioneer, recording studio owner (Real World), world music label chief (also called Real World) and human rights advocate. Gabriel's fascination with the possibilities of technology, his broad musicality and his natural, ingrained spirit of altruism have made him a hero to forward-thinking artists the world over, inspiring others to think outside-the-box for the good of art and humanity.

For this "Mix Interview," we eschewed the usual questions concerning Gabriel's recorded history and addressed his thoughts on a number of issues facing the music industry today: online music distribution, copyright protection, surround audio and his latest passion, an artistic co-op called MUDDA ([www.mudda.org](http://www.mudda.org)), which he has formed with Brian Eno. (Okay, he also plugs his latest concert video, *Growing Up Live*.) As always, he proved to be an articulate and passionate spokesperson for rank-and-file musicians and music fans.

*One of the highlights of my DVD-viewing existence during the past few months has been experiencing your Growing Up Live release.*

Oh, great! I appreciate that. I'm very happy you like it. *Not only is the music great, but also one of the things that really stands out is the cinematography. You could freeze-frame almost any moment and it would work as a well-composed photographic still.*

We had some good cameramen, and Hamish Hamilton, who did the direction, is very talented.

*"Darkness," which is off of your last album (Up), is a potent meditation on the power of fear. As a recording, it is mesmerizing and disturbing, but in its live form, there is something special—almost an element of grace or vulnerability that is added—that happens in front of a packed house.*

Yeah, that comes alive more. I think one of the things about writing in the studio is that the song hasn't matured, if you like, so quite often the vocals are early attempts. Whereas once you've taken



PHOTO: ARNOLD NEWMAN

it out on the road a bit, you learn more about a song. I've never really done it, but I know I would like to tour an album before I record it. [Laughs] One day, perhaps, I'll get around to doing it.

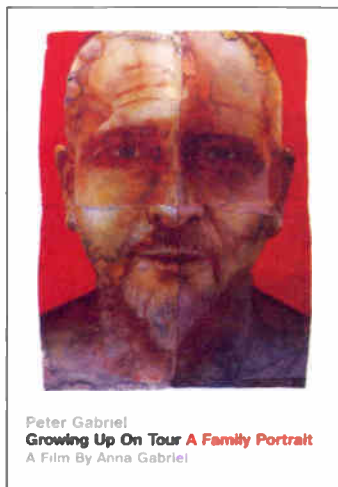
I think that you get the mood of a song stronger if you get it right that way. On the other hand, you put some songs out live and they don't catch flight. They just flop. It is hard to tell until they are out there.

There was one that we worked on in production called "My Head Sounds Like That." We did it in a couple of shows where we were performing to smaller audiences without production and it was one of the stronger songs. Then, when we tried it in the production, it just didn't seem to hold people's attention, but it might have been the way we were doing it.

*Have you thought about putting out Growing Up Live as a straight CD release?*

We did think about it. Maybe that is something to look at later on.

*In the meantime, you have made your concerts from last year's tour available to fans through the Internet in the form of the Encore Series.*



Peter Gabriel  
*Growing Up On Tour A Family Portrait*  
A Film By Anna Gabriel

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## MUDDA

THE INDIVIDUALIST UNION OF PROLETARIAN DOWNLOADING ARTISTS

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We are now witnessing the most fundamental transformation of the selling of music since records were first invented. The economic restraints of the traditional business model have for all these years dictated what music can be made and when and how it can be sold.

If artists are willing to act together there are extraordinary opportunities both creatively and commercially

Doctor Donkey McDonald has for a long time wanted to experiment with a friend on a piece they are very excited about, but which the record company doesn't want to fund or sell.

...JUST ASK MUDDA



The relationship of artist to the business has most often been one of contract and servitude. We believe the way forward must be a partnership in which the artist can take a much bigger role in how their creations are sold, but also have the chance to stand at the front of the queue when payments are made instead of the traditional position of being paid long after everyone else.

Four years ago I co-founded (and am now a shareholder in) a digital downloading service with Charles Grimsdale, called [OD2](#). I got involved because I thought there were interesting opportunities and I wanted to have access to digital delivery both for my work and for all the artists on [OD2](#).

Although [OD2](#)'s initial focus was the Independents, we are now Europe's number one digital distributor for music

What we are now looking at is if we can get enough artists so that MUDDA could have its own Website and then sell from there to the 36 digital retailers we have in Europe. There wouldn't be as much of a margin through that route, because the retailers would be taking their slice of the cake, but we would at least make sure that people's work was distributed.

—Peter Gabriel

Yeah, in the digital world, it is so much easier to put stuff out without a great deal of paraphernalia and fanfare.

*Your involvement with music distribution and the Internet became a more formalized business endeavor with the creation of OD2 (On-Demand Distribution), which you formed with Charles Grimsdale.*

When we started OD2 in 1999, we were really expecting to work more with independents and so on because the major labels were spending millions on their own Pressplay and equivalents online, which haven't been very successful. Over time, we ended up working with all five majors in Europe, and we're currently the Number One distributor in Europe. iTunes has announced that they are coming in, but they haven't yet started over here.

Concerning iTunes, the deals have mainly been done with the record companies. But the artists, with some exceptions, haven't been very well-represented. This is partly because the record companies have largely been copyright owners. That has

also been true, to some extent, with OD2.

Apple is doing what they've been accusing Microsoft of doing for so many years: employing a closed system. We've asked whether we could have access to their digital rights management and so on, so we could sell to the Mac community. However, they have kick-started [downloading music on the Internet as a viable undertaking] and it has definitely helped. Even though we've been running a while, iTunes' success has definitely helped us, so I have some mixed feelings. But what worries me is that deals are being done now that are going to shape the future, and I think that the artist is not visible enough and the independent artist and label aren't visible enough.

*So as OD2 increasingly did business with the majors, the idea of creating MUDDA as an empowered artistic collective or voice became a necessity.*

OD2 was a business opportunity, but as a musician and minority-interest record company, it was also a chance of being involved in the distribution.

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We are trying to change things and allow artists to be at the front of the food chain and become their own retailers and keep a big part of the margin. They can get paid directly as the money comes in and they can monitor it day-to-day totally transparent. That is a model that I would like to see adopted by the music business.

That model, in our dreams, would be a powerful representative of artists' opinions and needs, as well as a place where people could actually get the music. We wrote a little manifesto with just some ideas on how this digital revolution could transform music-making itself, and that is the part that people have generally ignored so far. They've been totally preoccupied with the business side of it, but not so much with how the new formats—or the freedom of formats—could change the nature of what exactly is created.

One thing that really appeals to me is this idea of music being a living thing that has an evolution that, in a way, enables the artist to sell a process rather than a piece of product. That is now possible. Those artists who are comfortable doing this can offer everything from the earliest demos to the first recordings and the different mixes, arrangements and live versions. People could really hear how a piece of music evolves rather than just the one moment that gets frozen in time and becomes the defining version and maybe a live version. In classical music and jazz, there is obviously a longer history of different interpretations of pieces of music. The whole thing could be made available and we think that the artist's Website is the ideal place to do that.

*Is this an enterprise that you are trying to staff?*

Yeah. [Laughs] It has a staff of one. We have a guy named Jon Webster, who used to run Virgin in the UK, so he's a gamekeeper-turned-poacher, I guess. He was the guy who thought up the Mercury Music Prize, which featured new and lesser-known bands and artists from many different genres that's not industry-owned, if you like. The industry does have some influence on who gets other awards. With the Mercury Prize, they don't. Jon comes from the business, but his heart is still very much in the music. Currently, we have about 12 major names that have said they want to be a part of MUDDA.

I think another thing is that we don't really want exclusivity. We accept that it is in the artist's interest to be on sale in every place where they sell music. Right now, we are just putting our fingers out there and saying we think that this would be a good initiative—that it should be an artist-owned cooperative—so that artists feel that they can



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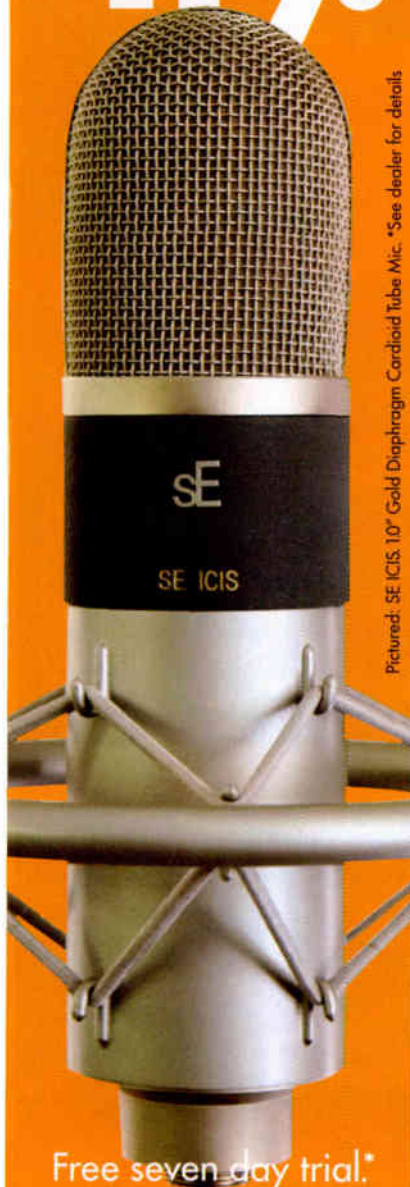
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*The issue on protection and compensation of intellectual and creative property has increasingly been a daunting undertaking.*

I'm a bit cynical that it ever will be addressed properly. I think it is healthy to get some sort of copyright protection. But some of it has gone on forever.

People go on and on about the copyright issue, and that is central to what is going on now. Someone sent me an article from the *Register* this morning about this person named Fisher who has proposed an extra \$6 per month on every broadband user's bill that would supply enough revenue to pay all the money that is earned from records and films. Maybe then you could get it all free—with free exchange. I think it is a very interesting idea and in the macro version of it, I can see a lot of good arguments.

Nevertheless, I have observed for over 30 years how these blanket payments get made. As an individual artist and as someone who works with world musicians, for instance, I know that, historically, minority interest artists and all young artists are at the bottom of the food chain. I think it is the weak and the young and the minorities that you need to look after to get a healthy creative environment—to get a lot of choices, a lot of different styles of music, a lot of experimental stuff that everyone else feeds off.

I think this is best served by an old-fashioned idea, which is copyright. So I'm not saying that you couldn't overcome these problems in other ways, but, currently, there is no evidence that I have seen that these big commercial interests will adequately protect the rights of the less powerful. Older, more established artists are going to find ways to survive very comfortably, I'm sure, as we have—whether it is through film or through live [performance] or any of the different ways that we can sort of try and exploit any of the channels open to us.

*Your catalog was released on SACD last year. When we received the releases, a number of us convened at Georgetown Master-*

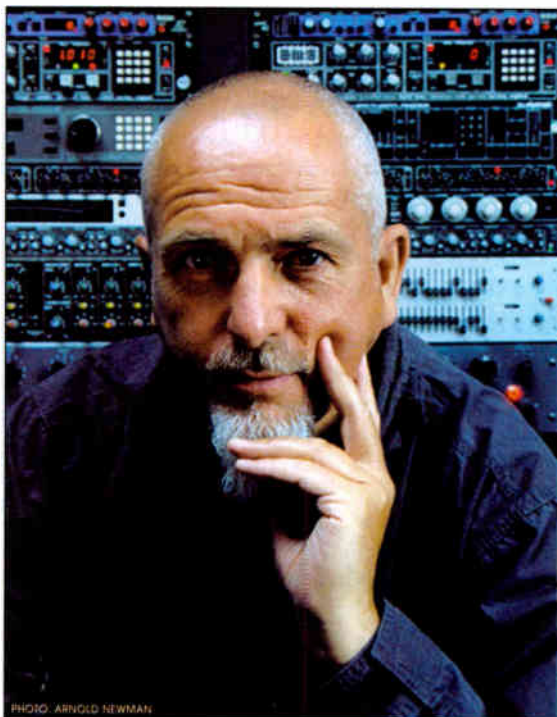


PHOTO: ARNOLD NEWMAN

Peter Gabriel on MUDDA's mission statement:

"In this Walter Yetnikoff biography that just came out, one of the quotes is that his policy was to pay artists as little as possible, sign them up for as long as possible and recoup as often as possible. That in no way is what I would call a partnership. I think that the new model needs to be a partnership. That is partly why Brian Eno and I are trying to get MUDDA off the ground. We think that if enough artists get together, then there will be a voice that should be listened to. We feel that there are extraordinary opportunities, both creatively and commercially, for artists, and if we don't act together, we will be left at the bottom of the food chain as usual."

*ing in Nashville to listen to them. The first thing that inspired remarks was that the SACDs weren't backward-compatible.*

Yeah. You can only play them on an SACD player, which is, I think, a space issue as far as I understand. I would prefer that you could play them on anything.

*You can format SACD to have another layer that can play CD. That is easily doable. I was curious as to why that happened. The Rolling Stones CDs came out before yours and they were able to play on both CD and SACD units.*

I think it is because most of the manufacturers want to persuade you to buy their thing, or maybe it is the record companies who want you to buy the catalog again. I don't know. It's silly, isn't it?

*Do you have a preference for DVD-Audio or SACD personally?*

When we did the blind tests, SACD came out a little ahead for us, but they are both worthwhile improvements over what we have at



the moment. To an average listener, there may be small differences, but as you know, when you spend so much time in the studio trying to get things to sound right—anything that allows people in on all of that work and the effort that you put in you appreciate. Another one of those blind tests that we did recently was some of this watermarking that they do. They put it into the high frequencies and you are supposed to not hear it. EMI had put out all of their records with this stuff all over it, and on 90 percent of the occasions, we could hear it very clearly.

**What are your thoughts on 5.1?**

I love 5.1. Sometimes you can't squeeze everything in comfortably into a stereo picture. There is a lot more space in a 5.1 environment.

**Have you considered doing 5.1 on your catalog albums?**

Yeah. We started doing that now. We've done *So* and *Up* and we are going to gradually do them all. But most companies, I'm disappointed to say, are just throwing these out to people who sort of rush them through without a lot of love and attention. It is a crying shame.

**In the spirit of care and love, are you planning on getting Steve Lillywhite or Daniel Lanois involved in the surround production of the albums they were involved in producing?**

Kevin Killen had approached us and said that he would love to do *So*. So that was really the initiative behind that. We tried to reach Dan at the time and get his input, but whether some of the producers want to take the time to go backward, if you like, I don't know, but we can certainly ask. I would like to give people the opportunity.

**There is an amazing lack of attention and vision at the labels to understand the power of surround.**

Yeah. And the potential. In their eyes, it is like they want to have 5.1 for as few dollars as possible. Like most things in life, if you want to put love and attention into something, it will most likely have greater worth to people and mean more to them. That is certainly true with this 5.1 thing.

I really encourage people through this magazine to take some time and effort and get people who really care [to do] your 5.1s, and if you play with sound or enjoy sound as most of us do, then there are some wonderful things you can do with it and allow people inside the music in ways that they haven't been allowed before. ■

*Rick Clark would like to thank Sujata Murthy, Amy Gardner, Annie Parsons and Jon Webster for their help in this article.*

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# Whip Records

## Burgeoning Bay Area Studio Offers Artists Room to Groove

Tucked into a hilly Berkeley, Calif., neighborhood known more for its coffee shops and quaint Victorian houses than as a haven for recording artists, Whip Records' studio is the culmination of owner/engineer David Landon's life-long love of music and technology. Though completed in August 2001, Landon, a musician, producer and manager of various studios in the San Francisco Bay Area and abroad, worked toward his vision for many years before he ever laid the studio's framework, gathering pieces of recording gear and even salvaging custom-made oak doors from San Francisco's historic Russian Hill Recording Studios prior to designing his own recording space in the footprint of the large garage adjacent to his home.

Serious planning began in 1999. During a two-month period, Landon, architect Robert Remiker (whose credits include The Plant and Skywalker Sound, both in nearby Marin County) and acoustician Bob Skye (previously of San Francisco acoustic design firm Charles Salter & Associates) developed studio plans that included a live room (with iso space), a drum room, a second iso booth/tracking room and a large control room—all in 650 square feet. Cooperative neighbors, advice from studio owner friends and thorough planning allowed Landon to maximize his space. As he recounts, the "real challenge of designing the place was to figure out how to get those four spaces and still have good sight-lines, still have proper acoustics and still have a place to run the air conditioning."

Designed and built from the ground up, the studio measures 35 by 27 feet, with 14-foot vaulted ceilings. Each room is isolated from the others, and a floating floor in the drum room prevents sub vibrations. In keeping with the feel of the old Russian Hill doors that frame the entryway, the studio boasts natural oak wainscoting and trim.

The comfortable, spacious control room in the L-shaped studio is home to a 56-input Mackie D8B and Pro Tools MIXPlus 5.1.3 system with ADAT bridge. Genelec 1030A and HHB Circle 5 monitors are powered by QSC power amps. Additional gear includes Avalon 737 and 747 preamp/compressor/EQs, UREI 1176 limiters, Lexicon reverbs and TC Electronic's Finalizer Plus. As a studio built by a musician for musicians, Landon offers a number of high-quality instruments for his clients, including a 1976 Steinway Model L concert grand piano, a variety of Gibson and Fender guitars, even a Boss DR-660 drum machine. The studio's mic closet is full of Neumann, B&K and AKG microphones.

The live room, which can accommodate up to seven musicians, was designed modularly so that the piano storage nook at the far end of the room, when empty, can become a semi-isolated space. The entryway at the near



Whip Records owner/engineer David Landon (pictured) designed his studio for ensemble groups and solo artists.

end also acts an iso booth, with gobos and mounted Fiberglas and pressboard acoustic treatments. The rooms are set up to offer clear lines of sight to the next, one of Landon's design criteria.



A talented musician with two CDs out, Landon brings an artist-to-artist perspective to every project. "Even a lot of very accomplished artists don't have extensive recording experience, so going to the studio can be intimidating for some," he notes. As an independent artist and label owner, Landon knows a thing or two about recording budgets, so he has made every effort to keep his rates reasonable. "Someone can come to this studio and get three times the amount of time for the same amount of money than they would if they were in a bigger studio that would produce a comparable sound," he claims.

Given the enormous pool of musicians in the area, it makes sense that Landon wants to strengthen the symbiotic relationship between Whip Records' studio and label. The studio's roster of clients includes jazz artists Jon Santos, Omar Sosa and Baba Tunde Lee, guitar virtuoso Alex Degraasi, gospel group Committed Ministry, and blues specialists Alvon Johnson and Michael Peloquin.

"Building a studio is very hard," he says. "If I had known how hard it was, I don't know that I would have had the courage to go through with it. I just love being in the studio. It's like an artist going to a workshop to paint or to sculpt. I love the recording process where you can take a song and, as you overdub and experiment, the colors change and you've made something that was never there before." [www.whiprecords.com](http://www.whiprecords.com)

Breean Lingle is Mix's assistant editor.

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World Radio History

## The Von Bondies



PHOTOS: STEVE JENNINGS

Fusing raw garage and true punk with a smattering of soul, the Von Bondies are currently hitting small- and large-capacity clubs as they make their way through the States and then to the UK in support of their latest release, *Pawn Shoppe Heart*. Nabbing Jerry Harrison to produce their first major-label effort helped the band catapult themselves into continual radio play and appearances on MTV. However, the band's front-of-house engineer, Steve Small, hasn't had the same luck: He must contend with the equipment that the venue offers. *Mix* caught up with Small the night before the band's Chicago gig in mid-March; photos were taken at San Francisco's Great American Music Hall later that month.

"With smaller venues, you have to work around the sound that's coming off the stage," Small says. "I use the P.A. to compensate for that. If the P.A. is really weak, we'll try to get them to turn down the volume—especially in a small room. Sometimes, you just have to go with it."

While Small compensates for venue-provided gear, he does carry a tech rider. "At front of house, I use the house system—anything from a 24-channel Mackie up to a Crest." For effects, the band carries its own backline and Small lugs around a few compressors with him such as a dbx 1066 and a Behringer Composer. Off the board, he employs a digital delay and two reverbs to create a retro effect on the vocals, which are miked with a Shure Beta 58. Guitars get treatment from 57s and the rest is dependent on what the venue offers, including the band's wedges. Small also serves as monitor engineer when the venue doesn't provide one; he sets monitors up on the FOH console's auxes.



Front-of-house engineer Steve Small

## FixIt

### Steve "Woody" La Cerra

*Steve La Cerra is currently mixing front of house for Blue Öyster Cult.*

When mixing a loud band in a small club or theater, time-aligning the main P.A. speakers to the backline can focus your mix's low end. Even modest venues provide drive processors at the mix position that incorporate delay on the main outputs. Measure the distance (in feet)



from the backline directly downstage to the P.A. mains' "acoustic center." Multiply this distance by 0.9 (the speed of sound in air at 70 degrees is just under 1 foot per second), which results in the number of milliseconds of delay to "dial in" on the processor. This small delay—typically ranging from 15 to 30 milliseconds—will hold back the P.A. speakers for sound from the backline to catch up. This helps avoid cancellation of low frequencies due to the instrument amplifiers being acoustically out-of-phase with the P.A.

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## News



*Delicate Productions (Camarillo, Calif.) was on-hand to manage audio challenges during the Magic Johnson All-Star NBA Tribute at the Shrine Auditorium in L.A. using Martin Audio's W8L line array in a flown pattern.*

The Science Spectrum Omni Theater (Lubbock, TX) installed a new Precision Directivity PD5000 loud-speaker system comprising six PD5200/95 mid-high systems, six CST21DQ Diamond Quad Array low-frequency systems and four dual 18-inch 4642A subwoofers. Six full-range clusters hang behind the perforated viewing screen's façade...Advanced Communication Equipment (Hong Kong) used BSS Audio Soundweb systems on installations for the Cheng Ping Culture Center (four BSS Audio 9088 Soundweb units, speaker delay taps and EQ processing, and a Soundcraft MH4 console using Crown CTs Series amps) and Xi'an People's Hall (five 9088 Soundweb units with JBL AE6000 Series monitor rigs in an LCR configuration and powered by Crown amps)...Nottingham, England-based P.A. rental company Sound of Music Ltd. acquired a 40-channel Allen & Heath ML4000 for front-of-house duties for Australian ABBA tribute band Bjorn Again's...Copperhead Sound (Decatur, IL) upgraded its reinforcement system with eight Sound Physics Labs SPL-t11 complemented by existing eight ServoDrive BassTech 7 sub enclosures. The stacked system uses Crown Macro-Tech amps.

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World Radio History



PHOTO: GETTY IMAGES

## On the Road

### Brian Hendry

Monitor engineer Brian Hendry is on the road with soulful vocalist Joss Stone, who is out supporting *The Soul Sessions*. Hendry reveals tricks from stage-left on carrying most of the gear and taking time out to relax.

#### *How much production gear do you carry?*

We are carrying all of our backline. We carry a Midas XL3 for monitors and an effects rack, and an effects rack for FOH. We also carry all our in-ear systems (eight total) and a drum stool shaker. All our ear molds are from Future Sonics.

Joss prefers to use just one in-ear, so at each venue, I'll hook into the house sidefills and a pair of wedges downstage. For the drummer, I'll also use a sub bass cabinet so he'll feel some air moving behind him.

Joss, two backup singers, the guitarist and bass player are on wireless Sennheiser Evolution 300 Series, and the upstage guys, two keyboard players and the drummer use Shure 600 hardwire units. We carry our own mics: Sennheiser Evolution radio series for Joss; an 865 with 935 capsule and three 865 wired for backing vocals; 602 for kick and bass; 903s for both snares; 604s for toms; and a 609 silver for the guitar.

#### *Are there any clarity problems you encounter with the theaters Joss plays in?*

The ambient onstage sound varies quite a bit. For each in-ear mix, I'll use a tight reverb to match the venue. Sometimes it's an uphill battle, but with the in-ear rigs being very efficient, it's not insurmountable.

#### *Do you have any must-have pieces of gear?*

My Future Sonics ear molds, my Sony 600 headphones and my bass fishing gear. Most of the shed gigs have fishing holes nearby—it's great to get away from the music biz thing for a while.

#### *What do you do in your free time?*

My time is usually taken up by my wife, three daughters and the pets. I love being home but also love my job—I'm a very lucky man.

## Now Playing

### Joan Baez

Sound Company: racks and stacks rented locally  
FOH Engineer/Console: George Cowan/Yamaha DM2000 with two 8-channel optical I/O paths (ADAT Lightpipe) for recording

Monitor Engineer/Console: Jason Raboin/  
Midas Venice 320

Monitors: four wedges on four mixes (provided by promoter), three Sennheiser EW-300 IEM sets (Joan; Graham Maby, bassist; Cowan), two Rolls headphone amps (hardwired in-ear mixes)

Outboard Gear: 17-inch Apple G4 PowerBook running Digital Performer, two MOTU 828 FireWire AD/DA interfaces, Focusrite ISA 220 (mic pre, EQ, compressor, de-esser for vocal), PC laptop running SIA Smaart Live, eight channels of dbx 1066 compressors

Microphones: Neumann KMS 105 (vocal), Sennheiser Evolution Series (e602, kick; e604, toms; e903, snare top/bottom; e609 Silvers, guitars; e935, backing vocals), Shure SM98 (kick, beater side; doumbek), AKG 414 (overheads) and KM84 (bells)



### stellastar\*

Sound Company: provided by venue/backline provided by band

FOH Engineer/Console: Darren Morze/Crest X VCA or Soundcraft Series 5

P.A./Amps: EAW arrays or floor systems with Crest power amps

Outboard Gear: Drawmer DL241, DS201; dbx 166XL, 160X; Valley People GateX; BSS DPR-402; Yamaha REV500, SPX90 or 990; TC Electronic D2; Roland SDE1000

Microphones: Shure Beta 58, Beta 57 (vocals, snare bottom); Beyer M201 (guitar amp, snare top), M88 (bass amp); Sennheiser 409 (guitar amp), 421 (bass amp), 604 or Shure SM98 (toms); AKG D112 (kick) and 451 (overheads, hi-hat)



PHOTO: BIVAN

## Sydney Opera House Reinforces Concert Hall

The world-famous Sydney Opera House's new audio system upgrade in its Concert Hall comprises 11 Lake Contour speaker processors driving a permanently installed central cluster of JBL speakers. Four more Contours control Meyer line arrays, which can be configured from Meyer M3D, M2D and M1D models. A hard-wired desktop PC provides an interface with the Lake Contour Controller software and the Crown IQ amplification via an Ethernet network.

A laptop at FOH, with the same setup as the desktop, acts as a dedicated SIA Software SmaartLive measurement/analysis machine; measurements are transmitted to a Compaq tablet touchscreen dedicated to Contour Controller.



Future plans include integrating an AMX system with the Lake Contour VLAN (Virtual Local Area Network) and the Crown IQ VLAN to control all of the audio processing systems.

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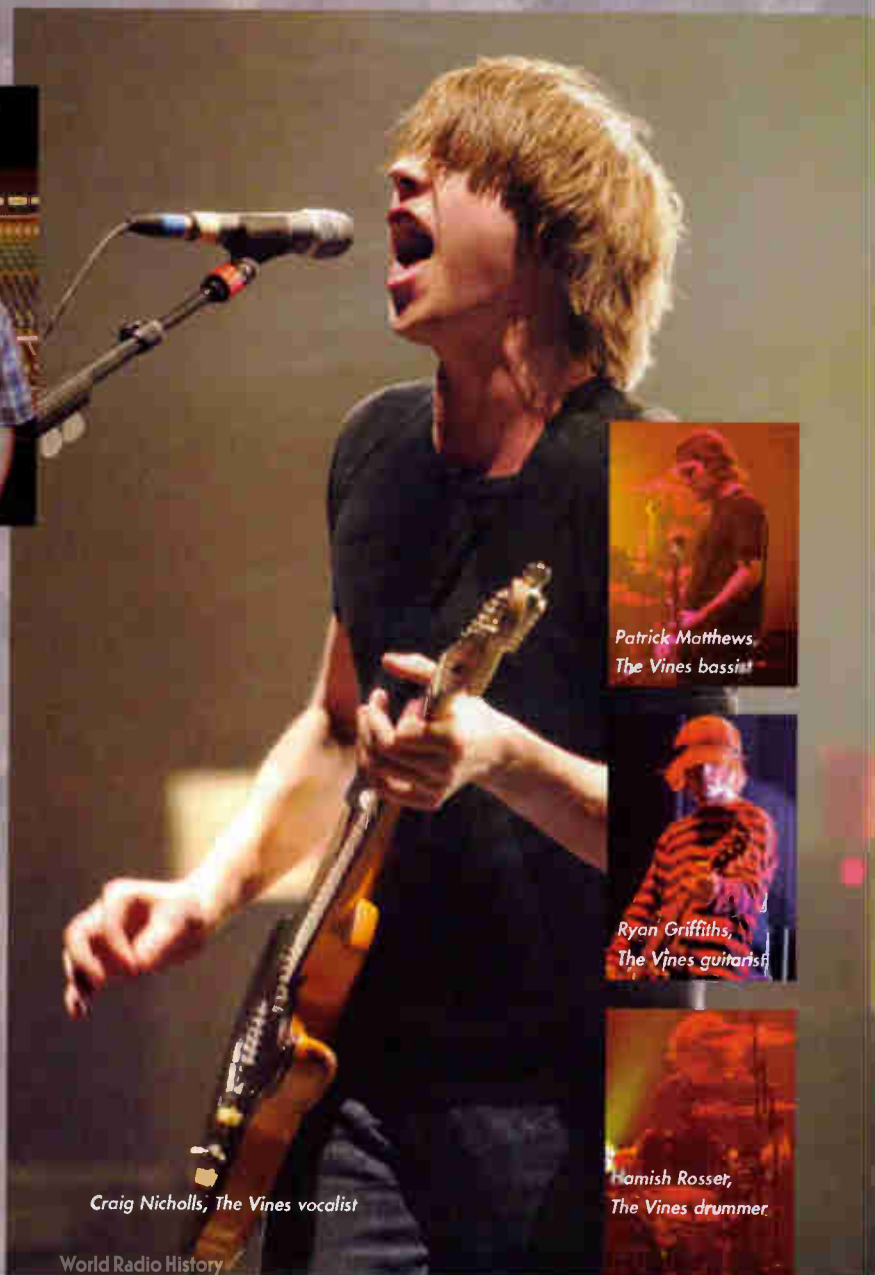
# THE VINES

## JET / THE LIVING END



The Aussie Invasion tour hit San Francisco's Warfield Theater in early April 2004 with a triple-punch from The Vines, Jet and the Living End. *Mix* spoke with the engineers about this leg of the tour, which carries a minimum of its own production. The next leg of the tour will invade clubs in Europe, followed by venues and festivals in the UK.

Photos and text by Steve Jennings



According to Vines' front-of-house engineer Matthew Kettle (left), on this leg of the tour, he is just carrying his own processing, "favorite things like the Empirical Labs Distressors, UREI 1178s, BSS DPR-901s and 404s, and Drawmer DS201s. These have come in handy as the quality of equipment we've faced has been variable.

"Johnny [Haskett, FOH engineer and tour manager for support act Jet, pictured right] and I have known each other for a long time, but this is the first time we've worked together. As The Vines would be the band to close the show out of the two headliners, I would be the guy to line check, so I EQ'd the system every day. Johnny and Jim [Scott, FOH for the Living End] seemed quite happy with my curve and only made minor changes on a couple of occasions."

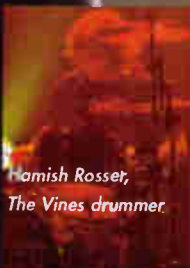
While in mixing mode, Kettle finds himself enjoying the band's genre-bouncing—Aussie power rock, psychedelic ballads, grungy punk rock—and the subsequent dramatically different dynamics. "Craig [Nicholls, vocals] likes the shows to sound different than the record. He really likes to use all kinds of vocal delays and effects on his voice. It's not the sort of thing I've used much with other artists, so I'm enjoying the other toys in the effects rack!"



Patrick Matthews,  
The Vines bassist



Ryan Griffiths,  
The Vines guitarist



Hamish Rosser,  
The Vines drummer

Craig Nicholls, The Vines vocalist





While handling monitor duties for both The Vines and Jet is tricky in itself, adding different requirements into the pot hasn't fazed monitor engineer Justin Greal. "Jet is a dyed-in-the-wool guitar rock band who like to be driven along by their stage sound. Both bands use floor wedges and Jet likes loud sidefills to reinforce the drums. They like loud kick and snare drum all around the stage, and as they sing some close three-part harmony, they need vocal clarity at high volumes and guitars to pitch to. The Vines tend to favor more individual mixes, which precludes the use of sidefills. Craig [Nicholls, Vines vocalist] likes lots of vocal level and big reverb, whereas Patrick [Mathews, Vines bassist] and Ryan [Griffiths, Vines guitarist] like lower level mixes of their own instruments. Hamish [Rosser, Vines drummer] likes a good loud kit sound and a balance of the guitars.

"I'm not carrying any inserts, mainly because of the amount of adapters that would be necessary to make gear insertable on such a variety of consoles. I am carrying two TC Electronic M1 reverbs that I use on the vocals. We use Shure Beta 57A for all vocals to get consistent results in a huge variety of situations."

Chris Chesney, Living End vocalist/guitarist



Chesney



Andy Strachan, Living End drummer  
Scott Owen, Living End upright bassist/vocalist



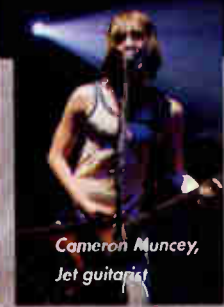
Nic Cester,  
Jet vocalist/guitarist



Mark Wilson,  
Jet bassist



Chris Cester, Jet drummer



Cameron Muncey,  
Jet guitarist

**LIVING END SOUND CREW**

Jim Scott, FOH  
Ben Shapiro, monitors/  
production manager

Unlike Kettle, Johnny Haskett, FOH engineer/tour manager for Jet, is not carrying production on this run, relying on consoles and P.A. provided from the house. "Fortunately, Nic Cester [vocals/guitar] has such a great voice that I don't need toys to help him out. We're using the same mic kit every day, supplied by our monitor engineer Justin Greal. I just started using a Sennheiser 935 on Nic's vocal. On the Aussie leg, I will be trying a complete Sennheiser mic kit."

On differences between the mixes for The Vines vs. Jet, Haskett reveals, "I'm a lot louder and prioritize the guitars and fat bass in your face. I also demand a ridiculous amount of sub, but with a good, clean, virtually unaffected vocal sitting on the top."

# VERIZON LADIES FIRST

By Strother Bullins

Shortly after the doors open at 6 p.m., a smiling mother and her two enthusiastic children hurry to find their reserved floor seats at North Carolina's Greensboro Coliseum. The teenage son holds a jersey emblazoned with the logo of hip hopper Missy Elliott, while his younger sister already wears a slightly oversized shirt featuring Beyoncé's face. "They're here to see Missy and Beyoncé," mom excitedly explains, "but I can't wait for Alicia!"

This family's enthusiasm illustrates the strengths of this spring's big Verizon Ladies First Tour 2004, featuring Beyoncé, Alicia Keys and Missy Elliott with special guest Tamia. And this isn't one major production—it's three of them.

## Mega Tour Keeps Beyoncé, Missy Elliott and Alicia Keys on Top

Ladies First offers something for everyone, and each superstar's set is that of a full-blown headliner, complete with massive production elements that require 14 tractor-trailers moving from city to city. The lineup is an excellent showcase for three of today's top female R&B artists. Beyoncé offers her formidable vocal talents while delivering what some on the tour refer to as "The Show"; Keys gives a dynamic, stylistically diverse performance with sophisticated sexiness; and Elliott's groundbreaking raps, sounds and visuals are charged with both humor and unbounded energy. With so

Missy Elliott (left) and her front-of-house engineer, Dennis Thompson



PHOTO: STROTH BULLINS

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much happening daily on Ladies First, what is the biggest challenge for the tour's consummate team of audio professionals?

"There's just not enough time in the day," laments Dave Skaff, Keys' front-of-house engineer. "It seems like the biggest challenge is that we don't have quite enough time for everything that needs to be done. On one hand, you have Beyoncé's production, her band and the things they need to do. Then from my point of view, Alicia's show has a 10-piece band, and there's rarely time to soundcheck everything. So it's very intense, very challenging."

Beyoncé's FOH engineer, Horace Ward, agrees, adding that the greatest challenges involve set changes. "Missy has a three-piece, goldfish bowl-like set, with video screens at the front, steps up to the side and a DJ hung over the top on a hydraulic. Then Alicia comes on with band risers, a central elevator platform with steps, her drops, curtains and so on. Then we come on. So, logistically, you're putting up three headliners."

**CHOOSING THE RIGHT GEAR**

Kicking off the tour in Fort Lauderdale, Fla. (which is where stage photos were taken), the Ladies First Tour hit the road with a Showco system, complete with an 80-piece, Crown-powered Prism Series array and the new Prism 2 subwoofer system. According to Ward, the hearty Prism system coupled with the new subs works extremely well for Beyoncé's set. "Because it's a dynamic performance," he explains, "they need a dynamic

PHOTO: FRANK M'CELOTTA/GETTY IMAGES

Alicia Keys belts out a superb vocal through a handmade prototype of the new Sennheiser 935.



Beyoncé strutting her stuff



PHOTO: FRANK M'CELOTTA/GETTY IMAGES

Beyoncé's FOH engineer, Horace Ward



Alicia Keys' monitor engineer, Larry Mignogna



Dave Skaff, Keys' FOH engineer



PHOTO: STROTHER BALINS

sound. Not necessarily anything that's going to hurt you, though. That's why I chose the Prism. I can get it up SPL-wise, and everyone can walk out without their ears ringing."

The tour's large-scale production caused the audio team to look closely at equipment choices, specifically in the selection of FOH consoles. Ward and company decided to use four DiGiCo D5 Live digital consoles: two at FOH and two at stage left for monitoring and mirroring FOH. At stage right, a Yamaha PMD1 desk is designated for Keys' monitoring needs.

Skaff has his own D5—patched into the system via a Midas XI88 matrix mixer—while Ward and Elliott's FOH engineer, Dennis Thompson, share the second FOH D5. Skaff, who first used the D5 on a 2003 Shania Twain tour, knew that the desk's small footprint and easy configuration would work well for Keys' set. "On this tour, because of the physical logistics going on, I can get by with this digital console and its input capabili-

ty," he explains. "With other desks, it would make our area out here so big, and production is really counting on the fact that we can do this stuff on smaller digital consoles."

This was Ward's first tour using the D5, and he has adapted easily. "I've used the Showco Showconsole in the past and I love that. Just for ease, though, I went with the smaller console. Logistically, getting around it is easy, and it's a great-sounding board."

Thompson, who agrees with Ward on the D5's ease-of-use, also found himself working on the desk for the first time. "It's the way to go," he explains. "The technology is supreme, and it's just the best thing going right now, especially for festivals and multiband participation things like this."

Showco systems engineer Wade Crawford, who stays busy sussing out potential audio problems, explains that the team has made significant efforts to ensure that the show will go on no matter what unforeseen audio catastrophes may arise. "Since we all know that no audio is bad audio," Crawford says with a chuckle, "at FOH, we have a drawer with a mixer in it. It has a left and a right off of an ear mix for monitors. If for some reason there's FOH failure, we can keep the show going."

Crawford says that there hasn't been too much to worry about as far as tuning the system is concerned. "We're running SIA SmaartLive out front, so they use that as a reference just to know what's going on," says Crawford. "Mostly, Horace is trying different things for Beyoncé, tuning the subs separately from the rest of the rig, and he's on the right track."

#### MEANS OF MONITORING

For this particular show, Keys' musicians—the largest backing band on the tour—have made an effort to get the stage volume down, which clearly helps Keys' audio team, specifically monitor engineer Larry Mignogna. "There are now 12 ear mixes, but there are also a few wedges," he explains. "Before, Alicia was using one ear and one wedge, and I just got her to use two ears. I'm slowly trying to work the wedges out."

The Yamaha PM1D works well for Mignogna. "This is my first tour with it and I love it," he says. He felt more comfortable with the console, as tour rehearsals indicated what each player needed. "After I felt that everyone was pretty much set, I started doing scenes and particular changes for different songs, and it went well." For the most part, everyone wanted *everything*: "There are a lot of full mixes," says Mignogna.

On the other side of the stage, Beyoncé's monitor engineer Ramon Morales "has a lot

going on," according to Ward. Beyoncé's seven-piece band, three background singers and various dancers keep Morales on his toes. "He's running the two D5s and something like 24 mixes off of the board," Ward explains. "There are ear mixes for the backgrounds, Beyoncé has ear mixes and sidefills, the musicians are on individual wedges and the DJ's on a wedge, too."

#### IT'S SHOW TIME!

Kicking off the Greensboro date with one-third of the crowd in their seats, special guest—and the only artist resembling an

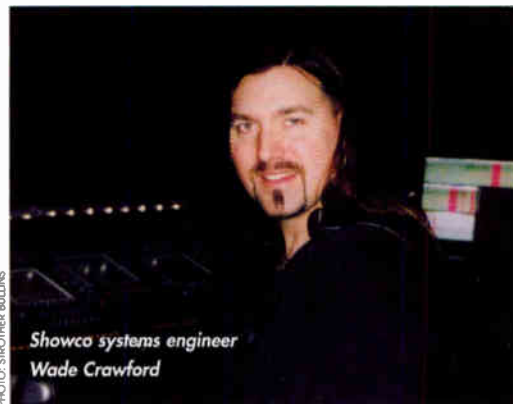



PHOTO: SIROTHER BULLINS


Showco systems engineer  
Wade Crawford

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Neil McDonald - Tour Manager, Stereophonics



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“opener”—Tamia performed a short but energetic set on a sliver of stage with a simple black backdrop. The talented new vocalist, along with four background singers, was probably allowed every inch of available stage space, considering that three major sets were behind her waiting to be unveiled.

As quickly as the house lights went on, they dimmed once again, welcoming Missy Elliott, a troupe of dancers, co-rappers, a DJ and multiple levels of energy. The concert-meets-performance art show required Elliott's FOH engineer to be ever vigilant

while focusing on keeping everything aurally straightforward. Combining performance tracks, the live DJ and Elliott's rapid-fire vocals, Thompson uses a bulletproof standard for the main vocal: “It's the Shure SM58 capsule,” he says smiling. “It's the best thing for hip hop and rap. It has sturdiness and robustness that you need. They take a licking and keep on ticking!”

For Elliott's vocal chain, the simple approach also applies. “I'm using the D5's internal compression,” explains Thompson. “For rap, you really don't need anything more than that. I will sometimes use a dbx

160x, but the D5 compression is more than adequate. I also use a TC Electronic M6000 for reverb, which is my reverb of choice.”

For the next set, Keys brought a new vibe to the stage, offering the earnest delivery of a true singer/songwriter, supported by a superb band. The intense set, which runs more than 80 channels at FOH, is also what makes Skaff's gig tough: “The thing about Alicia's show—which is really the hard thing, but a good thing—is that there's lots of real stuff up there,” he says. “It's a real Rhodes, a real Wurlitzer, a real piano, a fully miked drum kit and so on. So, naturally, we've got a lot of microphones.”

For Keys' vocals, Skaff uses a handmade prototype of the new Sennheiser 935. “I don't even think they're out yet,” says Skaff. The Manley VoxBox has also proven to be an invaluable link in the vocal chain. “Particularly for her, the VoxBox's compression is great. Whatever it does, it does it so transparently. It is always doing what you want it to do, and it's a wonderfully smooth-sounding unit.”

Keys' satin-black Yamaha grand piano is double-miked with an AKG 414 pair, which is used with a piano module. “The microphones are really hard to get up and sound like anything at all when the band is rocking away at 108 dB onstage. When she's doing things much quieter, sitting and playing the solo piano stuff, I can use them even more.”

Like Thompson, Skaff sings the praises of the TC M6000 and finds it well-suited for the show. “The sounds are great,” he says. “For each of the four stereo-in/stereo-out machines, I've got a little bit on everything: one's on the vocals, one's on the drums, another's on the saxophone and another's on percussion. It's all on AES-in/AES-out, which takes up less holes—great for this tour.”

With so many complex textures happening, Skaff's mixing style follows where Keys takes the band. “Generally, I just try to keep up with the band's playing,” shrugs Skaff. “It's about keeping it musical, keeping it interesting, keeping it exciting, keeping the lead up there, but never losing the band—ever.”

After Keys' set and another quick changeover, Beyoncé made an exciting entrance from the back of the arena and was carried through the crowd on a white, sheer-curtained, fur-covered recliner. Again, the musical vibe changed, this time to a glitzy but sophisticated set, recalling intros to Sean Connery—era *James Bond* films set to a brand-new, bouncy soundtrack. An equal representation of sequencing and live



## Ricky Skaggs and the TRUE Precision8

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— Lee Groitzsch, one of the recording engineers for five time Grammy nominee (and 2004 Grammy-winner) Ricky Skaggs, stays true to True Systems mic preamps (Lee is a Grammy nominee himself...)

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PHOTO: STROOPER BULLINS

Countdown to showtime, from left: system tech Wade Crawford, Beyoncé FOH engineer Horace Ward and Dave Skaff, Alicia Keys' FOH engineer

musicians bubbled beneath Beyoncé's powerful voice, which is exactly how Ward envisioned the live re-enactments of her *Dangerously in Love* debut to sound.

"You can listen to the album to hear how the song sounds," says Ward, "but I always feel that a good live sound should sound better than the album. I go by how the band is playing, and it should be like stepping into the album, but as a 3-D mix."

Running nearly 60 channels, Ward layers live drums, sequenced sound and soaring vocals to create the power of Beyoncé's show. "Drums and bass are the standard, at least for me, coming from reggae," says Ward. "The vocal is in there as well, but not so loud. It's just dynamic and crystal-clear."

For vocals, Ward uses the Neumann KMS 105 capsule with the 5000 Series handheld unit. "It's a real mic," he boasts. "It doesn't have any built-in arcs or whatever." From there, he uses the D5's onboard mic pre-amps, an Avalon AD 2044 compressor and an Apogee 6-band parametric EQ. "I EQ the system with a CD," he explains. "Then I voice her mic using the parametric to take out spots—'climatizing' the mic to the system. Once you get rid of any mic midrange gust that clouds it, it's so clear."

Besides staying on his toes to mix each song, Ward also flips pages of his notebook full of show cues. "There are tons of little nuances that I do, and I have delay cues out the yin-yang," he says. "It's a labor-intensive show. Everything fits in with the movements, stage pieces, risers and music. It's all-in-one."

"The audience wants to see and hear a real performance," Ward continues. "If you experience this show, you leave saying, 'Now *that's* a show,' you know what I mean?"

And on this Sunday night, it's clear that the Ladies First audio team accomplished what they set out to do. An exhausted, but exhilarated crowd filed out of the arena, most of them wearing smiles—and more Beyoncé, Keys and Elliot merchandise than one person could count. ■



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# BUDDY GUY

Electric Blues Master Shows His Quiet Side

By Gaby Alter

PHOTOS: MICHAEL WEINTROB

“I’m an old man,” Buddy Guy sang to the standing room-only crowd at New York City’s B.B. King’s Blues Club on 42nd Street in Times Square.

“I can’t do the things I used to do.” After listing a few old-age-related miseries—“I can’t walk like I used to walk, I can’t love like I used to love”—Guy returned to his refrain. “I’m an old man,” he sang again, and then, after a pause, added with mischievous emphasis, “A very good old man!” The crowd broke into laughter as Guy fired off a riff on his guitar.

A legendary blues man known for helping pioneer the genre on the electric guitar in the late '50s and '60s (and for influencing Jimi Hendrix, who, in turn, influenced him), Guy may be past official retirement age at 68, but he shows no signs of slowing down. Playing in the club’s large showcase room, where paintings of blues masters like Lightnin’ Hopkins, Muddy Waters and B.B. King himself hang on the wall, Guy appeared on the club’s 30-foot stage wearing simple clothes and a baseball cap, holding an acoustic guitar and fronting a modest-sized band. Smiling, whooping, cursing and coaxing through his songs, he revealed the blues as they really are: not a tired 12-bar form, but a living, breathing animal made up of

equal parts lust, love, joy and pain.

While Guy is famous for his electric work, he is currently on an acoustic tour. “It’s very quiet,” says Michael “Max” Maxson, Guy’s sound engineer and tour manager for the past two-and-a-half years. “We have an acoustic bass, whereas with the electric tours, we have a B3, piano, sax and electric bass. The volume is way louder on electric tours. On this tour, it’s kind of fun because it’s easier to deal with.” In addition to the acoustic bass, Guy’s current tour includes drums and a second acoustic guitar.

The main challenge for Maxson is Guy’s wide dynamic range, which can go from a low mutter to an all-out blues holler. Maxson says it’s mostly a matter of “just riding the faders, especially for his vocals. The volume is so down, it’s more of a feel than a sound. A lot of the songs are so quiet you don’t really hear the instruments; they’re just kind of there. It’s trying to get the vibe more than the actual sounds.”

Guy’s rider comprises almost entirely Shure microphones: a Beta 91 for the kick, two Beta 56s for snare top and bottom, an



Engineer/tour manager Michael “Max” Maxson

SM 81 for the hi-hat, three Beta 98s on the racks and the floor tom, two KSM 27s as overheads, an SM7 on the bass, a KSM 32 for one acoustic guitar, a KSM 137 for the other, and a Beta 87C and wireless SM58 for Guy’s vocal.

Guy’s dynamic range, as well as his crowd-pleasing antics, helped inform Maxson’s vocal mic choices. “[Buddy] sings away from the mic a lot and I need something that’s going to pick it up,” Maxson says. “He’s a really good entertainer—his dynamics are really great. He’ll just kind of step away and sing to the crowd.” As a result, Maxson chose the Beta 87C, which is more “natural-sounding,” Maxson says.

Guy also uses a Shure wireless system for vocals and guitars with an SM58 for his set’s closing number, when he finally “goes



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and colleges of technology (ACCSC).

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electric" and walks through the crowd singing and playing his signature Fender Strat. "The new Shure stuff sounds great," says Mark Messner, Guy's guitar tech, who follows him into the crowd with the system. "Through the years of trying different wirelesses and long cords, the new wireless sounds just as good as the cord." Messner notes that the addition of a distribution amp onstage greatly helps. "We were trying to do it with just the regular antennas and it would start cutting out about 50 feet from the stage when he was surrounded by people. But with the distribution amp and amplified an-

tennas, he could go out on 42nd Street right now and probably still be as clear as day."

Guy's acoustic guitar is a Martin J-40. "The Martins—there's something about them," Messner says. "If you hit the high E string on the 12th fret, there's still a thump to it that some of the other manufacturers just don't have."

Guy's signature electric guitar is a polka-dot Strat; the one he currently plays was custom-made for him by Fender. "He had a '57 Strat—I think he still has it—and I think they tried to make it as close to that as possible," Messner says. "It's just that



'sting' that the Strat has. That was the sound. He talks about those old days all the time: There was a Strat in a basement and that was it—that was all you needed."

Though Maxson mixes on whatever board each venue has to offer—tonight he's using the club's Yamaha 3500—he carries with him two API preamps and a Summit DCL 200 compressor, which he splits between Guy's vocals and his acoustic guitar. Carrying his own compressor and preamps means a greater consistency in sound throughout the tour because he doesn't have to deal with each individual board's preamps. "I figured for the acoustic tour, I'd just try to make his voice sound as good possible," Maxson says. "I've been really happy with the API—it's really warm-sounding. And because the show is so dynamic and I'm trying to keep everything in the pocket, the compressor smoothes the vocal out enough to make it work really well." He notes that for the acoustic tour, he uses an easily manageable 17 inputs on the board, whereas electric tours required 25 or 26.

B.B. King's is a particularly good venue, according to Maxson, because of the curtains on the walls. "Plus, it's got a low ceiling, which keeps everything in tight, and a lot of carpet. And when people come in, it gets even more dead."

The room may have been dead, but the show was anything but. Filling the room to its 1,000-person capacity, the audience cheered loudly as Guy walked among them playing his polka-dot Strat. "Oh man, I got the blues!" he sang as he walked past them.



Gaby Alter is a freelance writer, songwriter and musical composer based in Brooklyn, N.Y.

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World Radio History

# Remote Recording

BY STEVE La CERRA

## Portable Rigs Bring Pro-Quality Tracking to D.I.Y. Budgets

The shift in record-making toward high-end project rooms has forced many commercial facilities to rethink their marketing strategies and come up with new ways of attracting clientele. A similar shift is happening in live recording, once the province of dedicated remote vehicles. Recording a band in a live situation is often a quick and relatively inexpensive way for a label to release a new product and provides an opportunity for material to be repurposed for video and/or multichannel audio release. And while there will always be a place for the big trucks on the big shows, the rise of portable rigs has opened up professional-quality recording to bands on a D.I.Y. budget.

Philip Harvey, front-of-house engineer for Medeski, Martin & Wood, The Mavericks and Ozomatli, became interested in live recording "when laptops started getting powerful. I never bought ADAT or DA-88 decks because of the bulk of transporting four units for mul-

titracking," says Harvey. "I thought it would be amazing if I could carry a four-space rack and a PowerBook to ultimately have the ability to do 24/96 recordings. Initially, I was looking for a high-quality FireWire interface for my laptop to use with Metric Halo's SpectraFoo audio analysis software, and when they began developing their proprietary record panel software, I started using the Mobile I/O 2882 to make 8-channel recordings of MMW's shows. Upon developing a closer relationship with Metric Halo, they decided to let me take three additional 2882+DSPs into the field as a beta tester.

"To start with, I used a 400MHz graphite PowerBook G3," he continues. "Because the two FireWire ports on that machine share a common bus, I separated the streaming audio from the audio writing to disk onto two different buses so I could record 32 channels of audio at 24-bit/48 kHz. I plugged the Metric Halo units into a PCMCIA FireWire adapter

Philip Harvey in the Hammerstein Ballroom

The Tourmystudio crew, from left: Stuart Holverson, Chris Shepard and Steve Weeder





Setting up for a Medeski, Martin & Wood acoustic set for one of the shows that FOH engineer Philip Harvey recorded for the band

# Without the Truck

card and plugged the audio drive into the G3's FireWire port. The 2882+DSP has an onboard chipset that handles audio processing—including MIOstrip, EQ, limiter and M/S encoding/decoding plug-ins—leaving the laptop to handle the GUI and writing to disk. To me, that's the magic bullet. A lot of other FireWire audio interfaces leave the processing to the computer, slowing things down. I was amazed that by using a 400MHz laptop, I could get 32 channels of audio."

Chris Shepard, music studio manager at Chicago Recording Company, and engineers Steve Weeder and Stuart Holverson are responsible for the operations of Tourmystudio ([www.tourmystudio.com](http://www.tourmystudio.com)), a portable recording rig that Shepard assembled "out of necessity. I was doing more 'remote-style' projects where I'd be pulling together a recording system from gear I had on hand plus interfacing rental gear. It's a waste of resources. I'd rather have everything connected and ready to go. I wanted a rig I could become familiar with that would be reliable and quick to set up. In the past, when assembling a mobile rig, I'd always be building a bastard cable to make something work—usually the headphone system! My goal was to have the gear internally prewired and cased so all I'd have to do was connect the cases and add power."

Shepard's rig comprises a Pro Tools HD3 system (one Core and two Process cards) running on a G4/dual 1.25 GHz with 48 True Systems mic preamps for the front end. The "analog" audio rack contains six True Systems Precision 8 8-channel mic pre's, a Furman HDS-16 headphone distribution system and Tripp Lite power backup. A second shock-mounted "digital" rack houses the G4, a Digidesign Sync I/O clock generator, three Digi 192 I/O audio interfaces, a MIDI I/O and an HHB CDR850 Plus CD recorder. The rear panel of the analog rack has a 48-pair connector made by Rapco, allowing a stage snake to connect to the input of the preamps via one connector.

"Since the analog inputs to the Digidesign 192s are on DB25 connectors and the outputs of the True preamps are also on DB25 connectors, I installed DB25 patch panels on the rear of each rack," Shepard explains. "This avoids plugging directly into the back of the True preamps or the Digi 192s and wearing down or damaging those connectors. The DB25 connectors on the rear panels of the racks can easily be replaced if necessary. It's a very idiot-proof system that can be easily connected under low-light conditions—typical for us since we're often on the side of the stage. There is one power cable coming out of each rack, and the Tripp

Lite UPS gives me 10 minutes of backup time if there is an incident, like if the show is over and someone pulls the AC while we are backing up data from hard disk."

In addition to two Mackie SDR24/96 24-track recorders, Scott "Squat" Levy of HyperSonic Audio in Santa Fe, N.M., uses an HHB PDR2000 24-bit/96kHz portable hard disk recorder with a pair of AKG C1000s for "pre-production" recording. "My forte is working with emerging artists, though I do a fair amount of work with established artists, too," begins Levy. "I try to sell my production abilities, help the band focus on their goals for recording and prepare them to meet those goals. I don't just show up at a venue and do a recording, because chances are slim that they'll be able to use it for commercial purposes. We address everything ahead of time—from picking the right songs for the performance to changing the strings on their guitars, putting new heads on the drums and making sure that their amps don't make any weird noises. Those are very simple things that young bands often overlook. I'll attend a rehearsal and show beforehand, record using the PDR2000 and make CDs of the show. Then we'll meet to listen through them and see what needs improvement."

## NOWHERE TO HIDE

All three engineers agree that isolation can be a problem in live recording situations where a remote truck is not being used. When possible, Shepard sets up in an isolated space at a venue. "At the Metro [Chicago], we set up on a different floor and monitor on a pair of Genelec 1031s," he says. "That's a lot of fun because nothing is better than 'hot mixing' a live show in that spooky old theater. But there are times when we don't have that isolation and it's difficult to hear. A few months ago, we recorded KMFDM at the House of Blues in Chicago and had to set up next to front of house to facilitate the split. In a situation like that, we record the soundcheck. By the time the band hits the stage, I've had an hour or two to play with the mix, so my EQs and compressors are somewhat set and I don't have very far to go once the show starts. Nothing beats being on the side of the stage near the monitor engineer's position. You can look up and watch the vocalists stepping up to the microphones and you can anticipate the mix, which is difficult to judge from the front. Plus, communication with the monitor engineer is quick and easy in the event of a problem."

With Medeski, Martin & Wood, Harvey had to record at front of house because he was also performing live mixing duties. "We carried a Midas Heritage 3000 running 33 channels total and I submixed a couple of those to subgroup outs," he recalls. "The channel direct outs of the Midas can be set pre-EQ and pre-fader, so I was using the mic preamps of the Midas console and patching those to the 2882s, which handled A/D at 24/44.1. I didn't record with processing; I just tried to capture the naked sound to be processed in the Pro Tools mixes later. After the gig was over, I'd import the tracks into a Pro Tools session. The Metric Halo software records files in SDII format, so they open directly into a Pro Tools session. Then I'd use an Mbox for putting together rough mixes on the road so the band could hear what we captured. None of those shows have been released, though we did a show for XM Radio."

For an upcoming tour in France with Patricia Barber, Harvey will be recording eight shows using the Metric Halo software at 24-bit/96k resolution for her next release. "I'm carrying a 17-inch, 1GHz PowerBook with 1GB RAM, three Metric Halo 2882+DSPs in one rack and a second rack with one 2882+DSP and a Metric Halo ULN-2+DSP. I want to integrate the ULN-2 because the preamps sound phenomenal and will be perfect for Patricia's vocals. We're renting a three-



Philip Harvey's tour recording station with PowerBook, Metric Halo units and headphones, among other gear

way split in France, and wherever possible, I'll try to be in a separate room monitoring on headphones. Most of the recording microphones will be the same as the ones for the P.A., and I'll take the signal from the split into the mic preamps of the 2882+DSPs. There are 18 channels total, giving me room for a few extra recording mics, so I'll probably add a pair of Schoeps MK4s for the piano and another pair for the room sound. The interfaces each have four XLR and four TRS jacks with preamps on each input that are configurable for +4, -10, line, mic [with 48V phantom power] or instrument level. We'll get a rehearsal to work on levels, and once we do the first show, we should pretty well be set. After the tour is over, I'll hand off the drives to their engineer for mixing."

Although Levy also prefers to set up in a spare room in the venue and monitor through a pair of Mackie HR824s, being near the front-of-house engineer allows him to hone in on his reference 2-track mix. "In addition to the close mics, which are recorded to independent tracks, I like to put up at least two pairs of room mics: one near and one distant," he reveals. "Those mics are the foundation for my 2-track live mix to an Alesis MasterLink ML-9600. When I record stage shows with dancing or performance art, I tend to use the room mics heavily, especially if people are moving around. In certain situations, AKG SolidTubes make good room mics because they have a broad pattern and a warm sound." During soundcheck, Levy will mute the 2-track mix's close mics and attempt to match the mics' sound to what he is hearing in the room. While he depends on room mics during dancing or performance art shows, Levy opts for a close mic for orchestral or acoustic performances, placing it

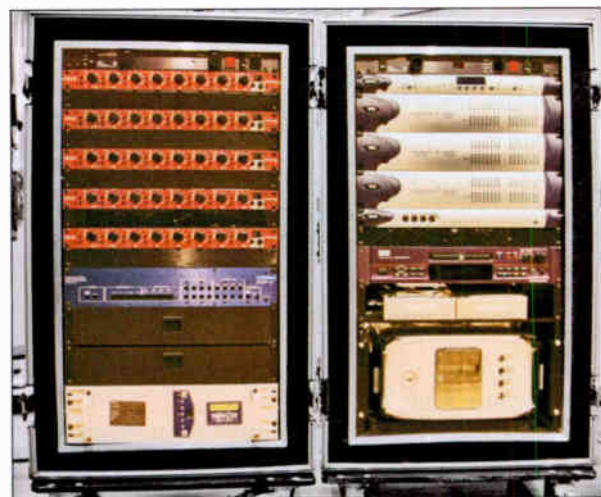
on a cello or bass, for example, for more definition. However, he does note that higher-register instruments are easily picked up by carefully placed room mics. The sound that is picked up from the close mics are shuttled to a completely independent mix to the 2-track via a Mackie 32x8, which Levy will also employ for added mic pre's or to sum multiple mics to a bus. "One of the cool things about doing the 2-track is that if the band is on a break, we can listen to the CD in the green room. If there's a critical song they didn't do well in the first set, we can get another take in the next set."

In addition to the Mackie SDR24/96s, Levy carries 24 channels of Focusrite Platinum OctoPre mic preamps and feeds 24-bit/96k audio to the Mackie SDRs via Lightpipe. "If I use the A/Ds on the Mackie SDR24/96, I can only record 12 tracks at 24/96," he explains. "Since the Focusrite preamps are doing the conversion, I can route digital output from the preamps to digital inputs of the SDR and record 24 tracks simultaneously. I also have the option of using the analog outs on the Focusrites and patching into a processor before going either to the Mackie SDR or to the Mackie console. I prefer to either change the mic or move it to get the sound I'm after, as opposed to processing." To do this, Levy brings a wealth of outboard gear that comprises a PreSonus ACP-88 and a smattering of Ashly Protea 2.24PS stereo, digital, 12-band parametric EQs. He rarely employs gates or compression, but likes to know that they are there if needed. Levy will also bring out the Ashly EQs when he needs to use the same mic on a multi-instrumentalist. Because the Ashly EQs offer 24-bit digital output, Levy can remain in the digital domain.

"The keys to success in any live recording are preparation in setup and microphone selection and placement," Levy elaborates. "The mics have to be multipurpose, suited for live performance and have superior sound-capture quality. Microphone placement is critical to maximize rejection, avoid distortion, capture subtle over- and undertones, and not cause problems with feedback in the front-of-house or monitor mixes."

## CUE COMMUNICATION

For Shepard, one of the most challenging aspects of using a portable recording rig has been setting up a cue system. "Talkback and headphones were always a problem, and by solving those issues, we make artists happy fast," he says. "Our solution is a multichannel cue mix system produced by Furman. It



A front view of Tourmystudio's "analog" audio rack (left-hand side) and "digital" rack

consists of an HDS-16 headphone distribution system and HRM-16 remote mixers. The HDS-16 has a patchbay on its front panel that interfaces with Pro Tools. We create a series of pre-fader aux sends in the Pro Tools session and route each aux to an analog output on the 192s. The outputs from the 192s are then patched into the eight mono and four stereo inputs of the HDS-16. Usually, I start with individual channels for kick, snare, bass, guitar, vocal, et cetera, and use the stereo channels for the drum kit, keys and percussion. The HDS-16 distributes these signals and power to the HRM-16 mix stations via 50-pin Centronics cables. Each musician gets a remote station so they can have their own headphone mix. I'll set up a rough mix, show the artist the labeled inputs and let each musician tweak from there. The only time their levels change is when I change the level at the mic preamp, but that would be true of any console. Each

mixer has a built-in talkback microphone with a switch, so I don't have to set up separate mics for communication. The HDS-16 has an internal talkback bus I/O so anytime someone presses their talkback switch, everyone can hear them in the headphones and I can hear them via the talkback input on my ProControl."

In spite of the move toward high-resolution audio formats, most of Shepard's recordings run at 44.1 kHz. "Most clients request 44.1 or 48 kHz," he says. "People haven't been asking for the higher sample rates and that's fine. We have to be careful that we don't lock a client into a format that they cannot take back to their own studio and continue working on. The other day we did our first session at 192 kHz: a pipe organ at a church in Rockford, Illinois. In a

situation like that, it might be more appropriate to use a higher sample rate, but for live recordings, we've found that 44.1 and 48 kHz do the trick."

Although he prefers to produce the entire project, Levy is comfortable with the idea of capturing the performance, handing it off to the band and directing them "to a capable studio. One of the interesting things is that, if I came to Santa Fe and opened a new studio, local studios would not be too happy," Levy says. "But when I do a live recording and feed it to them, they get work that would not other-

wise come their way. I might recommend the band to a place like Pachyderm [Canon Falls, Minn.], Tone Zone or Rax Trax in Chicago, Step Bridge in Santa Fe or Santa Fe Center Studios in Albuquerque. They know I am not sending them garbage, and I know they are capable of finishing the project in a professional manner. From the band's point of view, they can spend \$10,000 on a tracking session at a studio and get maybe 12 songs. I can do two nights, two sets each, for under \$2,000, and they can get as much as two records' worth of material. If they spend another \$5,000 mixing, they are still under the \$10,000 they'd spend on a studio recording, and it's a better product because they are turning in a good performance." ■

*In addition to contributing to Mix, Steve La Cerra is a freelance engineer and producer based in the New York City area.*



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## SMITH PRO AUDIO 118 PRO MOBILE SUB

Smith Pro Audio's ([www.smithproaudio.com](http://www.smithproaudio.com)) lightweight 118 Pro Mobile Sub provides high-output LF performance rivaling double-18 boxes from a 37x23x23-inch cabinet that's only 99 pounds. Specs include a 38-225Hz ( $\pm 3$ dB) frequency response and continuous power handling of 1,250 watts, with 140dB max SPLs. The birch enclosure has a tough Roadcoat™ finish, 16-gauge powder-coated steel grilles and Neutrik connectors. MSRP is \$1,999.



## MC² AUDIO E45 LIGHTWEIGHT POWER AMP

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# The Passions of Bob Beemer

## From Gofer to Oscar-Winning Re-Recording Mixer

By Blair Jackson

The last four films that Los Angeles-based re-recording mixer Bob Beemer worked on couldn't be more different from each other. *The Passion of the Christ*, of course, is the controversial film about the last hours of Jesus' life, from his arrest to his death and resurrection. Around the same time, he was working on *Unchain My Heart*, a music-filled biopic of the great Ray Charles. Then he jumped into *Anchor Man*, a Will Farrell trifle about a news reader in the '70s. Most recently, he's plunged into *The Bourne Supremacy*, the action-packed follow-up to *The Bourne Identity*.

"It's the variety that keeps me coming back," Beemer says jovially. "That and the fact that I learn something from every show I do. This job is really an ongoing education in so many ways, from the subject matter of the films to the actual work process, which changes every day. Plus, it's different groupings of people on every project and everybody has different sensibilities, so you learn plenty from that, too."

He must have learned his lessons well: He's become a first-call mixer with a credit list loaded with a wide variety of great and



Bob Beemer (l) went for a bold, classic sound when mixing Mel Gibson's (right) *The Passion of the Christ*.

successful films (and some turkeys—hey, when you take the job, you don't always know which way it's going to go). He took home Academy Awards for his mixing on *Speed* and *Gladiator*, was nominated for

*Cliffhanger*, *Independence Day* and *Road to Perdition*, and has worked on such diverse films as *City Slickers*, *Honeymoon in Vegas*, *Heaven & Earth*, *True Lies*, *Die Hard: With a Vengeance*, *The Crossing Guard*, *That Thing You Do!*, *There's Something About Mary*, *American Beauty*, *What Women Want* and *Sweet Home Alabama*, among dozens of others.

A product of L.A. Catholic schools, including Loyola Marymount where he studied film, he counts landing a job as a gofer for Sid & Marty Krofft Productions, makers primarily of children's TV shows, as his first big break in the business: "Gofer work is actually very meaningful," the ever-cheerful and personable Beemer says. "You get the ultimate overview of the business. You run out to some actor's house and bring him a check or a contract to sign. You go to lawyers' offices in Century City. You go to the scoring stage where they're working on the music. You go to the editor's place. You go to pre-production meetings. You're like a fly on the wall for every stage of production. It was like graduate school!"

His first job in sound was as a transfer recordist for Neiman-Tillar Associates, which provided sound for National Geographic specials and some feature films. "Then you graduate to being a dubbing stage machine room recordist, and that's what I did for about 10 years. Luckily, I was able to work on some of the biggest pictures of the time, and as a result, I ended up meeting a lot of the top sound editors and picture editors."

Around 1990, Beemer went to work at Warner Hollywood mixing ADR and Foley, but quickly graduated to the main mixing stage, "where they gave me the opportunity to be the new kid on the block. I worked with Don Mitchell, who was one of the top guys at the time, since retired. I will always be grateful to him for my start." From there he went to Skywalker South (later Todd-AO West) for five years, and it was there that he hooked up with his current partner, dialog and music mixer Scott Millan. Beemer had a

—CONTINUED ON PAGE 97

Jim Caviezel (*Jesus*) absorbs Mel Gibson's direction during filming of *The Passion*.



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## New Wave Entertainment

### Speed, Efficiency and a Thousand Projects at Once

By Maureen Droney

The term “fully diversified” takes on new meaning when it comes to describing New Wave Entertainment. Housed in a 40,000-square-foot complex in the heart of the Burbank Media District, NWE employs more than 200 and is one of the largest creative marketing and production service companies around. Established in 1986 as a movie trailer vendor, the company's current services encompass everything from content creation for film and television, to HDTV production, video post, DVD special features and menu design, motion graphics, music scoring, artist management and more.

NWE principal Paul Apel explains it best: “We're a creative content house, but we also have our own facilities. We create marketing materials for motion pictures: theatrical releases and TV campaigns. We also do a large amount of finishing work for all of the studios. If it's released by Sony, Disney, New Line or Fox, it comes

through here and we provide the creative finishing.

“Our television department produces more DVD featurettes than anybody else in the world,” Apel continues. “As we

speak, we have hundreds of DVDs in production, everything from *Harry Potter* to *Dawn of the Dead*. Anything that's on the DVD other than the movie,

—CONTINUED ON PAGE 102



Chief engineer/mixer Mark Rodrigues (left) and VP of post-production Rick Nowok

## Tonic for the Audio Soul

By Gary Eskow

Longtime New York audio post vet Peter Fish opened his own audio post facility, Tonic, on the East side of Manhattan nearly three years ago. In a partnership with WNET, Tonic also built a post facility on West 33rd Street. At that time, audio in the Big Apple had taken a big hit due to the long strike, a declining economy and a gradual migration of work away from the more expensive city centers to other regions of the country—and even north across the border.

Checking in with the composer today, it seems that the gamble of building during tough times paid off. Although the broadcast community has taken a bit longer to catch on to surround sound mixing, the kind of episodic work that Fish composes for on a regular basis is all being aired in 5.1, and Tonic is a huge beneficiary of the change in format.

“I'm comfortable stating that we're doing more 5.1 audio post work than anyone in town,” says Fish. “And there's a simple reason for it. Many—if not most—of the rooms in town service the advertising community almost exclusively and spots are still mixed in stereo.

“With all of the episodic television work we do [Fish has been nominated for two Daytime Emmys this year, both for his work on the long-running ABC soap *All My Children*], we've gotten more and more experience mixing in 5.1 because this work has all moved over to surround. HDTV took a while to catch on, but it's happening now, and there are more



One of three 5.1 commercial post rooms at Tonic

broadcast streams coming online, including an expanded number of cable outlets. Not only is the main programming being mixed in 5.1, but producers are now asking for promos to be mixed in surround,



The multitasking composer Peter Fish

from the need to create both surround and stereo mixes. With budgets scrutinized closely, how many billable hours can be spent folding down a 5.1 mix? Fish says there is no dilemma: "The answer to the problem is the Euphonix System 5. It's unbelievable!"

Tonic installed three System 5s during its initial construction phase. With the exception of periodic software updates, which comprise mostly of maintenance grooming, the boards have had no work done to them since installation. "I know that everyone worries about the time it will take to fold a 5.1 mix down to stereo, but the System 5 has an incredible brain. All we do is tell it to execute the stereo mix and it invariably creates a perfect 2-mix. Don't ask me how!"

"We'll take hours creating a surround mix with both subtle and extreme moves, and the System 5 knows just what to do with the fold-down. Of course, we check all of our stereo mixes before they go out the

door, but I don't think we've even tweaked a mix more than a couple of times—if that—in the two-and-a-half years that we've had the consoles."

In addition to the episodic television work that he routinely brings in, Fish also scores feature films on occasion. "One of the last films I scored is called *A Tale of Two Pizzas*," he says. Shot on-location in Yonkers, N.Y., the film was directed by Victor Sassone and stars Frank Vincent Pastore. "It will be released by Newmark/Echelon in the spring [2004]. Every note of that score was mixed in 5.1. When it came time to make a stereo print, we didn't have to move a muscle."

All of Tonic's rooms are Pro Tools-centric. However, Fish has opted not to replace any of his company's 5.1.3 systems with newer versions of Pro Tools. "We haven't made the move to Pro Tools 6, and we're still running OS 9 on all of our systems. With eight workstations in-line, we're looking at replacing the entire fleet and that includes all of the plug-ins we use. For now, we're sticking with the earlier versions of Pro Tools that continue to serve us and our clients well." In addition to three Euphonix System 5 consoles, Tonic also owns a pair

as well. We've become the most experienced 5.1 place in town, and it's really helped to keep our work flow steady."

One of the principal challenges mixers have had during the transition period stems

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of Neve Libra boards, which are housed in the Westside facility. Several smaller rooms use Pro Tools with a Digidesign Control 24 surface and one uses Digidesign's ProControl unit.

His workstations are *au courant* com-



Reverse angle on one of Tonic's comfortable recording/mixing rooms

pared to his sampler of choice, however. In fact, when asked, "What's a Synclavier?" Fish considers—for just a moment—that the question might be legitimate. "I know, the Synclavier is considered ancient by many people, but it's still the best sampler in the world. If the system hadn't been redesigned to allow it to import .AIFF and .WAV files, it might be archaic by now. But I can load any sample library into my Synclavier, and both Jun Mizumachi [Tonic's in-house sound designer] and I have huge libraries of our own samples that we've created in the Synclavier, which we can't part with."

Besides a collection of Auratones and some television speakers used to check broadcast mixes, Tonic exclusively uses Genelec monitors. "I'm a big Genelec fan," says Fish. "I find them to be the least-hyped speaker I've ever heard. Even their smallest cabinets let you pump a lot of air through them."

Life has gotten a lot easier when it comes to the delivery phase, according to Fish. "We still mix to DAT and DA-88, but more and more we're just putting .AIFF or .WAV files up on the Net. Generally what happens—especially if we're working with an out-of-town client—is that we'll post a lower-resolution MP3 of a clip using Fetch software. If it's accepted, we'll post the file a second time at 16 bits and 44.1 kHz. If needed, we can still burn a CD. Regardless, we're always giving them product in a digital format.

"FTP delivery is attractive because it's immediate," Fish adds, echoing comments

heard throughout the industry about how FedEx is no longer fast enough for clients. "Jun did a piece yesterday for an Italian sports network. We squashed the MP3 using a 2:1 compression scheme and put it on our site. The client approved it and—bam!—we sent the uncompressed version back to them instantly."

Before calling Mizumachi to the phone, Fish comments on the state of the business. "It's on the way up, but you have to know where to find it," he says of New York in general. "The middle ground that once existed, the meat-and-potatoes work, is gone. People have simply stopped mixing this kind of work at outside facilities. For example, we used to mix 40 to 50 episodes of the A&E channel's *Biography* series each year. That figure has gone down to zero. It's not that the work has gone to another post house, the client is mixing the audio themselves in their Avid system.

"On the other hand, no one is going to mix 5.1 in an Avid room. They don't have the skill, the equipment or the room that's needed to handle this work properly. If a job is going to be played out of a stereo television, many people question how good the audio needs to be. However, the surround sound market demands a different level of quality and will for some time."

Mizumachi, a Tokyo native who came to New York in 1977, considers Tonic the perfect environment for him. A university graduate who took a political science degree in Japan, Mizumachi learned the recording business during his stint as a gofer at Lavsky Music. After leaving that shop, Mizumachi spent time at Crew Cuts before heading off to the University of Howard Schwartz.

"Howard Schwartz is a great place to work, but I wanted to be around musicians and composers, not just mixers and engineers. Tonic is a creative music house that also does post, and that's perfect for me. I'm very interested in the relationship of sound to picture and color. These days, it's so easy to record sounds outside and then bring them into a computer or the Synclavier for processing. Creating sounds that have never been heard before is the main goal. I might spend two days building the sounds that will go into a two-second log. We have such fantastic tools these days, there's a lot of great construction that can be achieved." ■

## Bob Beemer

—FROM PAGE 94

two-year stint at Fox and for the past several has worked at Sony, where he plies his trade on a Harrison MPC digital console—"my favorite console ever," he notes.

I was moved to contact Beemer after being completely spellbound by *The Passion of the Christ*, swept away by the grim, visceral beauty of Mel Gibson's bold undertaking and by the artful sound job, which moves from a frightening hyper-realism to more stylized and impressionistic moments, sometimes within the space of a few frames. Before we discussed *The Passion*, though, I was curious about a few other films.

*I see that fairly early on, you worked on Heaven & Earth, which I've always thought was one of Oliver Stone's most underrated films.*

It is an impressive film and it was very interesting to work on from a sound perspective. The way Oliver Stone shoots things, everything has this interesting psychological weight that lends itself to great sound mixes, as demonstrated by how many movies he's done that get nominated for Best Sound. It's a great canvas to work against.

*Is it something he articulates or is it something in the way he works that draws a level of creativity out of the people he works with?*

It's both. [The re-recording mixer's] art form is complementary to the cinematographer and director's art form, which is up on the screen. Unlike making a [music] record, which stands on its own, the film soundtrack reacts to what we see in the picture. We might embellish it and imply things that aren't there for dramatic purposes and whatnot, but it all begins with what's on the screen. So if the director is very clever and emotionally complex, it usually follows that the sound will take on some of that character. If the image is very flat and standard in its direction, it's harder to digress from that and make a very interesting soundtrack.

*Who was the first director you worked with who gave you that leeway?*

I don't know if it's the first one, but one of my early projects that was a turning point for me was a Sean Penn-directed movie called *The Crossing Guard* with Jack Nicholson and Anjelica Huston. It's a very heavy, unpleasant kind of movie about a marriage being broken up in the aftermath of their small daughter being killed by a drunk driver. It's a very bleak examination of grief, rage, guilt and forgiveness, but it's really well done. The way Sean shot the movie, there were all

sorts of subjective camera moves, variations of film speed for emotional impact, and that opened up the sound possibilities. His editor, Jay Cassidy, further enhanced the themes with pace and optical effects. So we were able to do all sorts of things, like having a lovely little girl's laughing voice echoing out in the distance, which added to the angst of this poor dad; lots of things like that. Now if the movie had been shot flat, it would have seemed kind of contrived and self-important if you threw in some echo-y girl in the distance. Everything from buses to a flock of birds going by had an emotional component to them that was more important than their literal meaning. It was a really interesting sound job. Not so much because of me, but because of all the license afforded by the filmmakers and the great collaboration with Per Hallberg, the sound editor on the show.

**Speaking of buses, you got your first Oscar for Speed.**

Well, the truth is, I was the handmaiden to Steve Maslow and Gregg Landaker on that show. I helped them pre-dub the sound effects and they finalled it, but as a wonderful thank you to me for my contribution to the mix, they said, "We're gonna put you on the credit," and in an odd turn of events, it ended up winning an Academy Award. It wasn't my project per se, but I'm not giving the Oscar back. [Laughs] Incidentally, I turned down Oliver Stone's *Natural Born Killers* because of the content of the movie and ended up working on *Speed*.

**Independence Day is sometimes cited as one of the first of the modern superloud—many would say too loud—films. How do you feel about that?**

I think it *was* too loud. But it wasn't like that originally. That was the director's choice. Different directors become sensitive to different things. Although the movie was incredibly popular and tested through the roof, [director] Roland Emmerich and [producer] Dean Devlin—especially Roland—were hypersensitive about the models, the buildings that were being blown up in the film, which were some significant landmarks. To us, they looked completely real, but to them, they looked painfully like models because, I think, they were there; they knew they were just 12-foot-tall models. So they always wanted the explosions and fireballs to be louder to give the models more size and weight. That's the director's choice. You can encourage them not to do that, but as a mixer, you are an instrument of the director to express him or herself. We influence a lot of things, but in the end, it's their choice. And the volume in that movie was a



Roland Emmerich choice. Sorry, Roland! [Laughs]

**Tell me a little about working on Gladiator. Gladiator was one of the greatest experiences in my working life.**

Making a movie is a very complicated enterprise, from scriptwriting to pre-production, casting, picking the craftspeople, shooting the movie. So many things can and do go wrong. Some things go better than you imagine them; some are worse. But the sheer complexity of making a movie is what causes so many of them to be mediocre. It's really hard to do: pay attention to everything you need to pay attention to. But once in a while, for a number of reasons, but generally starting at the top, the director—in this case, Ridley Scott—every single thing comes together and you get lightning in a bottle. That's what *Gladiator* was. Every single person hit a home run as far as I'm concerned, which was a phenomenon that was really exciting to be a part of. There were battle scenes and great sets and these fantastic crowds, different ethnic crowds. We spent a lot of time working on the crowds for that film. We had [sound] library crowds, specifically recorded crowds and group ADR crowds, which my partner, Scott [Millan], was dealing with. There were also so many different locales, which had to be treated completely differently, from small venues to the grand arena at the end. So the crowds had to have different feelings and even different ethnicities.

**How do you change the ethnicity?**

That goes back to the wonderful job of the sound editors who worked for the supervising sound editor on that show, Per Hallberg: picking all these flavors, and when they weren't available, going out and recording them and developing all these different spices that I could have never done just by turning knobs. Then it becomes my challenge to take all these elements and direct the focus of the viewer so they get the right amount of everything—smatterings of people and things—so they get an impression of

the differences of all these environments and people without them being self-important or calling too much attention to themselves.

As different things become more accentuated, their sound becomes more accentuated. When [the gladiators] are down in the dungeons waiting to go out, the crowds are all muffled and echo-y and muted, but you can hear the thumping of the crowd stomping their feet and you can feel the terror of the gladiators waiting to go out; you can almost *smell* what it's like out there.

The trouble with movies is they're missing a few key senses. You can't taste something or feel them or smell them, but through exaggeration, we try to imply those other things. You can make something "sound" damp and then your mind fills in the more tactile aspects of that.

**Road to Perdition is another film that had an interesting look and sound to it, but was also very character-driven.**

On some shows, you work with people and it's almost like you're going back to school, you're learning so much. [Director] Sam Mendes is one of those people. It sounds trite to call somebody "brilliant" because that word is so overused and Sam really is just a regular, fun guy. But the fact is, he's a brilliant person in a nonstandard sense, which makes him a fantastic talent for drama. Both of the movies [I worked on with him] had Conrad Hall as the cinematographer, God rest his soul. Connie was a master and could do many different styles: *American Beauty* and *Road to Perdition* are completely different in visual style.

*Road to Perdition* was so beautiful visually, and we all—Scott Millan and Scott Hecker, the supervising sound editor—rose to the occasion and made the most *beautiful* soundtrack for it. And I can say this because I'm about to shoot myself down. [Laughs] The rain sequences, the gunfights, the bar scenes, the nightclub—there are so many fantastic sound concepts we tried that got thrown out of the movie. Some of the best work I've ever done got thrown

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out—and all for the betterment of that movie! [Laughs]

We made this completely realized soundtrack and it drove Sam out of his mind. At the end of the film, there's a big shootout and it's raining in the street. It's shot so beautifully: There's rain coming off of gutters, it's hitting the street, hitting cars, it's hitting their hats, their umbrellas—oh, my God, fantastic! Between Scott Hecker and his people and me, we mixed an awesome *symphony* of rain; it was the most beautiful, emotional thing, and it fit the picture perfectly. And for every reason we loved it, Sam hated it! He said, "You've done a brilliant job of mirroring the picture," and he said it in the most damning tone. [Laughs] To me, to mirror Connie Hall's picture would be the ultimate compliment. But what he was saying was I totally screwed it up. He was *mad!*

*So what did you end up putting there?*

A simple gentle rain that didn't match anything you were seeing—this light *shhhhhh* monotone, 5-channel loop of rain. Sam said, "Bob, you don't understand—everyone in this movie is *dead*. This is a boy's memory. The picture already says what it says. The sound in this movie has to have its own meaning and its own purpose and it's never to simply be augmenting what we see. It can never be the obvious." So I learned something from that about flexibility. And Sam and I are still good friends. [Laughs]

*How did you get involved with The Passion of the Christ?*

There's a young man named Sean McCormack, who's an engineer and an aspiring sound editor and mixer I know from Sony Studios. About 10 months ago, he came up to me and said, "Hey Bob, I've got a project you've *got* to work on." He didn't know I'm Catholic or anything about me personally, but he knew a little about my sensibilities, I guess, so he mentioned it. I said, "Oh, okay, that's cool." I'm thinking it's one of his friend's student films. He says, "I'm involved with this picture about Jesus, and it's the most amazing movie I've ever seen." Then he told me it was by Mel Gibson and I sort of looked at him funny. "Mel Gibson as Jesus?" He explained and purely from the excitement he had about the project—I hadn't seen a frame of it—I knew I had to do the movie!

So he got me an entrée to go meet with Mel and his producer, Steve McEveety. I'd met Mel before [on *What Women Want!*] but hadn't really spent any time with him or talked to him much. I knew the picture editor, John Wright, very well; I'd done a few movies with him, but nothing like this.

Anyway, I could see the devotion and the correctness of the motivation of both Steve and Mel, and I was fascinated by it. It's such a trend-breaker because it's so un-PC to be religious; the boldness was very impressive to me.

Then Mel—who's a very affable and down-to-earth person—took me in the back and showed me a still frame on the Avid, which was a profile of Jim Caviezel as Jesus up on the cross, all bloody and looking up into the sky. I swear, it looked like a painting from the Renaissance. It was so violently *beautiful*. And from seeing one frame, I could tell the depth he was going to on this movie.

*Was there much direction from Mel about the sound?*

At that point, no, because he was dealing with so many other things. But we all knew it was going to come down the road later. So we started working on it more-or-less independently. You can do the obvious things: You know you're going to need atmospheres, footsteps, and you're going to want the cross to sound heavy, the whips have to sound menacing, the crowds need to have certain textures to them. Sean McCormack and Kami Asgar supervised the sound editing and were gathering sounds months before we mixed.

When Scott and I first saw the film with a handful of people—this was a videotape image with pixilated visuals and temp music; very rough—the truth and dignity of it were so staggering, the boldness totally came through. My reaction to Mel was, "I think we have to make sure that none of the sounds are particularly contemporary, because they're still going to be looking at this movie 100 years from now and every cute, slick sound effect will seem contrived in five years, not to mention 50 years." Hopefully, we accomplished that.

*Did having worked on Gladiator, which is set in a similar time, have any effect on your work on The Passion, any insight into the people or the age?*

That's a good question, but actually not much. It's a different director's approach to a similar time frame. This story is a much more personal, close-in story, and *Gladiator* was a much grander canvas. It was all over the place geographically, whereas [*The Passion*] is a very provincial story, so I don't know if it helped or not, because they're so different.



*Passion players (l to r): Bob Beemer, Scott Jennings, Kami Asgar, Mel Gibson, John Wright, Sean McCormack, Kevin O'Connell*

*What were the most challenging aspects of the sound?*

Well, as with any movie that has a lot of blows, or repeated events of any kind—whether it's gunshots or waves in a surfing movie—what I try to do is make each event sound different so it doesn't become boring. Sean and Kami gave me lots of variety in sounds of whips, hits and whooshes, so instead of making it sound like some sampled sound effect that got repeated over and over, I did my best to make each event sound somewhat different.

*Is that a function of choosing different whip hits and then putting different reverbs or effects on them?*

I used the same reverb treatments in each physical environmental setting; in this case, I was still using the old Lexicon 480. It's more using EQ and different balances of the hits; different types of whooshes. I might exaggerate the panning a little bit with a very stereo image, so when things are repeating over and over, it's coming from here, then it's coming from there. I like to mix it up. And whenever we could, we sort of went into a dream format: When we cut over to the Devil or Mary, we'd soften the blows up and make them sound more diffused and the hideous counting that the head torturer was doing, we'd go into a kind of reverb version of that and then it would snap back to the harsh reality of the hits. So there was variety with it.

In the more obvious beating scene, the treatments were all the same until we went into off-speed camera work, and then we got a little creative again.

*Let me try this theory out on you. In the flaying scene, we're definitely the observers: We're Mary and Mary Magdalene, we're people in the crowd, we're the Romans. Later on, when Jesus is going up Calvary, the perspective changes and we are more in Jesus' head, carrying the cross with him, so things become stranger and more confus-*



# "I Switched"

**Who:** Michael Jay

**Occupation:** Composer / engineer / editor / studio consultant

**Honors:** VPA Monitor Award (Best Engineer); Emmy Award (Music Editing)

**Clients:** (As Composer): DTS, AT&T, Prudential, CBS Sports, PBS, E! Channel, Unisys

(As Engineer): Yes, Neil Young, Brian Eno, the FBI, Kodak

(As Studio Consultant): Don Davis (*The Matrix* trilogy); Trevor Rabin (*Armageddon*)

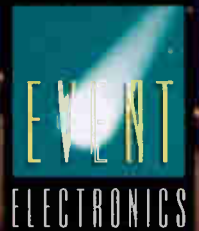
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ing and distorted sonically.

Yes, I think that's pretty accurate. We become more delirious and deluded as he's beaten down more and more. And the perspective does change. One of the things that was important in that scene [going up Cavalry] was to get across the weight of the cross as he drags it. We put the hits through the boom channel to make it extraordinarily heavy. In general, I used the subwoofer sparingly, but to me, that was the perfect device for it because the metaphor of [the cross representing] the sins of the world and all that, it seemed to be the correct thing to do.

*And at least in this movie you got your big storm at the end.*

[Laughs] Actually, we had all sorts of gorgeous thunderclaps and wind and cool stuff going on, but it ended up being an epic music moment. But it was still great. I'm not complaining. The composer, John Debney, did an incredible job.

*You trusted Mel's choices...*

Completely. This was his vision from beginning to end. There's a part where Mary goes into a sort of Zen moment and all the sounds drop away except for her breath. She puts her head down on the floor and the camera follows her down and through the floor to reveal Jesus in chains below in a dungeon. That was totally a Mel thing: All the sounds go out.

Then we recorded some breaths for Mary; those weren't the actress' original breaths, it was Renee Tondelli, who was the ADR supervisor. She was on the stage and we recorded breaths right then and there. It was a very fluid environment where we recorded a lot of little embellishments to Pro Tools on the stage, especially Mel's vocal and sound effect enhancements. The biggest challenge of all was the fact that Kevin O'Connell [who replaced Scott Millan for part of the final, because Millan had to work on *Unchain My Heart*] and I had no temp dub. We had no shakedown process with Mel and John Wright to establish style, so we had to go from zero to 60 on the final stage. Mel really enjoyed hearing all of our full sounds for the first time, but I'll always remember him tactfully suggesting, "The problem is, everything has the same value." That is, no style or point of view was evident. That's when the real mixing begins and our contribution is particularly needed.

So much of it was Mel's sensibilities: How should the Devil sound? Should this part sound realistic or not? He was usually of the mind that [the sound] be unflinching, focused. But he relishes taking chances. This film wasn't made for this summer or to be the

biggest movie or critically acclaimed or any of those normal motivations. This was made as an act of devotion. He never wanted to "go Hollywood" with this film. At the same time, it's so obvious that he's a great accessible artist. It shows in every frame. This movie changed my life. There's nothing I've ever done before that compares—the boldness, the social significance. People are still going to be watching this film in 100 years. Hopefully, by then I'll be in a comfortable place looking down at it. ■

## New Wave Entertainment

—FROM PAGE 95

we create and produce here. We also have a very large graphics department where we do things like main title sequences and DVD menus."

The audio department that services this growing enterprise is, obviously, a busy one, staffed by 11 mixers and running two shifts. Its infrastructure is built around the Fairlight DREAM family of modular production and post-production systems and includes six DREAM (now DREAM Constellation) automated multiformat mixing consoles, two Station editing/recording/automated mixing systems and one Satellite high-performance workstation/editor. The DREAM systems are particularly effective for New Wave because each product inherits all of the capabilities of its smaller siblings while adding functions. All DREAM systems share the same hardware and software platform, and operators are able to move quickly from one to another, streamlining the processes of audio acquisition, editing and track-laying.

With a schedule that on any given day includes ADR, voice-overs for DVD commentary, and editing and mixing anything from *The Alamo* to *Man on Fire*, quick and seamless throughput is a top priority. Fairlight's MediaLink networking provides connectivity between the DREAM workstations with real-time sharing, backup and distribution of audio data. Edit lists, interchange files and audio data in standard 16, 20 or 24-bit formats can be exchanged between any of the connected systems utilizing 100Mbit technology and standard fast Ethernet Cat-5 UTP twisted-pair copper cabling.

"We picked Fairlight because they are very efficient, especially on the server side," comments Apel. "Fairlight is a good product. It allows us to have all of our mixers working together. We started with the FAMES, upgraded to DREAM two years ago

and we just installed two more in November. We are always trying to make things more efficient for our clients who are under enormous pressure, and the DREAM system is great for what we need to do."

"We're really big on the team concept," adds Rick Nowak, NWE's VP of post-production. "We may have one editor working on a project and another editor needs to pick it up or add to it. Every mixer also needs to be able to get to the project quickly and easily. The concept throughout the entire building is a seamless work flow."

"The capability of the all-digital DREAM console and its routing is amazing," enthuses chief engineer/mixer Mark Rodrigues. "A feature we really appreciate that a lot of other systems don't have is that all automation and project information is saved together. So when you back up to the server, it's not a separate issue. Everything stays locked together in one place that can bounce from room to room. Another really nice thing about the Fairlight system is the V Motion video storage. It works hand-in-hand with all of the audio setups. I've worked with numerous video storage products and the V Motion is, by far, the fastest and most maneuverable."

"The system really works for us," agrees Nowak. "We call up a project, go up on the fiber and send it out to the client for approval. Then we make any tweaks and ship it out. Clients rarely come in anymore; the majority of our projects are shown over the fiber right into their offices.

"It's very immediate," he continues. "The majority of what we get is FTP'd to us. We get material from all of the different trailer vendors across town—and across the country. They fiber it to us, and even before I get the OMF, I can take the offline picture with its temp mix and start locating dialog and replacing effects.

"The Fairlight system lends itself to this way of working. Our clients know that they can give us a spot and we can get it out that fast. The DREAM editing system is by far the best I've worked on. It's designed to use two hands to punch buttons instead of having a mouse or a light pen that you have to drag. Once working that way becomes a routine, there's nothing else out there that can beat it.

"It's all about getting the work done," Nowak concludes. "Our mixers are a very solid group; they pride themselves on turning out the absolute best work for the timeframe that they are given. Our clients know that they will get the very highest quality possible." ■

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World Radio History



## Sony Pictures' AMS Neve 88R Scoring Console

The AMS Neve 88R's original design genesis goes back to 1998 with the first model shown at the fall 2000 AES show. But it wasn't until the middle of 2002 when Michael J. Kohut, president of Sony Post-Production facilities, and Mark Koffman, senior VP of post-production engineering, approached AMS Neve's Robin Porter to come up with a replacement for the facility's 72-channel VR Legend console. Striking changes in the way major motion pictures were scored, and the specific console requirements and extra facilities requested by scoring mixers and clients, had outpaced the VR Legend's capabilities.

"We routinely record 80 to 115-piece orchestras that need to play along with a prerecorded 60-plus-track Pro Tools session brought in by a composer," Koffman explains. "There's so much money involved during a typical scoring session and such tight schedules—they'll go for about three days or finish by the end of the week and then go straight to the dubbing stage—we needed a console that could consistently keep up."

"To us, it was very important that the console retain the immensely popular VR features like Flying Faders automation, the basic channel strip layout and the metering system," says Porter, "so anyone familiar with a VR could sit down and immediately go to work on an 88R."

Besides its 118 buses and huge number of I/O, Sony Pictures' 15.5-foot 88R has 96 large faders and 96 small faders—all automatable—and in the big-ticket world of scoring, fail-safe reliability and redundancy are a must. "We've made tremendous strides in reliability by using redundancy in all areas of the design," Porter emphasizes. "For example, we're using a standard PC to store setups, for automation and to scan and store the entire console—every switch, fader and knob position—every two minutes. But the operation of the 88R does not rely on software and if the computer goes down, the console continues to operate normally with no interruption."

In February 2003, Sony Pictures presented a design brief with serious modifications over the stock 88R to AMS Neve, with development and manufacture com-



*The custom 88R at Sony Pictures*



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## Sony Pictures' AMS Neve 88R Scoring Console

pleted by December and installation in January 2004. (For more information on the rededication, see "Current" in the May 2004 issue of *Mix*.)

Part of Sony's requirements was that its 88R had to function like a dubbing console with the ability to output six sets of surround mix stems simultaneously. To do this, there is a resource of 36 stem buses available for use in any combination of stem(s) required for the particular session: LCR, LCR, Ls, Rs, LCRS, aux 7/8; i.e., up to eight channels for each stem. The user

## The User's Standpoint

### SHAWN MURPHY ON THE 88R SCORING CONSOLE

*Mix* caught up with Shawn Murphy at Abbey Road Studios where he is ensconced with John Williams recording and mixing the score for the upcoming opus, *Harry Potter and the Prisoner of Azkaban*. Recent pictures Murphy has worked on include the mix of Mel Gibson's *The Passion of the Christ*, John Woo's *Paycheck* and P.J. Hogan's *Peter Pan*, one of the last films Sony Pictures did before remodeling the control room and installing the new 88R. Murphy has three Oscar nominations and one win for his work on *Jurassic Park*.



Murphy has been involved in the design of film scoring/mixing consoles since the early 1980s, working with both AMS Neve and SSL. When he worked at L.A.'s Todd-AO, many of Murphy's suggestions went into the final design of the monitor section for the custom SSL 9000 K console that the company purchased. Murphy worked early on and continues working with Robin Porter and AMS Neve as a nonpaid consultant—an end-user with his "wish list" of new desired console features and capabilities—all brought on by the new demands placed on the scoring process itself and the required formats of its delivered product.

"We're being asked to deliver [to the dubbing stage] more complex scores in terms of the material—the ingredients in the score—with elements separated out more extensively than in the past," says Murphy. "We're doing big orchestral scores, along with choirs, soloists, synthesizers and ethnic instruments all separated out to stems. That requirement was the genesis of our discussions for the new 88R Scoring console. We needed more buses, more flexibility in routing in the monitor so we can listen to each element separately while maintaining 3-channel, 4-channel and 5.1-channel specific stem assignments simultaneously all through the process. The large monitor section and the availability of many bus assignments from each input module allows for this. These requirements were accomplished by AMS Neve on this new desk and is beyond the capability of any other desk made right now."

On whether Sony's AMS Neve 88R would improve the quality of his work, Murphy confides, "Honestly, we would be reluctant to say that all of this makes my mixing better, although the new desks do sound good, and in some ways, AMS Neve has bettered the quality of the old desks that we all love so much. Much of the improvement is the speed and efficiency at doing what our main tasks are: deriving the many different versions of our mix simultaneously—multiple stereo mixes, stems and film composites all at the same time."

When asked about his current wish list, Murphy offers, "I think that most of the wishes center on the automation system now and not so much on routing and busing anymore. There will always be little software issues with assignments and other things that are locked out under certain conditions, and routing that changes depending on what mode you're in, but AMS Neve has been very responsive. They can correct those situations with each new software iteration or hardware update."

In the future, Murphy doesn't see a lot of changes in score mixing itself, but new recording technology will place new demands on both the process and scoring mixers in general. "Realistically, I think we'll be off analog tape fairly soon, and we'll want to look at integrating digital and analog desks and control surfaces better than we have done in the past, such as a common automation system," Murphy adds. "I also think that fairly quickly, we'll also be asked to expand our technology knowledge beyond where it is right now."

—Barry Rudolph ■

could have six LCR buses (18), five stereo buses (10) and four stereo aux buses (eight) that can be fed from the large and small faders simultaneously. These 36 stem buses are in addition to the 48 recording buses, five stereo mixdown buses, another LCR mix bus and eight auxiliary send buses. The custom surround stem management/monitor panel was a joint design project with input from mixers Shawn Murphy, Simon Rhodes, Dennis Sands, Sony's Pat Weber and Mark Koffman, and Jeff Foster at AIR Studios, UK.

The stem-management matrix is a marvel of engineering thought that takes into consideration every situation that could be required during the heat of an extensive surround scoring session. The composition and routing of each of the six surround stems are configured here: output path to external recorders, plus monitoring. Nonstandard surround configurations can be reconformed, and there is extensive soloing, muting and level management of each channel of each 8-channel stem. The 88R uses comprehensive fader mapping: Any fader on the board can be assigned to control any surround stem output, stem monitor or the four 2-track outputs, which can be used to generate cue mixes or master stereo mixes to the dub stage.

Sony's console is powerful enough to output up to four different and simultaneous mixes from 48 input channels by splitting the 96-input console into two halves, each with 48 large and 48 small faders. Each set of 48 faders can be used to derive a separate mix of any stem—from 2-channel stereo to 8-channel surround. While in Split mode, the console's aux send buses can split for separate effect sends for each half. Also unique to the Sony 88R is complete AFL surround soloing on any of the channel outputs.

"With the 88R, the scoring mixer can make and deliver any number of imaginable stem mix configurations of the same cues to the dubbing stage in one mixing pass. Not having to go back and remix because of unforeseen music, dialog or effects conflicts saves time and money," Koffman says. "We like our clients to leave here with a 5.1 mix of the prerecords, a 5.1 of the mixed orchestra, plus whatever extra 5.1 stems they'll need to be fully covered at the dubbing stage. That's the direction we're going now with the 88R, and so far the mixers and clients have been very excited about the console and its new functionality."

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Barry Rudolph is a Los Angeles-based recording engineer. Visit his Website at [www.barryrudolph.com](http://www.barryrudolph.com).

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# Pedant In a Big Box: Part Deux

## A Glossary of IT Terms for the Audio Professional

In March 2004, *Mix* introduced its IT glossary for pro audio folks. The data dictionary continues this month with more tech talk than you can shake an *Ethernet* cable at. Italicized words will be defined in the glossary, some in upcoming installments.

**DOLBY DIGITAL:** see *AC-3*.

**DOMAIN NAME:** the human-readable names that uniquely identify a *Website*. Domain names comprise two parts: the second-level domain name and its *TLD* separated by a “dot,” or period. In my case, my second-level domain name is “seneschal” and its TLD is “net,” resulting in the complete domain name, seneschal.net. Domain names are mapped to a particular server via *DNS*.

**DOWNTIME:** the opposite of *uptime*. This refers to the amount or percentage of time that a product, system or service is operational.

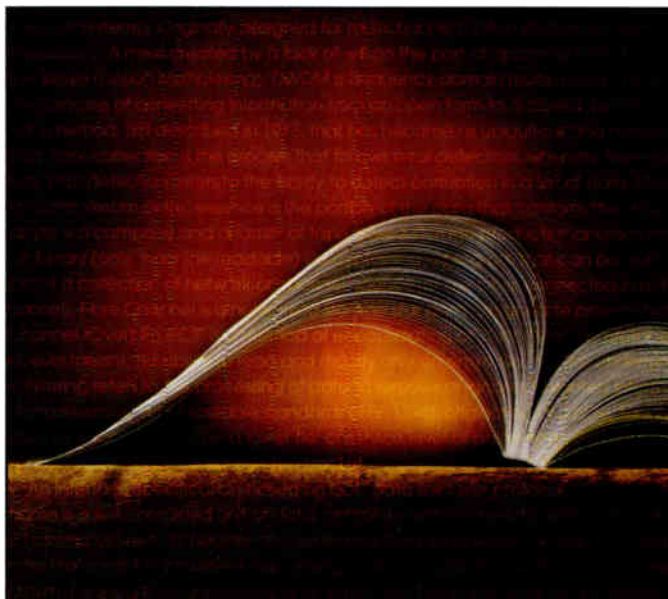
**DNS (DOMAIN NAME SERVICE, DOMAIN NAME SYSTEM):** DNS is used to describe two related processes; the Domain Name System and Domain Name Services are based on that system. The Domain Name System is a distributed hierarchical database that maps *domain names* such as www.seneschal.net to their corresponding IP addresses, which, in seneschal.net’s case, is 216.183.98.5. The Domain Name Services are simply servers whose “job” is to provide name resolution to its connected network.

**DSN (DATA SERVICE—LEVEL 0, 1, 2, ETC.):** Originally denoting the data rate necessary to carry a single digitized (PCM) voice, DS-0 (zero) has come to mean a 64-kbaud data service. DS-1, at 1.544 Mbps, can carry 24 *TDM-multiplexed streams*, and DS-2 carries four DS-1 loads. At a DS-3 level, 672 individual calls can pass down the same “pipe.”

**DSL (DIGITAL SUBSCRIBER LINE):** a technology that overlays data services on *POTS*. DSL is available in several tiers, including *symmetrical* (SDSL) and *asymmetrical* (ADSL) service at a variety of data rates, with and without *QoS* guarantees.

**DTS (DIGITAL THEATER SYSTEMS):** Originally designed for multichannel motion picture soundtracks, DTS’ lossy codecs compete with Dolby Labs for consumer mind share.

**DTV (DIGITAL TELEVISION):** a mess created by a lack of will on the part of appointed officials and outlandish lob-



COLLAGE: ELIZABETH HEAVERN

bying by broadcasting special interests.

**DWDM (DENSE WAVE DIVISION MULTIPLEXING):** frequency-domain *multiplexing* in the optical domain, whereby thousands of digitized streams are imposed on different frequencies or colors of laser light and launched simultaneously down an optical fiber. Frequency-discriminating detectors at the destination sort out each carrier color and decode the data. DWDM is used by *telecoms* to dramatically increase the payload capacity of in-place fiber.

**ENCRYPTION:** converting information from an open form to a closed secret form requiring hidden knowledge to convert the data back into the open form.

**ETHERNET:** a *LAN* method, first described in 1973, that has become as ubiquitous and adaptable as computers themselves. A “broadcast computer communications network” originally invented at Xerox PARC by Bob Metcalfe and his team, Ethernet has managed to prosper and evolve during a 30-year lifespan, an eternity by any measure of computer technology.

**ERROR CORRECTION:** the process that follows *error detection*, whereby the original data is recovered after some impairment.

**ERROR DETECTION:** the ability to detect corruption in a set of data. *Metadata* is often included in a file, *packet* or *stream*, such as parity bits, that facilitates error detection and subsequent correction.

**ESSENCE:** In a digital stream or file, essence is the portion of the data that contains the “raw” or basic information of interest, excluding *metadata* and *framing*.



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**EXABYTE:** a company and a family of tape-based storage products manufactured by that company.

**EXECUTABLE:** a binary (only machine-readable) file containing a *program* that can be "run" or executed by a computer.

**FABRIC:** a collection of network or channel *nodes* that are cross-connected in a many-to-many scheme rather than individual isolated point-to-point or loop *topologies*.

**FC (FIBRE CHANNEL):** a *networked* storage standard designed to provide high *availability*, performance and scalable storage with reliable *QoS* and unified *management*. Due to industry in-fighting and lack of standardization, FC is being supplanted by other less-expensive networked storage standards.

**FCIP (FIBRE CHANNEL [OVER] IP):** a method of encapsulating or "tunneling" FC protocols so that they can be transported over an *IP*-based network. FCIP allows FC-based storage networks to be extended from *LAN* to *MAN* and *WAN* distances.

**FILE-LEVEL:** the ability to only read and modify an entire file and not the underlying *protocols* that address the storage device on which the file resides. The term "file

level" is often used to differentiate "file-level" *NASs* from "*block-level*" *SANs*.

**FILTER, TO FILTER:** data processing to remove or ignore unwanted information.

**FIREWIRE:** a comprehensive set of scalable standards (*IEEE 1394*) originating at Apple for *P2P* serial data connectivity of rich media, which includes *IPP*, broad *PHY* support and both *asynchronous* and *isochronous* transport.

**FRACTIONAL:** used by telcos to describe a lower tier or service level of bandwidth. Fractional *T-1* is a lower-bandwidth version of T-1 service offered at lower cost.

**FRAME:** in *IT* land, a frame is synonymous with a *packet*.

**FRAME RELAY:** an interface specification based on *ISDN data link layer protocol*.

**FRAMING:** a self-contained unit of data, complete with addressing and control information.

**FRAMING BITS:** header and trailer structures that delimit the start and end of a frame of data.

**FTP (FILE TRANSFER PROTOCOL):** provides basic insecure file and directory *management* between *remote* computer systems.

**FUD:** an acronym meaning fear, uncertainty and doubt. Used by public relations pur-

veyors to undermine public confidence in a competitor.

**FULL DUPLEX:** an equal-bandwidth, bidirectional communications channel. Telephones are full-duplex, while two-way radios (walkie-talkies) are (wireless) half-duplex. Both *Ethernet* and *PCI* are half-duplex with one "talker" at a time.

**GIG-E, GIG-E (GIGABIT ETHERNET):** a shorthand way of saying "1000BASE-T." See *IEEE 802.nx*.

**HARDWARE:** any tangible physical computing *asset*.

**HBA (HOST BUS ADAPTER):** hardware that provides interface services, both at the *PHY* and logical layers, between some communication standard and a computer's operating system.

Come back next month for letters I through R. And fret not—we will assemble all four parts for easy download. ■

*OMas has been on the road again, which is a good thing. This time around, he worked up this column in the panoramic poshness of the Hôtel Delta Centre-Ville while under the influence of the HorrorPop's release of Hell Yeah! on Epitaph.*



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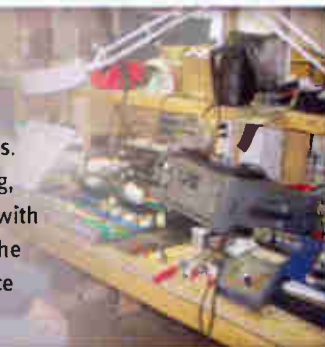
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## Tools of the Trade



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### DIGIDESIGN COMMAND|8

Digidesign's ([www.digidesign.com](http://www.digidesign.com)) compact Command|8 is a TDM/LE control surface featuring eight bankable channels with touch-sensitive motorized faders and eight automatable rotary encoders with LED rings. The unit also includes a 110-character backlit LCD, transport controls, a Focusrite-designed monitor section and a footswitch jack for QuickPunch/Track-Punch operation. The unit communicates with a PC/Mac via USB and includes an integrated 16-in/32-out MIDI interface. For video-heads, the C|8 works natively with Avid products' Automation Gain Tool and can be used with ProControl, Control|24 or Digi 002. Price: \$1,295.

### BLUE ROBBIE PREAMP

Robbie, a Class-A discrete tube mic/instrument preamp from Blue ([www.bluemicrophones.com](http://www.bluemicrophones.com)), has a 10-100k Hz response, sports balanced in/out and provides 68 dB of gain through its ECC88 tube gain stage. Mic input impedance is 5 k-ohms; the instrument input is 1 m-ohm. On the rear, the 7-pound unit offers switchable phantom power, a 20dB pad, polarity reverse switch and input for the external power supply. Price: \$1,299.

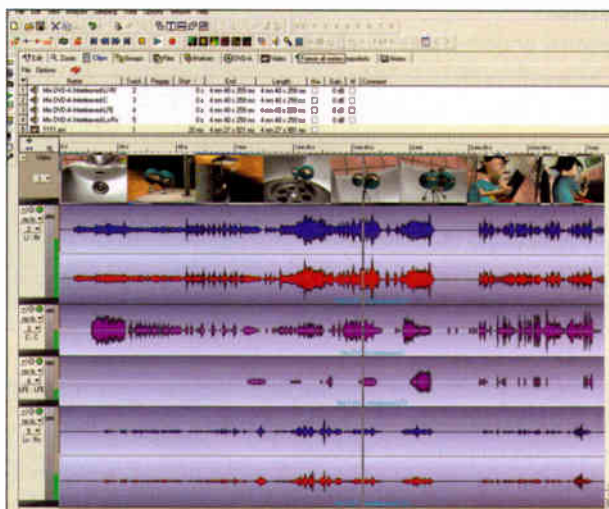


higher STC rating than cinder-block walls or standard wallboard. The 4x8-foot sheets are scored/cut using standard methods and can be installed to create corner traps or nonparallel walls. The company also offers fabric-covered absorptive panels with custom graphics from your PC files.

### CREAMWARE SCOPE UPDATE

With the release of Scope 4.0 software, CreamWare ([www.creamware.com](http://www.creamware.com)) has replaced its line of Scope DSP cards with three new packages. Scope Home (formerly Luna) packs a three-DSP card with up to 72 I/Os and includes the Modular II synth and the STS-4000 sampler. Scope Project (formerly Pulsar II) is a six-DSP

card with up to 20 I/Os (different I/O profiles available) and the Modular III synthesizer and either CreamWare's Mix 'n' Master Pack or Synth 'n' Sampler Pack. Scope Professional (formerly Scope /SP) carries 14 DSP chips and includes both the Mix 'n' Master Pack and the Synth 'n' Sampler Pack. Prices: Home, \$425; Project, \$995; and Professional, \$1,995.



### HILL ACOUSTIC DESIGN ACOUSTIC DRYWALL

Hill Acoustic Design ([www.hillacousticdesign.com](http://www.hillacousticdesign.com)) debuts Acoustic Drywall, patent-pending, multilayered, interlocking wall panels said to replace the need for most types of acoustic treatment due to its ability to absorb low, mid- and high frequencies and diffuse mid/highs. Composed of fire-core gypsum, polymer glue and proprietary sound-isolation layers, and priced at \$6 a square foot, the material has interlocking edges for an effective sound seal and has a

### MAC THE SCOPE 4X

This upgraded software signal analyzer from Channel D ([www.channld.com/mts.html](http://www.channld.com/mts.html)) is a scalable oscilloscope, 1/3-octave RTA and waveform/signal generator for Mac OS 9/X. Mac the Scope 4x is ASIO-compliant and supports up to 48 input and 48 output channels at any sample rate or word size. The RTA uses digitally synthesized true bandpass filters and will cover bands to as low as 2.5 Hz while providing nearly perfect amplitude accuracy. The software includes a switchable low-cut filter (18 Hz) and is capable of generating interactive, photo-realistic 3-D renderings. Price: \$49 to \$449.

## CAKEWALK GUITAR TRACKS PRO

Guitar Tracks Pro from Cakewalk ([www.cakewalk.com](http://www.cakewalk.com)) sports a new user interface, support for up to 32 hardware I/Os (ASIO and WDM), 24-bit/96kHz support and a setup wizard to ensure optimal performance. GT Pro can record up to 32 tracks, offers automation of track parameters and effects (including DirectX and VST) and application of 32 simultaneous effects in real time nondestructively. GT offers audio loop-construction tools and full support for ACID-format files; an extensive library of ACID loops from Smart Loops is included. Bundled effects include AmpliTube LE and the FX multi-effects suite, including chorus/flange, compressor/gate, parametric EQ, phaser, reverb and tempo delay. Price: \$209.

## SONIC STUDIO N-CODE

Sonic Studio's ([www.sonicstudio.com](http://www.sonicstudio.com)) first cross-platform, software-only product, N-code, is a professional encoding tool to prepare audio files for secure download. N-code offers four compression bit rates from 48k to 256kbps, and is the first pro encoding tool to support Sony's ATRAC-3plus codec. Supported file formats include 44.1kHz PCM .AIF and .WAV at 16/24/32-bit resolution. N-code supports Mac OS X and Windows XP, and is protected with a hardware key so that it can easily be moved between workstations. Price: \$2,000.



## DSOUND RT PLAYER HIDSP

The RT Player HiDSP from DSound ([www.dsound1.com](http://www.dsound1.com)) is a VST/AudioUnits-host application that allows users to route any VSTi (AUi) or VST (AU) plug-in via 16 available matrix banks. Users can map any MIDI controller data to control all available parameters on the plug-in. Keyboard zone splitting, transpose and octave banking are also included, allowing a USB controller to trigger multiple instruments from one MIDI channel. There is multichannel support of up to 32 I/Os with flexible channel routing, and all 16 matrix banks can be saved as a single preset, facilitating easy resets between projects. PC (VST) and Mac OS X (VST/AU) are supported. Price: \$229.

sender and receiver units that are connected via Cat-5 cable. Price: PS/2 Extender, \$89; RS-232 Extender, \$99; and Audio Extender, \$99.

## MEET YOUR BEAT LOOPS

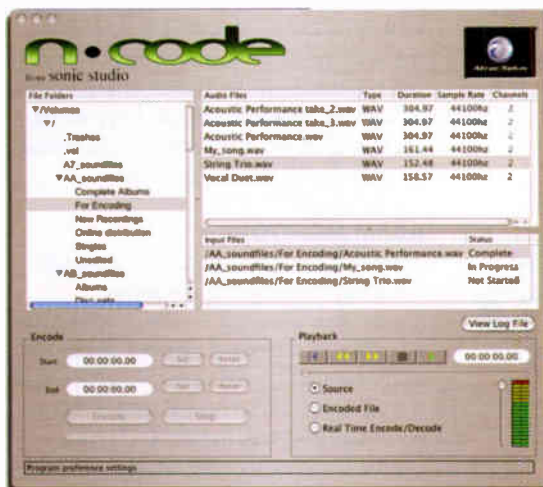
The first library from Meet Your Beat ([www.meetyourbeat.com](http://www.meetyourbeat.com)), MYB Volume One features master reggae percussionist Larry McDonald. The collection of 50 loops and one-shots includes conga, shaker, tambourine, agogo blocks, afuche, Flexatone, cajon and more. MYB loops and sounds are royalty-free and available for preview/download exclusively at Sonomic ([www.sonomic.com](http://www.sonomic.com)). Individual samples are \$1.99 or via a monthly \$29.99 subscription that allows 30 downloads.

## GEFEN EXTENDERS

Making it easier to put noisy computers in the closet where they belong, Gefen ([www.gefen.com](http://www.gefen.com)) offers three compact extension modules that connect computer devices at long distances. The new extenders allow stereo audio and PS/2 or RS-232-format devices to operate at up to 1,000 feet from the computer. Each extender runs on a 5-volt power supply and operates through small

## SOUNDTOYS CRYSTALIZER/TREMOLATOR

New effects from Soundtoys ([www.soundtoys.com](http://www.soundtoys.com)) include Crystalizer, a retro pitch processor/sonic manipulator, and Tremolator, a flexible tremolo device. Crystalizer allows up to two seconds of delay/slice time, selectable reverse/forward mode, up to three octaves of pitch change, built-in dynamics processor and MIDI/beat synched delays and slicing. Tremolator can create myriad standard guitar tremolo sounds, and also features a rhythm sequencer, LFO shape editor, envelope control over both rate and depth and more. The new plugs will run as a Pro Tools





HTDM, RTAS and AudioSuite plug-in for Pro Tools|HD, LE and MIX systems. The new "toys" can be purchased in the Ultra-FX bundle with FilterFreak and PhaseMistress for \$399 or individually for \$149/each.

**IK MULTIMEDIA STUDIOPHONIK**

This new virtual instrument plug-in from IK Multimedia ([www.ikmultimedia.com](http://www.ikmultimedia.com)) features a wide range of custom, vintage and top-of-the-line drums, percussion, guitars, bass, keyboards and horns. The plug also includes a virtual rack of outboard effects, including tube compressors, limiters, analog EQs, amp and cabinet simulators, plus reverb, delays and more than 30 different virtual DSP effect boxes instantly inserted on every instrument's channel. Price: \$399.

**SOUND DEVICES 744T**

The new ultraportable 744T multitrack recorder from Sound Devices ([www.sounddevices.com](http://www.sounddevices.com)) lets users record to internal hard drive and compact flash. The 744T has two balanced (XLR) mic/line inputs with switchable phantom power, two

line-level-only inputs on TA3 connectors and can record at up to 24-bit/96 kHz. All inputs have adjustable highpass filters and peak limiters on channels 1/2. Additional I/O comes on two balanced analog outs and AES and S/PDIF ports. Other features include a FireWire port, headphone out with level control, native MP3 file encoding, internal 40GB hard drive, a CF removable media slot, LED peak indicators for each channel and ability to set meters for PPM, VU or both. Price: \$4,250.

**SOUNDFIELD SURROUND ZONE FOR NUENDO**

Surround recording in Nuendo just got easier with the release of the new Surround Zone plug-in from SoundField (dist. by TransAmerica Audio, [www.transaudiogroup.com](http://www.transaudiogroup.com)). The PC/Mac plug-in combines the hardware features of the SP451 Surround Processor and MKV System and is designed to accept the B-Format information generated by any current SoundField mic model. Surround Zone provides a choice of three separate 5.1 arrays, individual 6.1 and 7.1 arrays, independently vari-

able width on the front/rear pairs, phase-coherent LFE and individual level controls with mute and solo. Additionally, the software offers auditory acrobatics such as 360° horizontal rotation, adjustment of the mic's pickup angle ( $\pm 45^\circ$  vertically) and the ability to zoom in on sound sources. Surround Zone can output mono, stereo, M/S, 5.1, 6.1 or 7.1. Price: \$1,162.50. The software is also bundled with SoundField's ST250 or 422B mics at a greatly reduced price.

**NI KOMLETE 2**

The latest bundle from Native Instruments ([www.native-instruments.com](http://www.native-instruments.com)), NI Komplete 2 contains 11 critically acclaimed software synthesizers, samplers and effects including Reaktor 4, Kontakt 1.5, Absynth 2, FM7, B4, Pro-53, Kompakt, Intakt, Battery, Vokator and NI-Spektral Delay. The bundle runs either in stand-alone mode or as plug-ins with pro host sequencers. Windows and Mac OS X are supported. Price: \$1,149.

**M-AUDIO DX4 MONITORS**

M-Audio's ([www.m-audio.com](http://www.m-audio.com)) Studiophile DX4 monitors feature a 4-inch polypropylene woofer and 1-inch mylar tweeter powered by an 18-watt amp. The mag-shielded DX4s have both RCA and 1/4-inch inputs and a mid-cut switch. The front panel carries a volume control and a 1/4-inch headphone jack that automatically mutes the speakers when headphones are inserted. Price: \$199.95/pair.

**TERRATEC MIDI HUBBLE**

TerraTec Producer's ([www.terratec.net](http://www.terratec.net)) MIDI HUBBLE is an interface with two MIDI I/Os and an integrated three-way USB 1.1 HUB offering three additional ports. The USB ports can be powered at up to 500 mA with an optional power unit or power can be drawn via the USB interface from a PC or Mac. All input/outputs carry status LEDs, and an onboard over-current limiter protects the USB ports. Price: \$99.

**ADAM MONITORS**

ADAM ([www.adam-audio.de](http://www.adam-audio.de)) unveiled three new monitors at the recent Musikmesse show in Frankfurt. The ANF-10 (\$700) is a passive monitor designed to please those looking for a replacement for the soon-extinct Yamaha NS-10M. Also announced was the ADAM APPLE (\$1,450), a slick-looking, all-aluminum



# Reality Check



You rely on at least two sets of monitors for perspective on how stereo mixes will translate across a variety of real-world playback systems. The variables inherent in mixing for home theater are all the more reason to have a second, smaller system with which to A/B your surround mixes as well. Our new LX4 powered reference monitor system provides all the accuracy, detail and affordable excellence that studios around the world have come to expect from M-Audio's renowned Studiophile series—and in surround. The LX4 2.1 System gives you two transparent satellite speakers and a powerful subwoofer with integral crossover. Simply add the LX4 5.1 Expander for a complete compact 5.1 surround system you can trust.

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all power in sub means routing only speaker cable

**M-AUDIO**



### AVIOM 16/O-Y1

Aviom's ([www.aviom.com](http://www.aviom.com)) latest product is an expansion card for Yamaha digital mixers supporting the mini-YGDAI format. The new card fits into any available expansion slot in the rear of Yamaha's 01V96,

DM1000, DM2000 and PM1D digital consoles, and distributes audio via

Cat-5 cable to the

company's new A-16II personal monitor mixing system. Audio can be assigned to card outputs directly from the Yamaha interface, and stereo operation can be achieved via channel-link DIP switches.

Supported sample rates include 44.1 kHz to 48 kHz ( $\pm 10\%$ ).

small monitor designed for close-field DAW applications. The Apple's 5-inch woofer and ART tweeter are juiced by two 50W amplifiers; inputs are XLR, 1/4-inch combo and RCA unbalanced. Last, but certainly not least, is the P33a (\$2,950) with P Series woofers and three 100W amplifiers.

### BIAS SOUNDSOAP PRO

Aimed at the high end, BIAS ([www.bias-inc.com](http://www.bias-inc.com)) SoundSoap Pro is a restoration plug-in for Mac OS X and Windows XP. The new plug includes four restoration tools, including multiband noise reduction, click and crackle removal, hum removal and a noise gate (shown). SoundSoap Pro's tool area features a global, real-time, color-coded spectrogram providing constant visual monitoring of spectral noise that may be in need of treatment. The spectrogram allows users to discern problem areas and make relevant tool adjustments while listening to—and watching—the results.



toring of spectral noise that may be in need of treatment. The spectrogram allows users to discern problem areas and make relevant tool adjustments while listening to—and watching—the results.

## Upgrades and Updates

**SoundSpace—Architecture for Sound and Vision**, by studio bau:ton principal Peter Grueneisen, is a 240-page hardcover book

covering issues central to designing spaces for the creation of sound, picture and contemporary media. Aimed at pros and novices alike, this lavishly illustrated collection features essays and projects by acoustics experts, artists, scientists, historians and architects, as well as a chapter on basic acoustics and spotlights on 40 design projects. Price: \$77; available in bookstores (ISBN 3764369752) or online at [www.papress.com](http://www.papress.com)...TC Electronic ([www.tcelectronic.com](http://www.tcelectronic.com)) has dropped its Spark and Native Bundle products to focus more resources on its PowerCore platform. Development will cease at the current versions (Spark 2.8.2 and Native Bundle 3.1)...In answer to this, BIAS has announced that Peak 4.1 will be offered at a substantial discount to users of TC Works and TC Electronic's Spark and Spark XL audio software (\$299). BIAS also announced that Peak 4.1 now includes Roxio's Jam 6 and SFX Machine LT, a limited edition of the multi-effects sound design plug-in. Visit

inc.com...GRM Tools' plug-in products are now iLok-compatible. For more information, visit [www.grmtools.org](http://www.grmtools.org)...MI7, based in

Malmö, Sweden, has acquired Prime-Sounds AB ([www.primesounds.com](http://www.primesounds.com)), a provider of professional samples for music and post-production. Prime-Sounds offers a searchable library for producers, songwriters, remixers, DJs and anyone else in need of unique high-quality sounds and samples...

Native Instruments ([www.native-instruments.com](http://www.native-instruments.com)) just unveiled Reaktor 4.1. Available free for registered 4.0 users, the latest version includes dozens of new features including sav-

able screen sets, a batch converter and a new recall system for saving all settings...Steinberg ([www.steinberg.de](http://www.steinberg.de)) has released the latest version of its virtual instrument rack, V-Stack, offering ReWire 2 support and OS X compatibility. V-Stack offers up to 16 simultaneous virtual instruments, eight send effects, four bands of EQ and 32-bit internal processing. The upgrade is free to all registered owners or new for \$59.99...Metric Halo ([www.mh-labs.com](http://www.mh-labs.com)) is now offering V. 1.5 of the Mobile I/O operating system, providing new functionality and increased performance across all Mobile I/O hardware models. Users of the Mobile I/O 2882, 2882+DSP, ULN-2 and ULN-

2+DSP can take advantage of increased performance under Mac OS X...TerraTec Producer will now ship all Phase 28/22/26 USB interfaces with the latest full version of FL Studio Fruityloops Edition and Steinberg's WaveLab Lite. For more info, visit [www.terrateg.net](http://www.terrateg.net)...

Universal Audio ([www.uaudio.com](http://www.uaudio.com)) is now including a special version of Expansion's VST-RTAS Adapter with its UAD-1 Project Pak and Studio Pak, allowing the UAD-1 DSP card to be used with Digidesign Pro Tools 6 systems. In related news, Universal is offering the UAD-1 Project Pak V. 3.5 for \$499, a new price point. Registered users can get the new Pultec Pro EQ plug-in with classic MEQ-5 mid-band section free of charge (regularly \$79)...Celemony is now offering V. 2.5 of Melodyne featuring Melody Manager, a new tool that facilitates the organization and search for audio files on a CD or hard disk, various display options and even the auditioning of files...Sony ([www.sonyplugins.com](http://www.sonyplugins.com)) has ported its Oxford Dynamics plug-ins for the TC PowerCore platform. Price: Oxford EQ, \$540; Oxford Dynamics, \$540; Oxford Inflator, \$340; or as the Powercore Bundle, \$940...Yamaha ([www.yamaha.com/dmi](http://www.yamaha.com/dmi)) has released mLAN tools for OS X V. 10.3.3. The new release provides enhanced support for CoreAudio and CoreMIDI. The free update is available from [www.mlancentral.com](http://www.mlancentral.com). ■



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World Radio History

# Solid State Logic AWS 900

## An Affordable Analog Workstation System

Mention the name Solid State Logic and images of huge, high-end, high-ticket mixers immediately come to mind. Yet at the recent NAB show in Las Vegas, this producer of world-class consoles unveiled a product that breaks new ground in terms of performance and price.

The AWS 900 Analog Workstation System takes the high-performance, 200kHz bandwidth analog electronics of SSL's award-winning XL 9000 K Series consoles and marries it with an ergonomic worksurface for controlling DAWs such as Emagic Logic, Steinberg Nuendo or Digidesign Pro Tools.

### JUST LIKE ANALOG

Other than the dedicated controller key functions with very un-console-sounding names like undo and loop and an integral TFT screen for displaying DAW and plug-in functions, the AWS 900 looks like a scaled-down 9000 K. And with the exception of these few additional accessories, any analog SSL console user would feel right at home on the AWS 900; in fact, the console can operate as a straightforward 24x8 analog desk.

The board's analog features include switchable SSL E or G Series 4-band parametric EQ, assignable SSL dynamics (gate/expander/comp limiter), G Series stereo main bus compressor, oxygen-free cable in the internal wiring, metering on all channels and main outs, eight aux sends, four stereo effects returns and 100mm moving fader automation. In addition to its highly regarded, SuperAnalogue™ mic preamps, the AWS 900 also provides a high-impedance instrument input on each channel—something no other SSL console offers.

The I/O complement is flexible, with all balanced I/Os, inserts and direct outs on each channel for direct-to-DAW tracking, comprehensive talkback functions and stereo and multichannel summing buses for stem returns for the DAW. The monitoring capabilities are no less formidable, with facilities for controlling two sets of stereo speakers and two entire 5.1 rigs: mains and near-fields. The left/right feed can come from any number of stereo sources or from a downmix from the surround mains. Inserts are provided for 5.1-encode/decode hardware systems, as is configurable onboard bass management.



### BRING ON THE DAW

What sets the AWS 900 apart from other SSL products is its DAW controller functions. The 24-channel controls can be bank-switched to perform as traditional audio channels, DAW channels or—in groups of eight—a combination of both. An alphanumeric digital scribble strip above each channel fader displays the name and/or status of any assigned DAW channel. This strip also provides immediate control of any DAW parameter via a rotary encoder that doubles as a small fader-style analog channel level in Master Flip mode, again bringing operations very similar to traditional in-line recording/mixing. The large main faders also offer dual functionality (DAW or analog levels), and the large touch-sensitive faders write/replay level moves directly to/from the DAW.

But it is in the master section's DAW control panel and motion control panels where most of the workstation action occurs. The motion panel is straightforward, mimicking the usual transport controls, along with a numeric data-entry keypad, jog/shuttle wheel, up/down/left/right navigation buttons and illuminated dedicated keys for oft-used routines such as punch-in/out, audition, pre/post-roll and RTZ, among others.

While not meant to displace the workstation's main GUIs, a high-res color TFT display above the DAW control panel shows plug-in parameters and DAW status data. Below this are rows of assignable rotary encoders and soft keys, with functions determined by the software of the application

that's running. Each of the rotaries have built-in push-push switches that can act as an enter key or step through to the next function. A large section of illuminated buttons dedicated to various functions provide immediate access to basic commands such as arm/disarm all tracks or recalling the DAW's Mix or Edit windows. Also standard are single-touch buttons that are equivalent to typical DAW keyboard shortcut commands such as escape, undo, save and enter.

The AWS 900 software communicates with DAWs via MIDI, is Mackie HUI-compatible and includes templates for Logic, Nuendo and Pro Tools. It's platform-independent and uses a dedicated CPU to maximize automation/control performance.

Even without considering the DAW functions, the AWS 900 is one sweet little (57-inch-wide) console. Yet perhaps the most revolutionary aspect of the AWS 900 has nothing to do with technology at all. SSL realizes that this product appeals to a far more diverse audience than the "typical" SSL console, so Guitar Center's retail stores and GC Pro's dedicated business-to-business organization will handle AWS 900 sales, service and support to its target market. SSL will also sell the AWS 900 directly to its core client base and broadcast clientele. Unlike other SSL desks, the AWS 900 is available in one version only and is priced at \$85,000, less stand. Shipments begin this month.

For more information, visit [www.solid-state-logic.com](http://www.solid-state-logic.com).



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# Focusrite Platinum TwinTrak Pro

## Feature-Packed Dual-Channel Preamp, Optical Compressor and EQ

The newest member in Focusrite's Platinum Series is a 2U channel strip/monitor mixer combination that promises to have everything you'll need to record, overdub and monitor stereo sources—just add instruments and mics, headphones and speakers, and something good on which to record.

### A QUICK OVERVIEW

The TwinTrak has two identical mono channel strips, each comprising a Class-A mic/line/instrument preamp with variable impedance, a very useful mid-scoop filter and a nice-sounding optical compressor. The channels can be linked for stereo or used as two discrete mono paths.

A stereo monitor section includes dual unbalanced send/returns to connect a serial device or other processor. In addition to a built-in headphone amp, the TwinTrak Pro has an output for feeding a dedicated headphone amp. Because the input signal is routed directly through the monitor section, there's no latency to deal with.

Both 1/4-inch line and S/PDIF digital inputs are provided, allowing DAW users to route directly to the unit and back. Focusrite offers an A/D converter option for the TwinTrak but they weren't included in the review unit.

### UNDER THE HOOD

The TwinTrak packs a formidable number of features into its solid-feeling chassis. Starting at the back, features include XLR balanced monitor and main outputs, and parallel -10dBV outputs; line-level inputs separate from the instrument and mic ins on the front panel (with switches on the front panel); TRS inserts and individual compressor sidechain inputs for each channel; and BNC word clock input and DAC out and optional ADC.

The mic preamps provide 60 dB of gain, enough to drive even low-output ribbon mics. There's a separate six-stage LED meter for each mic preamp, and switches for phantom power, polarity reversal and a highpass filter.

The Air button is an interesting feature, which Focusrite explains as a "wire-wound, inductor-induced" circuit. It adds a pleasing high-frequency boost to the mic inputs and in practice I never turned it off.



The mid-scoop EQ can be swept continuously from 120 Hz to 2 kHz, and it has just two buttons: In and Deep (12 dB of cut instead of 6 dB with the switch out).

Like many optical compressors, the attack varies with the input level, but TwinTrak has switches for slow attack, hard ratio and hard knee. The compression knob is a backward threshold control, and the release becomes automatic in the fully clockwise position.

The comprehensive monitor section includes a mono switch, a balance pot between the two channels and a mute button. The dual analog peak-level reading meters are a nice, rare feature.

As a testament to its quality, the TwinTrak uses a detachable IEC power cord, not a wall wart power supply.

### PUT TO THE RECORDING TEST

While the TwinTrak's circuitry undoubtedly borrows from higher-end Focusrite units' designs, the Platinum series is the company's budget line. The TwinTrak (\$700, 24/96 A/D option: \$250) is priced and designed for use in personal studio rigs—definitely the milieu in which it shines.

I made some quick recordings into Pro Tools through the TwinTrak and two other budget mic preamps. I recorded acoustic guitar, solo cello, key rattling, recorder and spoken word. (The latter is arguably the best test signal for any audio equipment because it's so obvious when it does or doesn't sound right.)

The TwinTrak's mic preamp stacked up quite well next to these budget units—after its impedance control had been adjusted to suit an Audio-Technica 4050. And with the Air circuit engaged, it sounded substantially nicer to my ears.

However, it only works on mics. Sometimes when you compare budget electronics to high-end studio gear, you may notice a loss of, well, air on signals running through

the unit. I noticed this whether or not the compressor and filter were switched into the circuit, but, of course, it's highly dependent on the source; for example, a DI'd electric guitar is unlikely to be a problem.

This is not something that shows up in a spectrum display (I looked at pink noise recordings through the TT and an adjacent channel of my digital mixer in Metric Halo's SpectraFoo); rather, it's a matter of how "open" the sound is. There's a reason Focusrite also makes its high-end Red and ISA lines.

This became apparent when I sneaked the TwinTrak into one of engineer E.T. Thomgren's sessions for new artist Tenley Bedard. He ran out of a Millennia Media channel strip into the TwinTrak's line input to use its faster-acting compressor, which is more appropriate for pop vocals.

While the tracks needed a little compensatory air-range shelving EQ, the TwinTrak's optical compressor performed nicely. Between all of its options, especially the auto-release position, you can make the compressor seen but not heard, or heard but not seen.

Finally, it makes a lot of sense to have a mid-scoop EQ on a recording box. Of course, fully parametric EQ is useful as 99 percent of the time, you just want to get rid of a problem frequency. And, in fact, TwinTrak's filters proved their mettle on a stereo acoustic guitar recording, getting rid of the typical 180 to 250Hz lumpiness effortlessly and transparently.

### CONCLUSION

The TwinTrak Pro is a very well-conceived product with great features, excellent compressor and sound quality unrivalled at this price point.

Focusrite, dist. by Digi-  
design, 650/731-6300, www.  
digidesign.com.



*Nick Batzdorf is a composer, producer, engineer and writer living in Los Angeles.*

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# Wunder Audio PEQ1 Mic Pre/EQ

## A Blast From the Past Gets a Sonic Makeover

In 1971, Led Zeppelin bass and keyboard player John Paul Jones ordered a custom-built console for his recording studio. Decades later, Wunder Audio owner Mike Castoro got his hands on a preamp/EQ module from that one-of-a-kind board and was blown away by its sound. Castoro spent the next four years designing and implementing 20 modifications for the module, resulting in the Wunder Audio PEQ1.

### SOLID, IN AND OUT

The solid-state, fully discrete, Class-A PEQ1 can be ordered either as a stand-alone mono module with 18-pin, gold-plated Amphenol connector (\$2,250 list) or in a 1- or 2-channel rackmountable chassis that also provides XLR and TRS connections for mic, line and instrument inputs and line output. (More on these connections in a bit.) Although the circuitry for the PEQ1 is unique, Castoro made the stand-alone module's form factor and pin-out configuration fully compatible with Neve 1073 modules so that it could serve as a direct replacement in Neve 80 Series consoles or outboard racks designed for the 1073.

I reviewed a single PEQ1 module mounted in a 3U, 2-channel Wunder Audio powered rack, designed by Boutique Audio & Design. The rack adds \$695 to the module's list price: A Boutique rack loaded with two PEQ1s costs \$5,195. Castoro told me that his company will offer a single-channel module (the PEQ1R; \$2,250) mounted in a Wunder Audio 1U rackmountable chassis by the time you read this. An outboard lunchbox-style power supply (\$299) will be required for use in this configuration; the power supply will purportedly be able to power up to 24 daisy-chained PEQ1Rs. Similar to the Boutique version, the PEQ1R will offer XLR and TRS connections for mic, line and instrument inputs and line output.

My review unit provided separate balanced XLR connectors for mic and line inputs and line output on the rear panel. A balanced TRS input (which also accepts unbalanced signals) on the unit's front panel is wired in parallel with the unit's rear panel line input and can accommodate instrument or line-level signals. All I/Os go to custom-designed transformers (exact replicas of those used in Jones' desk), which are key to

the PEQ1's sonic signature.

The unit's build quality looks solid. Components include conductive-plastic Vishay pots, custom Elma switches and large Sprague "Orange Drop" capacitors for the EQ circuitry. The PEQ1's frequency response—with EQ switched out—is an impressive 20 Hz to 115 kHz, +0/-1 dB. Maximum output level is a respectable +23 dBm into 10 kilohms. Noise is better than -125 dB from 10 Hz to 20 kHz.

### FINE FEATURES

The PEQ1 module offers separate control knobs for input gain and each of its three bands of EQ. Switches are also provided for choosing alternate input source (mic or line/instrument), global EQ bypass and phase inversion. The Boutique rack adds switches for AC, phantom power and a rotary attenuator (which goes to complete silence when set fully counterclockwise) for output level. The PEQ1R will also purportedly incorporate all of these features except the power switch, which will be on its outboard power supply.

The PEQ1's input gain control provides from 18 to 78 dB of gain for mic signals and a whopping 60 dB of gain for line and instrument inputs—plenty for recording instruments straight to tape or disk. Hash marks for input gain follow British convention: Values indicate the amount of gain applied to achieve the rated output level (in this case, 0 dBm). For example, the gain knob would need to be set to "-12" to achieve 0dBm output level on -12dBm input. Screening on one side of the knob indicates gain boost for mic input, while the other side shows gain boost for line and instrument inputs.

The PEQ1 provides shelving EQ for high and low bands and a bell curve filter for mids. The stepped (fixed) frequency and continuously variable gain controls for each band are concentrically arranged. There is no Q control for the mids; filter bandwidth varies between roughly  $\frac{1}{3}$  and  $\frac{2}{3}$  octave, depending on which center frequency is chosen. Choices of frequencies include 40, 60, 100, 160 and 200 Hz for lows; 0.36, 0.7, 1.3, 2.4, 3.6 and 5.8 kHz for mids; and 7, 10, 12.5, 15 and 20 kHz for highs. There is no overlap in center frequency choices between



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bands, and a band can only be independently bypassed by setting its frequency control to an off position.

A separate bypass switch for each band would have allowed users to retain each frequency selection in bypass mode and perform instantaneous A/B comparisons per channel. Another practical disadvantage is that the brass boost/cut knobs, though beautiful, are plated with a shiny nickel finish that made it very difficult to ascertain settings in many lighting conditions. [Editor's note: Wunder says the knobs are also available in a glare-free, clean anodized aluminum.] These knobs also lack zero detents. The maximum boost/cut provided is roughly  $\pm 21$  dB for midrange frequencies and  $\pm 20$  dB for lows and highs.

### WUNDERFUL SOUND

Before using the PEQ1 in my sessions, I A/B'd its mic pre (EQ switched out) with an exceedingly accurate Millennia HV-3D to get a handle on its sound. Recording a nylon-string guitar, the HV-3D offered noticeably faster transient response and more depth and transparency as compared to the PEQ1. The PEQ1's mic pre wasn't as sparkly, open and detailed as I would've liked.

I quickly learned that this unit's forte was-

n't transparency but making things sound *big*. Recording male lead vocals through the PEQ1's pre with a Lawson L251 tube condenser set to omni mode and applying mild cut below 160 Hz and boost at 20 kHz with the PEQ1's EQ, the sound was lush and round with plenty of detail and depth.

Playing my '62 Strat through Roland's fabulous MicroCube amp, I miked the cabinet with an L251 in bi-directional mode and used the PEQ1's preamp again for gain. The sound was *perfect*: huge, creamy and tightly focused. The guitar track had a raspy cut without sounding brittle.

Recording electric bass guitar via the PEQ1's front panel instrument jack, I anticipated hearing a dull sound due to expected pickup loading (considering that the instrument input follows the same audio path as line-in), but, boy, was I wrong! With the EQ switched out, the bass guitar was delightfully present without sounding glaring or thin. In fact, the sound was so rich and full that I would've sworn that this was a tube pre, except that the sound also had a solid-state focus. Best of all, the PEQ1's bottom goes all the way to China! The bass track's thunderous, fat, growly and aggressive sound eclipsed that produced from any dedicated DI—tube or solid-state—that I've ever used

with that same bass guitar.

In other sessions, I got fat and snappy tracks recording congas, djembe, cowbell and handclaps in turn through the PEQ1 (using a B&K 4011 mic). Here, applying a touch of the PEQ1's low- and high-shelving boost added extra dimension to the tracks.

I also put its line input and EQ to good use during several mixdown sessions, alternately shaping kick, snare drum and bass guitar tracks. The sound was always warm, robust and full-bodied, yet tightly focused. The PEQ1's EQ sounded especially musical on rock drums. Very responsive yet smooth, this is colorful EQ you can readily hear.

### SOLID, IN AND OUT

The PEQ1 would not be my choice for recording, say, delicate stringed instruments where transparency and detail are paramount goals. But for drum, percussion, electric guitar and vocal tracks that make a bold statement, the PEQ1 is an outstanding choice. And you *gotta* hear it on bass guitar!

Wunder Audio, 512/338-6777, [www.wunderaudio.com](http://www.wunderaudio.com). ■

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

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# Prism Sound Dream ADA-8 8-Channel Converters

## Mixing and Mastering With the Future in Mind

Prism Sound Dream converters are well known in mastering circles for their transparency and detail, and the ADA-8 continues the tradition of fine design and excellent construction. The Dream ADA-8 provides eight channels of up to 96kHz/24-bit AD/DA conversion for high-quality audio production. Multichannel mixing and mastering facilities will find its flexible interface options especially useful. Although the unit is not cheap (from \$8,700 to \$11,700), its field-upgradeable components ensure that it will remain viable after other converters have been consigned to the slagheap. Digital I/O modules, AD/DA boards and even the DSP engine may be upgraded; firmware upgrades are also available.

### INS AND OUTS

The Dream ADA-8's back panel has four sections: mains inlet, analog I/O 1 and 2, digital I/O 1 and 2 and the Utility Module. The mains inlet has an IEC socket, a power on/off switch, a two-way voltage selector and a fuse holder. The top eight inputs in the analog I/O section (AIO1) comprise transformerless, electronically balanced, galvanically isolated XLR inputs with software-adjustable calibration level. Dynamic range is 112 dB, RMS unweighted, measured at -60 dBFS. THD+N is -105 dB (0.0004%), RMS unweighted, at -1 dBFS. A switchable Overkiller function (a progressive analog peak limiter) prevents converter overload with soft-knee limiting up to 12 dB beyond nominal full-scale.

The lower eight outputs in the analog I/O section (AIO2) are also transformerless, electronically balanced, galvanically isolated XLR outputs. Dynamic range is 110 dB, RMS unweighted, measured at -60 dBFS. THD+N is -104 dB (0.0004%) typical, RMS unweighted, at -1 dBFS. Because AIO slots can accept either analog input or output modules, the ADA-8 can be configured to offer 16 analog inputs or 16 analog outputs.

Digital I/O options abound: AES3-S/PDIF, Pro Tools MIX, Pro Tools|HD or IEEE-1394 FireWire, all offering eight channels in and out. The ADA can accommodate any two I/O options at the same time.

The Utility module comprises a stereo analog monitor output with balanced RCA connectors, a stereo digital monitor output



with a BNC connector, AES11 reference sync input and output, word clock or video reference sync in, word clock or superclock (256 xfs) reference sync out and a serial port with RS-232, RS-485 or MIDI format on a male 9-pin D connector.

### THE FRONT PANEL'S FOUR Ms

The ADA-8 front panel features the Monitor, Mimic, Meter and Menu panels. At the extreme left is a switch to toggle the ADA-8 in and out of standby power mode. Below the switch is a headphone jack for 2-channel monitoring. The Dream ADA-8 has two 8-channel paths that can be monitored and metered separately and synchronously. Typically, these two paths will be the AD/DA signal paths.

The Monitor panel controls the 2-channel monitor and displays its parameters. A blue Access button calls the appropriate menus on the ADA-8's LCD. You can monitor in Pairs mode (where adjacent channel pairs are monitored) or Mixed mode. In Mixed mode, a mix of any of the path's channels can be created, each with its own gain and pan setting.

The Path Selector button toggles between path 1 and path 2. Pre Post selects whether the monitor path will be sent pre or post the processing section. Cut mutes the signal path, and the Invert button phase inverts both channels when selected. Engaging the Mono button causes both channels to be mixed together at both outputs, and the Swap button exchanges channels A and B outs. A two-button volume control may be defeated in the Monitor options menu.

The Mimic panel shows the signal flow through either path 1 or path 2—from source through processing to destination. Path 1 and path 2 are switchable. Other function buttons are circumscribed by flow

chart boxes that have access buttons to call up companion menus related to the specific box. The sync source/sample rate box indicates sync source (local, word clock, AES, video, D|1 or D|2) and sample rate (32k, 44.1k, 48k, x2, x4 and =ext). The source box shows which ports are assigned as inputs to the selected path: analog (1, 2), digital (1, 2) and a Split96 indicator that shows when the digital inputs are used in two-wire mode. Mic and 48k LEDs indicate that analog input modules with a mic pre facility are selected with the mic pre function and phantom power toggled to on. The Overkiller LED shows that one or more inputs in the path have their progressive analog limiter switched on.

The decode box indicates signal path word length (16, 20 or 24-bit) and which decode algorithms are in use. The MR-X LED shows that Prism Sound's MR-X format is engaged. This is a word-mapping scheme that sacrifices tracks to record higher sample rates or longer word lengths to a multichannel target that has a lower native format.

If the DRE LED is lit, one or more channels are being decoded from the Prism Sound DRE (Dynamic Range Enhancement) format. DRE encodes extended word length formats to shortened formats without sacrificing an extra channel. It works for recording to media and digital audio signal paths. DRE<sub>16</sub> indicates a maximum 16-bit word length for target media or data channels, while DRE<sub>20</sub> is used for 20-bit media.

Green LEDs indicate the input signal's effective word length after decoding. Word length is determined by measuring the number of zero LSBs rather than depending on aux bit definition in the data stream.

The process box has three LEDs: Patch LED, which indicates that cross-channel mixing or patching is selected; Process LED, showing that signal processing functions are active; and Bypass LED, indicating that no patching or processing is enabled.

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The dither/encode box indicates word length for the path's digital outputs (assuming that digital outputs are assigned) and encode algorithms in-use. The 16b, 20b and 24b LEDs in the center of the box indicate word length; more than one may be lit if different output channels in the path have differing word lengths. The SNS LED shows if word-length reduction using the Prism Sound Super Noise-Shaping algorithm is selected for any of the channels. If any of the path's channels has flat dither selected, then the Flat LED will be lit. The Auto LED lights when auto dither defeat is active. This ensures that no

dither will be applied in situations where it is not needed; for example, when doing a straight D/D transfer or sending digital black.

The Dest (Destination) box indicates output ports for the selected path. The green LEDs on the box's right side include analog 1 and 2, digital 1 and 2 with yellow LEDs indicating Split96, or two-wire mode.

The Meter panel has eight bargraph meters that can be assigned to show levels for either path. Peak hold and overload status may be assigned via the relevant menus. Alert LEDs show various conditions such as input lock status or analog overload killer

action, depending on their assigned function. The top row of buttons selects path 1 or 2, pre- or post-processing metering, indefinite peak hold and access to the relevant menus. The Channel Select and All buttons are used together for various programmable functions, such as the quick assignment of the analog overload killer to all channels.

The Menu panel lets the user view and change all parameters and provides 24 stores (four banks of six) for user settings.

#### I HAVE ONE, I WANT MORE

The ADA-8's clocking yields excellent jitter rejection. AD/DA paths have independent, multiple PLLs, and imaging is precise for multichannel and stereo audio programs (assuming that the audio in question has excellent imaging).

I tested the Dream ADA-8 with a Pyramix DSD system and was instantly struck by the entire system's natural sound. I also used it with a Pro Tools|HD 5 Accel system because most of my current projects are at least 96 kHz. I hope that a 192kHz upgrade is coming for this unit because I have several clients requesting that format.

I used the Dream ADA-8 when mixing Read Ridley's latest film, *Dodge City*, starring Isaac Hayes and Jackson Bostwick. Matching dialog shot on location with ADR required close attention to subtle nuances in the background ambience and minute tweaking of vocal levels and EQ. Having the Prism meters for constant reference ensured that I maintained dynamic range without losing the quiet scenes or overloading louder ones. It's one thing to mix music in three-minute programs and another to mix audio for an 80-minute program. I found that the ADA-8 helped offset fatigue because I could hear greater detail without struggling. When I listened to the mix on other systems, I was surprised at how areas I worried about seemed to meld together without seeming "chopped."

An acoustic jazz project I started in DSD is now in the overdub stage on a Pro Tools|HD Accel system with the ADA-8. After finishing the mix, I'll transcode back to DSD using the ADA-8. One of the ADA-8's most useful assets is its ability to do instant format conversion: If I need to go to another system, I just swap modules.

What do you get the person who has everything, including a Prism Sound Dream ADA-8? Why, another one, of course!

Prism, 973/983-9577, fax: 973/983-9588, [www.prismsound.com](http://www.prismsound.com). ■

*K.K. Proffit is co-owner/chief engineer at JamSync, a Nashville facility specializing in surround production.*



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(Alice Cooper, Ozzy, Mötley Crüe)

# KRK Rokit RP-5 Powered Studio Monitors

## Small Speakers With a Big Sound

The KRK Rokit Powered Studio Monitors intrigued me because of their incredibly low price. I received the RP-5s, the smallest pair in the line, which sell for \$299 pair MSRP, and I liked them immediately. If you're on a limited budget and need to outfit a stereo or surround listening/editing/mixing station in a small room, then these are the monitors for you.

The Rokit Powered line comprises three models: the RP-5, RP-6 and RP-8. There is also the 150-watt RP-10S RoK bottom powered subwoofer. The numbers 5, 6, 8 and 10 refer to the woofer size in inches, and all models share KRK's proprietary yellow woofer cone design made of a woven-glass Aramid composite. A single 1-inch neodymium soft-dome tweeter with ferrofluid is used for high frequencies. All models are designed as individual systems with specifically optimized transducers, enclosures and electronics. The models' tweeter domes are the same proprietary textile material impregnated with a polyester damping material. The voice coil and motor structures differ for each model.

The RP-5 weighs 14 pounds and measures 10 $\frac{1}{2}$ "x7 $\frac{1}{2}$ "x8 $\frac{1}{2}$ " inches. They are made using medium-density fiberboard with rabbit joinery, a central septum and multiple braces. The Rokits have an organic, high-tech feel and are finished in flat black with rounded corners and edges that KRK says reduce edge diffraction and results in better audio imaging. There is a stylish escutcheon plate surrounding the tweeter and woofer and a bass port slot nearly the width of the cabinet at the bottom. This rectangular-shaped port is said to reduce port turbulence as compared to a round one.

The RP-5 frequency response is given as 53 to 20k Hz,  $\pm 2$  dB. The crossover is at 3 kHz using a custom 24dB/octave crossover filter. The RP-5 uses a 15W amp for the tweeter and a 30W amp for the woofer. Both amp modules are low-noise and distortion DMOS audio amplifier modules made by SGS-Thomson.

### PROFESSIONAL REAR PANEL

The rear panel contains all switches, controls and connections, and acts as a heat sink for the built-in amplifiers. There are

two level controls: a continuously adjustable input sensitivity knob that goes from -30 dB to +6 dB, and a four-position high-frequency switch with -2, -1, 0 and +1dB positions. For my listening tests, I kept the input set to +6 dB and the high frequency at 0 dB. The rear panel finishes with an on/off switch, a fused 110/220 VAC IEC mains connector and three convenient audio input connectors (XLR and TRS balanced and an RCA unbalanced jack).

### PLUG-AND-PLAY MUSIC AT HOME

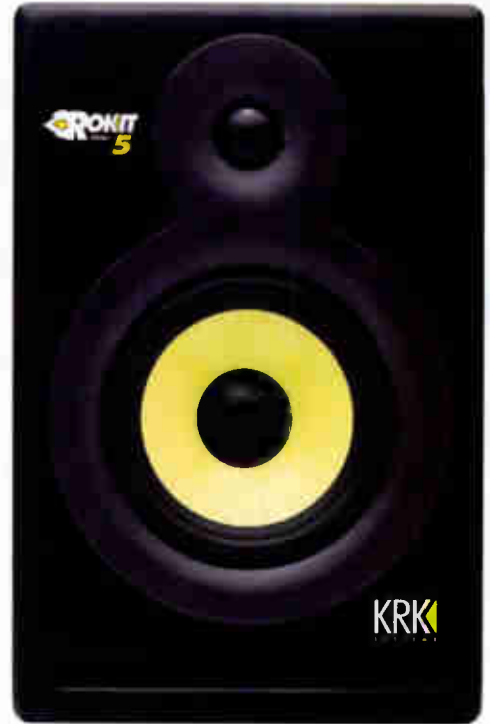
It's been great "living" with my pair of Rokits for the past month. I have a small one-man mixing/listening station in one-half of my office. I placed the pair of RP-5s exactly 32 inches apart on either side of my 15-inch flat-panel DAW monitor on small stands—just tall enough to get them at head/ear height. The speakers are shielded.

I liked the monitors' look: When your head is the third corner of the proverbial near-field monitor equilateral triangle all day and/or night, it helps to have something nice to gaze at.

The RP-5s told me everything good and bad about my recordings and mixes. I was surprised at how well I could hear bass and upper-bass frequencies with only a 5-inch woofer. These monitors are for low to medium volumes and when pushed hard, they tended to scream out with more upper midrange. Panned track positions were easy to hear, and the amplifier electronics were very quiet, so I heard reverb tails all the way down into the DAW's noise floor. With only 5-inch woofers, you are not going to fill the room with booming subsonics—get a subwoofer for checking that sub octave.

### AT THE STUDIO

In a much bigger control room—for a reference point and not as an A/B—I compared the Rokits to a pair of Yamaha NS-10M studio monitors and a pair of Genelec 1031As. The KRKs were smoother and nicer to listen



to than the Yamahas—really an "apples to oranges" comparison. The NS-10Ms have a hyped midrange character and the RP-5s easily demonstrated it with a much flatter and smoother overall sound. The KRKs have more and tighter bass than the 6 $\frac{1}{2}$ -inch Yamaha woofer.

The KRKs sounded closer to the Genelecs but smaller in scale. The larger 1051As were more open in the top end and a little brighter. Mixes done with the Genelecs translated well down to the KRKs, with stereo imaging, spectral balance (EQs), reverb levels and dynamics remaining intact. Similarly, mixes made at my office using the KRKs translated equally well on the studio's Genelecs.

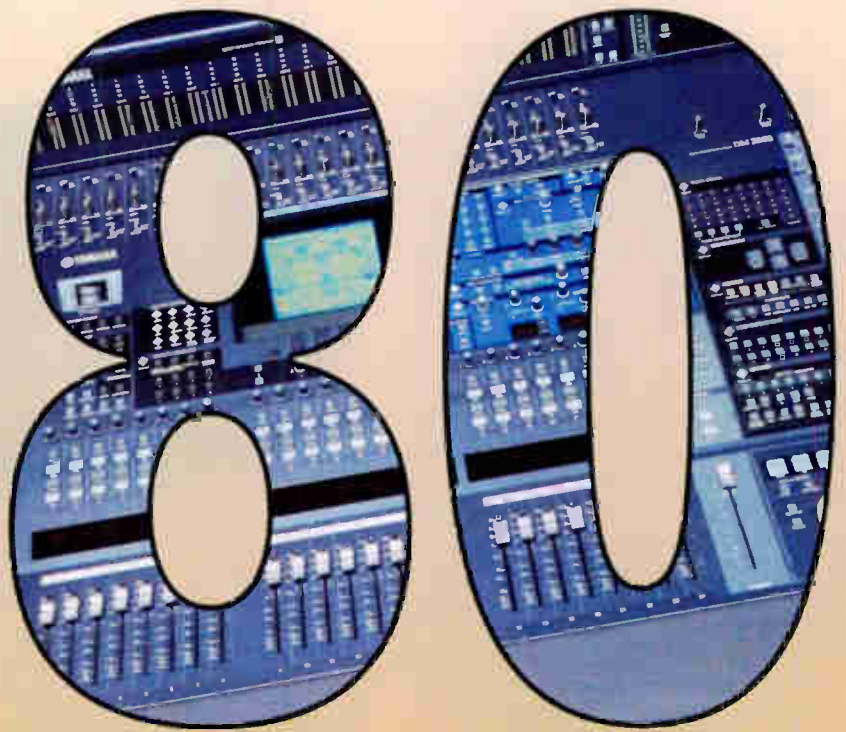
### CHECKING OUT

With their small footprint, great low end and low price, the KRK RP-5 Powered Studio Monitors make too much sense not to have. I liked their look and sound, and found them easy to mix music on. I'm sold!

KRK Systems LLC, 805/584-5244, [www.krksys.com](http://www.krksys.com). ■

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# Aaton Cantar-X Field Recorder With Mixer

## Capture Multitrack Audio on Location

The Cantar-X field recorder, designed by French film camera maker Aaton, covers almost every conceivable requirement for video and film, with multi-channel 24/96, simultaneous recording to a 2.5-inch internal HD and CD-R/DVD+R/DVD-RAM (internal or external) in a slick, ergonomic package.

The Cantar-X is the size of a Nagra and about as solid. Its case is a metal alloy and its six linear playback mixer faders are waterproof. The unit was configured with three mono and two stereo mic inputs, a pair of stereo line inputs and eight channels via digital I/O on a DB-25 connector. Word, video ref, LTC and reserved I/O are on a DB-15 connector with breakout cable. Timecode I/O functions appear on a 5-pin Lemo connector.

Flanking the unit's left and right are two rechargeable batteries (on 4-pin XLRs) that provide 10 to 15 hours of operation, depending on configuration. An alarm goes off when the juice is low, and both batteries can be online together. Cantar-X connects with Wintel and Apple platforms via FireWire and (with an optional module) a Bluetooth-enabled Palm PDA.

### GETTING CONTROL

The front panel has three round and one rectangular LCDs. On the top panel are rotary knobs for the mic and line input level controls. Like "split desks" of old, the linear faders (top left) are for playback monitoring; the resulting submix can be bounced to tracks 7 and 8. The little silver buttons are for solo, channel selection and on/off for channel, phantom power and limiting.

A recorder with a built-in mixer is not unusual, but one with virtual patchbay and router can simplify changeovers. All mic and line inputs can be routed and panned to any of the six tracks (plus a 2-track stereo mix), with playback monitoring being its own subset of presets. While Cantar-X has a learning curve, the time invested to learn the presets—or rolling your own—will pay off on the job.

The multifunction Main Selector on the far-right side handles play, stop, test, record and allows access to technical, copy/back-up, session, audio setup and routing functions. The three round LCDs serve multiple



duties, including level, balance, phase, phantom power and limiter-enable. At the center of each display, tracks that are record-enabled are also displayed, as are the number and type of drives, both internal and external. The rectangular alphanumeric message panel reports take and scene numbers, as well as battery level, time of day, timecode and more.

A system clock embeds the project name, date and time of recording into the audio files as metadata to make it easier to keep track of things on the post side.

### IN THE FIELD

I used Cantar-X in four different tests: set-up/record, simultaneous record to multiple drives, file management and transfer (via computer) and software update. The only glitch I encountered was formatting the DVD-RAM to the FAT32 file system; hard drives must also be externally formatted for FAT32. This can be done on Apple and Wintel; incremental DVD±R recording is now in the works. Recording is possible to any/all drives (up to three). On playback, each drive can be separately monitored.

I tested Cantar-X with two different external drives—HD and DVD-RAM—and the internal HD. In this case, the multi-DVD recorder was only recognized as a CD reader. To fix this, I found the drive's make and model and downloaded a driver from Panasonic's Website.

On the internal HD, I recorded dialog at 48 kHz/24-bit with a close mic and a pair of omni mics for ambience—all condensers.

The mixer and headphone level controls delivered plenty of juice to the cans. The sound was warm and detailed without being strident or abrasive.

I did not test the Palm-related options, but did take advantage of an Aaton alpha utility called Majax to open Cantar's files on my PC. Aaton's Majax software allows the files to be viewed, opened and played via a standard soundcard. A future version will also include submixing and file conversion. Majax will play from any drive—local or FireWire—including Cantar's internal drives.

From the technical menus, the internal drives can be unmounted, allowing FireWire access by the outside world. Cantar's drives show up on the desktop similar to any USB or FireWire drive, and as long as the directory tree is kept intact, can be played by Majax. Annotation of metadata and audio data is planned for the future.

### THAT'S A WRAP

The Aaton Cantar-X is a well-thought-out, full-featured, fun-to-use product. Yes, its \$15,000 price tag is steep—almost one-and-a-half times more than the Zaxcom Deva—but for those who are employed most of the year doing feature films and network/cable TV, Cantar-X could make demanding multi-channel multiple setup jobs a pleasure. Plus, it can be rented, a great try-before-you-buy option. Every mixer I know wants to check it out: All of them were just a little jealous that I got it first.

Aaton, 33-4/7642/9550, [www.aaton.com](http://www.aaton.com). ■



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# Bass-ic Instincts

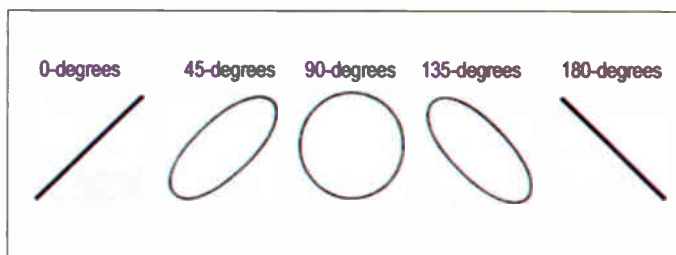
## Managing Low Frequencies in Any Room

Initially, my spare bedroom-turned-control room was an abysmal environment. Now, clients remark about the stereo image and their ability to hear new things in “familiar” material, proof that small spaces can be rehabilitated. It’s not exactly a 20Hz room, but it’s finally usable.

There are many off-the-shelf acoustic solutions, but the challenges are determining what is needed and where to put it. This month, I’d like to present a procedure that provides instant feedback: You’ll be able to see—and feel—what a bass trap does in real time and what the solutions are and how they work. The caveat? Every room is different, so I can’t tell you *the* universal fix for every environment.

### IN ONE EAR

Last year, I used Steinberg’s WaveLab to “impulse” the room and capture the response. An echo of the impulse revealed a physical reflection, the calculated distance that corresponded to the width of the room (where an acoustic panel’s position had not yet been optimized). Such reflections smear the stereo image and show, by



A few members of the Lissajous family that were “phased” by this experiment

example, how high-frequency behavior can be visualized and how easily anomalies can be tamed.

Your ears are the most sensitive from 3 kHz to 4 kHz, become less so around 300 Hz and are steadily de-sensitized by about 6 dB for every octave below, so it’s only natural that we try to pump more bottom into a room and a mix. Compared to headphones, it takes lots of air movement to make bass happen in a room—that’s why woofers are bigger than tweeters. The resulting energy increase below 400 Hz is enough to stimulate walls, floors, ceilings and cavities to resonate, which can be a good thing, a bad thing—or a little of both.

## Bass Traps and Related Acoustic Solutions

Audio behaves similarly to light at frequencies above 400 Hz (think “rays”). That’s oversimplified, but the typical treatment options are more placement-critical than composition-specific—almost anything will do the job—hence, the popularity of foam-based products that are easy to work with. It’s not about how *much* area is covered, but how *efficiently* the solution can be applied. An anechoic laboratory is unnaturally dead and *not* the goal.

What happens below 400 Hz is more challenging, because low-frequency waves with sufficient energy don’t just reflect, they stimulate prone surfaces (walls, ceilings, windows, floors) to resonate. In addition, sound travels through solid materials faster than through air. For this reason, loudspeaker systems should be mechanically decoupled from their environment by using a mechanical absorber such as neoprene (synthetic rubber).

### TREATMENT

Acoustic foam works for high-frequency absorption, but as frequency decreases to the low mids (about 500 Hz), higher-density Fiberglas is better-suited. Increasing thick-

ness extends the low-frequency coverage down to about 100 Hz, below which conventional treatment becomes impractical, both physically and economically, even for Fiberglas. For example, a “true”  $\frac{1}{4}$ -wavelength 94Hz bass trap requires a 3-foot depth of Fiberglas—space that does not exist in modern project studios. Worse yet, there are still one to two lower octaves to treat, depending on room size. Treating low frequencies in a large room is easier than in smaller spaces, because the wave’s energy has time and space to diminish before slamming into a surface.

$$I = 1/d^2$$

Note: A sound wave dissipates energy as heat in the simple act of stimulating air molecules. As per the Inverse Square Law (Physics 101), the relationship between intensity (I) and distance (d) is such that doubling the distance from one foot to two feet would reduce the intensity by  $\frac{1}{4}$  (Thank Newton!) rather than  $\frac{1}{2}$ .

—CONTINUED ON PAGE 136

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Microphones

## THE EYES HAVE IT

Surely, you've had a single tone up on the monitors and noted the obvious: Sound waves are anything but consistent as you move about the room. Stay in one place and slowly sweep through the spectrum and the room will tug at your ears. I successfully documented this sonic weirdness using a closely spaced pair of cardioid mics connected to an oscilloscope.

If you are not fluent in oscilloscope operation, there are two basic modes: Sweep and X-Y. The latter generates a family of patterns also known as "Lissajous," named for a 19th-century scientist who literally used mirrors and tuning forks to prove his theories. The X-Y designation also refers to the scope's horizontal and vertical axes, and should not be confused with the X-Y term that refers to stereo miking. In the 'scope's X-Y mode, connect the left mic preamp output to scope input 1 and the right channel to input 2. A left-only signal makes a vertical line, while a right-only signal makes a horizontal line (line width = amplitude). A mono signal routed to both 'scope inputs will create a 45-degree diagonal line; acoustic information will never be that perfect. Reverse the polarity of one channel and the line will flip direction. (See the figure.)

Using Adobe Audition's tone generator, I created a bass sweep from 40 Hz to 480 Hz, while my NTI Minilyzer monitored frequency. Audition looped until the troubled spots were noted and narrowed to three primary regions, progressively zooming in until the center frequencies were found: a null at 81 Hz, a bump at 93 Hz and a phase shift at 317 Hz. Then, by monitoring the phase of a single frequency, it was possible to see the effect of a bass trap and fine-tune its position.

Note: A while back, I made an imprecise generalization about MiniTraps. They are not a solid piece of 703 or 705 Fiberglas, but a multidensity sandwich. Still oversimplified, a true bass trap absorbs sonic energy through friction, and, while you may not believe this, heat is generated as a by-product. For more bass treatment solutions, see the sidebar.

Starting with the 93Hz bump, I monitored the 'scope while positioning the MiniTrap until the Lissajous pattern changed from a less-than-45-degree oval to a diagonal line. The narrow end of the 2x4-foot traps was a few inches off the ceiling at a 45-degree angle and very close to the listener's position. Not the most aesthetically desirable location, but the energy that transferred from the panel to my hands was nothing short of amaz-

ing! Most bass traps are intended for corner applications. This single sine wave technique is helpful when trying to localize problems. Just place some acoustic panels and you begin discovering some things you may not have thought of.

## THE DOORS

Once satisfied that the X-Y test had potential, I moved from acoustic panels to the space itself; specifically, the doors. Slowly opening and closing the entrance door turned out to be an effective phase manipulator at 81 Hz and 93 Hz. (I placed tape on the floor beneath the door for repeatability.) At the opposite side of the room, the door to the under-stairway computer closet also had an effect, with both items behaving as a Helmholtz resonator. (See sidebar.)

## THAT DIRTY LOW DOWN

I hope this technique proves useful to those struggling with low-frequency issues. Taking the time to investigate your control room acoustic issues will pay off, sometimes instantaneously; other times, it is after giving the matter much thought. ■

Visit *Eddie Ciletti* at [www.tangible-technology.com](http://www.tangible-technology.com) for more fun.

# Bass Traps and Related Acoustic Solutions

—CONTINUED FROM PAGE 134

## SCIENCE FRICTION

To control very low frequencies, a stubborn wave must be "tricked" into submission by using more space- and cost-effective solutions such as diaphragmatic or resonant absorbers. One of the fundamental mechanisms for sound absorption is friction, exactly what happens when sound travels through air. Think of the air that is pushed and pulled through a speaker system's tuned bass port. Now, expand the surface area and the number of "ports" and you've got...

## THE HELMHOLTZ RESONATOR

We've all blown over the top of a soda bottle to make them "toot" and this is exactly how a Helmholtz resonator works: a defined amount of air space behind a perforated panel (with holes of specific spacing and diameter) made of hard board or some other rigid material. The idea is simple, but the implementation is not, as these units tend to be highly frequency-selective.

A simple closed box with holes resonates with so narrow a bandwidth, or Q, that it is only useful to "notch" out a single frequency. Like an equalizer, a trap's bandwidth performance can also be manipulated, in this case by how much the cavity is "broken up" using "batts" of high-density Fiberglas. More Fiberglas equals wider bandwidth. Other factors affecting performance are cavity depth and construction materials.

Spaced slats can be substituted for the perforated panels, but again, there is considerable calculation required because the slat thickness, width and space in between all conspire against or contribute toward the

final result. Although equations are available to determine the resonant frequency of Helmholtz units, the results must be looked upon as merely guidelines, because any number of factors can shift the results to unknown values, a potentially expensive failure. For the amateur, it is best to investigate one of the following solutions.

## LE LOUVRE ET LE MEMBRANE

A variation on the Helmholtz theme is to replace the holes with adjustable "louvers" that can be fine-tuned after the fact—an obvious advantage. The louvers serve a dual purpose as diffusers, allowing the room to retain its liveliness.

Another solution is the so-called membrane "trap" that uses thin sheets of 1/8- or 1/4-inch plywood placed on boxes that are mounted on surfaces around a room. The airspace between the membrane and wall is packed with damping materials designed to broaden the bandwidth of low-frequency absorption. The full-sized Real Traps work on the same principle.

Combining a membrane trap with a curved surface adds diffusion of mid- to high frequencies to the low-frequency solution. Such curved units are called poly-cylindrical or functional traps, such as those made by Acoustic Science Corporation under the trade name Tube Traps. Although their LF effectiveness is limited by size, the ability to treat two almost inseparable problems at once—low-frequency modal buildups and the lack of diffusion inherent in small rooms—makes them a remarkably efficient solution. ■

*Eddie Ciletti adapted and condensed this sidebar from a longer piece written by D. T. Hazelrig, [www.diyacoustics.com](http://www.diyacoustics.com).*



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PHOTO: STEVE GRANITZ

The Black Eyed Peas strut their stuff while onstage (L-R): apl.de.ap, Fergie, will.i.am and Taboo

## WILL.I.AM AND THE BLACK EYED PEAS

THE HIP HOP NEVER STOPS

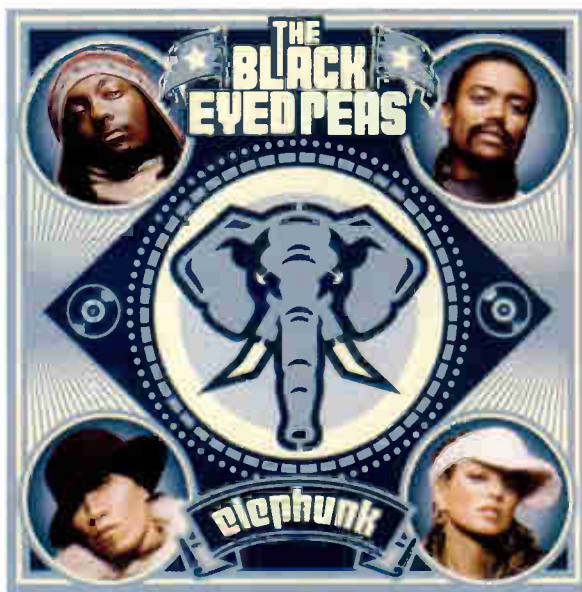
By Blair Jackson

To paraphrase the opening of their infectious song "Let's Get Retarded," L.A.'s Black Eyed Peas "keep runnin', runnin', runnin', runnin'..." They've toured virtually nonstop for the past couple of years, methodically building a large, multiracial following for their funky, eclectic, good-vibes hip hop. So it's not too surprising that the only time I can get group mastermind/lead rapper/producer will.i.am (Will Adams) on the phone, he's in a limo on the way to a gig at The Joint in Las Vegas' Hard Rock Hotel. I can't tell

if it's his band or posse sharing the car with him, but whoever they are, they're loud, and our conversation is punctuated with will.i.am's asides to them, asking questions like, "Hey, how do we get to the dressing room?" "It's a little crazy in here," he says apologetically. And after seeing the band tear up the Warfield Theater in San Francisco two nights later with one of the most mesmerizing, kinetic and uplifting shows I've seen in *years*, I can well imagine that a wild scene probably follows this group everywhere. You can *double* that on a Friday night in Vegas.

I'll confess up front that I'm not somebody who's been diggin' the Peas for years. Truth be told, like a lot of people, I came in with "Where Is the Love," their socially conscious, Grammy™-nominated single. Now that I know how great this band is, however, I *wish* that I'd been around 15 years ago in L.A. when will.i.am and his Filipino schoolmate apl.de.ap (Allen Pineda) were break dancing and rapping their way to forming a group called the Alban Klann. Later, they added a Mexican American rapper who goes by the name Taboo (Jaime Gomez) and became the Black Eyed Peas, part of the progressive, non-gangsta wing of rap/hip hop from the lineage of great groups like De La Soul, A Tribe Called Quest, Digable Planets and various others. With nods to Latin music, jazz, '70s funk, rock and anything else that struck them, Black Eyed Peas distinguished themselves not just for the fast-rapping and dance moves of their three MCs, but because they fronted a real band, *still* a relative rarity in the hip hop world. They were signed by Interscope, put out their first album, *Behind the Front*, in mid-1998 and immediately hit the road, playing anywhere and everywhere they could—but, ironically, not that many hip hop clubs, because most could not accommodate a full

—CONTINUED ON PAGE 142



# NELLY FURTADO

FOLKLORE WITH A POP INFUSION

By Gaby Alter

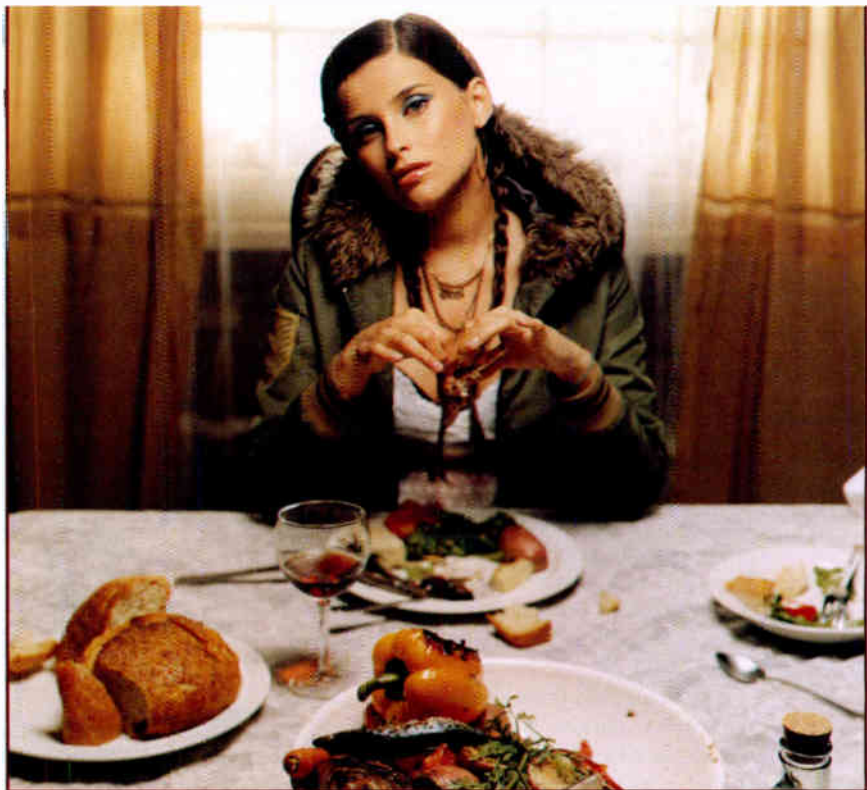
The words “pregnancy” and “birth” are often used to describe the process of creating and finishing a work of art. However, in the case of *Folklore*, the latest album by Canadian pop star Nelly Furtado, there were more than mere metaphors involved. “We did it in three or four months because we had the greatest deadline of all: We had nature’s deadline—she was giving birth,” says Brian West, who co-produced the record. “We didn’t really know if her voice would give out or how she’d be feeling. Quite amazingly, she was able to sing up to the week that she was actually due to deliver.”

Furtado was only 20 when she finished her 2000 debut album, the multi-Platinum *Whoa, Nelly*. Co-produced by West and Gerald Eaton (aka Track and Field), the album differentiated Furtado from other young pop divas with an eclectic and international sound: Her songs interlaced elements of Latin, R&B and reggae with dub and hip hop beats and ebullient pop melodies. *Whoa, Nelly* proved that the young singer/songwriter could get a dance floor moving and craft an inescapable



hook. She won a Grammy for her hit single “I’m Like a Bird.”

While pregnancy might seem like a complicating factor, Furtado says it actually helped the recording of her second album go better. “I was way more relaxed about things,” she says. “I think when you’ve got something so huge going on in your life, music is kind of like an afterthought. And



that’s what it should be, because music should be fun.”

This new perspective, coupled with the approaching delivery date for her baby, made writing and recording *Folklore* a much faster and more spontaneous process than on her first record. “The first album, we would spend probably five or six days producing a track,” Furtado says. “We wouldn’t even touch vocals. By the time I got to my vocals, you kind of lose the inspiration of the song a little, so it made it very challenging to do the vocals. They would sometimes take three days to get the right mood, and sometimes the melody would have to change because the music had gone so far ahead and didn’t suit it anymore. We didn’t want that for *Folklore*—we did the opposite. We really pushed each other. We went, ‘Okay, let’s throw out all the ways we’ve been working and just kind of do something new.’ Some days we’d record a song the same day we wrote it.”

Unusual for a young pop star, Furtado co-produced both of her records. “I’ve always liked producing vocals,” she says. “I’ve always known what kind of harmonies I want to hear. Arrangements, things like that—that stuff interests me. I grew up playing a lot of instruments. I grew up playing the trombone; I played jazz band, concert band, marching band. As a young kid, my first instrument was a ukulele. I remember even at that age I would listen to an old Portuguese song on tape and transpose it

onto my ukulele so I could perform it live. So I always liked the idea of reinterpreting music.”

Reinterpretation was a central idea behind *Folklore*. It began when Furtado says she “got obsessed with this idea of folk. What is folk? The simplicity of that idealistic folk music of the ‘60s, a sort of lyrical weight. But I also wanted to do an update: How do I translate folk to me in the year 2004? I grew up with a lot of folk music—Portuguese folk music in church songs—and I started thinking, ‘Wow, I’m technically a world pop artist or international pop artist, and every country has their own folk music, every place has their own version.’ So I thought, ‘Well, I could definitely do my own update.’”

Furtado discussed the idea with Eaton and West, and they began to actualize it as they composed the album together in the studio. Their first track started simply as a breakbeat wedded to a banjo. “We talked about combining something hip hop-y and folk-y; there’s nothing more folkloric than a banjo,” says Eaton. “The instrument itself has so much history. It’s really one of the most uplifting sounds.” The experiment evolved into the album’s opening song, “One Trick Pony.” “We kept coming back to that first song as the balance that we wanted to strike between old and new, between folk and hip hop, between fresh and traditional,” Eaton says.

*Folklore* combines an impressive range of

—CONTINUED ON PAGE 144

# ROXY MUSIC'S "AVALON"

By Rick Clark

Nineteen eighty-two was a time when predictions of the death of album rock and the tandem ascendance of MTV and CHR (Contemporary Hits Radio format) seemed to be supported by a crush of video-ready pop songs such as "Der Kommissar," "She Blinded Me With Science" and "Who Can It Be Now." It was a time when some '70s acts with any track record at all (who hadn't faded under the pressure of new wave and punk) went to awkward lengths to keep up with the plastic futurism of Flock of Seagulls and the playfully disposable pop of Toni Basil.

Roxy Music didn't have that problem. Many of the best from the new crop of arty pop bands from that era owed a lot to Roxy's earlier incarnations, from the playfully quirky theatrical apparel to the emotionally detached, affected cool of some of their best music. Even though Roxy Music's influence (along with David Bowie's) could be spotted in some of the talent that arrived with the British and Australian Invasion of the '80s, the band had already grown up and evolved into a sophisticated, finely tuned ensemble that was largely the vision of lead singer/songwriter Bryan Ferry.

Beginning with the transitional 1975 release *Siren*, through *Manifesto* (1979) and *Flesh + Blood* (1980), Roxy Music began moving away from the dense, artful chaos of earlier creative peaks (like *Country Life* and *Stranded*) and started fashioning a sleek, elegant sound that possessed an exotically atmospheric sensuality, culminating in their 1982 swan song, *Avalon*.

From the longing opener, "More Than This," and the



From L to R: Phil Manzanera, Bryan Ferry and Andy Mackay

coolly funky "The Space Between," to the aching beauty of "To Turn You On," *Avalon* earned a reputation for being one of the most romantic records ever made in the rock era. It also became, over time, Roxy Music's most commercially successful album, landing at the top reaches of the English charts and producing three hit singles: "More Than This," "Take a Chance With Me" and the title track.

The album was recorded and mixed in 1981 and 1982 at Compass Point (Nassau, The Bahamas), the Power Station (New York City) and Roxy guitarist Phil Manzanera's Gallery Studios (London). It was engineered by producer Rhett Davies and Bob Clearmountain.

When asked in 1982 about the concept of *Avalon*, Ferry responded, "I've often thought I should do an album where the songs are all bound together in the style of *West Side Story*, but it's always seemed like too much bother to work that way. So instead, I have these 10 poems, or short stories, that could, with a bit more work, be fashioned into a novel.

"Avalon is part of the King Arthur legend and is a very romantic thing," Ferry added. "When King Arthur dies, the Queens ferry him off to Avalon, which is sort of an enchanted island. It's the ultimate romantic fantasy place."

Regardless, the entire album sustains a cohesive mood that isn't just a product of Ferry's lyrical thematic vision. It was a product of the process that Davies and the band employed in laying down grooves and having players interact with them, and then shaping those performances in a way that would ultimately inspire Ferry to articulate his melodies and words.

"We were creating tracks back then," Davies says. "We didn't have the songs. The songs were virtually the last things to go on there. We were very much creating a musical atmosphere that we wanted the musicians to respond to.

"In those days, Bryan and Roxy would have a musician in for a day or two and they would want

Track sheet for "Avalon" (top) and "The Main Thing" (bottom)

TITLE: AVALON								4'00"
1 M/D JUPITER	2 M/D SAX	3 INVERSE GTR	4 NEIL GTR	5 B-HORN GTR	6 PART CTR	7 ORGAN	8 PHIL HORN GTR	
9 SHPTE	10 LV SHRTY	11 M/D PIANO	12 CHACK GTR	13 SOLO GTR	14 FRODO JUPITER	15 M/D BASS	16	
17 NEW SCATT VOX	18 LINN PERC	19 LINN KICK	20 LINN SNOT	21 ECHO GTR	22 LINN TOM	23 HAT	24 END DUB BASS	

TITLE: THE MAIN THING + 1/2 TONS.								3'20"
1 XTERRAX M/D CHOIR VOX	2 O/D TOMS + CYMB	3 M/D SAXES + SOUND	4 SHPTE	5 M/D ANSWER SHUPS	6 BASS	7 NEW INSTR EXTRAS	8 STRINGS	
9 -STRINGS-	10 NEIL GTR	11 ECHO GTR	12 FIDDLY JUPITER	13 O/D HAT + CYMB	14 O/D BASS FOOT	15 M/D PAUL GTR	16	
17 BID	18 SN	19 ← DRUMS →	20 MAIN THING SHUPS	21 PERC.	22 M/D LEAD VOX	23 LINN DRUM.	24	



that musician to play on all the songs and see what came out of that," Davies continues. "I would have to be able to throw the tracks up pretty quickly and they had to sound the same every time. Rather than spending half-an-hour putting the track up and then another half-an-hour getting the bass sound, we wanted to work fast. In the initial stage of throwing a track at somebody, it was always that first response that you got when someone was fresh that was very important.

Then we would spend days and weeks agonizing over it and fiddling around with it," he adds with a laugh. "But the initial process we wanted to keep fast.

"We kept everything and we would comp like crazy. We were looking for anything that fit, and if it added atmosphere and it worked, we used it—even little half-notes. When you hear the guitar parts soloed, they just don't make sense until you put it all together and you realize that guitar part worked with the

bass part, which fit in with the keyboard pad and it all created a balance. It's a combination of things that makes that phrase work."

One of *Avalon's* highlights was the dream-like title track, which opens up with shimmering guitar punctuations over a gently sensual groove, while Ferry sounds spent, yet hopeful, longing for release.

Had "Avalon" continued in the direction of its earlier stages of evolution, it would've been a much different song: "It was really

## Avalon in Surround: The Best Gets Better

When Roxy Music's *Avalon* was released in 1982, it was almost immediately embraced among audiophiles as a landmark of sound production, in large part due to producer Rhett Davies and mixer Bob Clearmountain's elegantly spacious sound. Now, more than 20 years later, the twosome have revisited *Avalon* for SACD 5.1 surround and created one of the finest-sounding releases of the format. The new SACD version also includes "Always Unknowning," which was one of Clearmountain's favorite tracks from the session but was omitted from the original album.

The choice to do *Avalon* as a 5.1 event was a natural choice for Clearmountain, who imagined the album being done in surround during the original stereo mixes. "At the time, I remember wishing I had more places to pan things. I pictured it being wider than it was," says Clearmountain, who first approached Davies and Roxy singer Bryan Ferry in 2002 during the band's first tour in many years. "When surround started to happen, I thought, 'I have to be able to do a surround mix of *Avalon*, because that is the way it should of been mixed in the first place. I think we all felt that way."

The undertaking wasn't without its travails, however. In 1995, EG Records was sold to Virgin, which decided to make digital safeties of the Roxy catalog. The original Ampex analog tapes were practically unplayable and were baked and copied to a modified Sony PCM 3324 24-track recorder with Apogee filters. Along the way, the analog multis were lost. Not only were Clearmountain and Davies stuck with working off of 16-bit safeties, but they also discovered that the tapes were copied with the machine set 12 percent faster.

"I'm guessing what might of happened is that the varispeed was left in, because the guy doing the transfer didn't really know how to work the machine and didn't realize the varispeed was left on. When we mixed it, we had to crank the varispeed all the way in on my 3348. So that was an interesting thing that happened, and as the sample rate was set to 48 kHz, the increased 12-percent speed/clock rate gave the transfer an effective sample rate of 53.760 kHz, which obviously gave us higher-resolution safeties once we duplicated the tape speed 'error' upon playback. It ended up sounding fantastic.

"The audiophiles out there reading this are going to be appalled to think that we mixed something like this from 16-bit tapes. But I A/B'd it all the way through the mixing process to the original half-inch master that I mixed to, and they generally sounded better. The generation lost from the half-inch analog mix was worse than anything we lost from the 16-bit, believe it or not," Clearmountain says with a laugh. "I think that if you A/B the mixes, you will find these to sound clearer and with more presence."

For this project, Clearmountain used his Sony PCM 3348HR 48-track recorder, which has six ultrahigh-quality Apogee AD 8000SE 24-bit converters attached (replacing its original ones) and mixed through an SSL 4000 G+ console. "Even though both the original and the new versions were mixed on Solid State Logic 4000 consoles, SSL had made many audible improve-



ments between the 4000 E Series used on the original and the 4000 G+ version that I'm using now," states Clearmountain.

Concerning the surround mix of the title track, Clearmountain notes, "The most striking thing on that mix is that Andy Mackay's sax is on the right rear and Yannick is in the left rear, and they're playing off of each other. The band is in the front. It's kind of like you are sitting in the middle of the stage. Andy is usually on the right side of the stage facing the band and the singer is over on the left, and I kind of imagined it that way. It's interesting hearing those two featured elements in the back like that. I usually don't like to put featured things in the back, but it just seemed to work quite well that way."

To create ambient spaces in surround, Clearmountain eschews dedicated surround reverbs in favor of combinations of stereo reverbs. "I have these two short Motown-ish live, acoustic chambers in my studio that are placed left and right in the front. Then I have a Yamaha Pro R3 on a concert hall setting, which goes sort of in the middle—it's stereo—but halfway between the front and the back. And then I have two Lexicon PCM 70s, which are stereo: One of them is front and rear left and the other is front and rear right. I also have another Yamaha 990, which is left and right in the back, set on a custom dark, ambient room setting. So between those, I have a lot of different places to put things and it gives me a lot of versatility and makes things very interesting.

"It was such an amazing experience mixing that record [originally]. I loved going into work during those couple of weeks, where I was literally living inside the album," remembers Clearmountain. "It was a pleasure to do, and it was such a great thing that it became almost a signature for me. I've had more comments on that record, by far, than any other thing that I have done in my life." —Rick Clark

fast, twice the tempo, even though it was the same chord sequence," says Davies, "but it never really developed into anything. I can vaguely remember the rhythm box on there and the feeling that it was very pop tune-sounding, but [Ferry] couldn't exactly get a handle on it in a way that fit the album."

What became "Avalon" was originally penciled in as "New Scatter," a name that referred to the process with which Ferry created lyrics at the time. "Bryan would lay down four or five scat vocals. We would spend quite a lot of time doing that, and we would actually comp the scat vocals as if they were final vocals with lyrics," says Davies. "It might seem stupid that we were comping mumbblings, but that is basically what we were doing. I think it gave Bryan a clue to the actual shape of the sound of the lyrics, be it an 'e' or an 'o' sound or whatever, so that they sounded right with the mood of the music. If you put the scat vocal tracks up and really listen to them next to the finished vocal, it wouldn't sound that much different than the finished vocal. He was using identical shapes!

"Over the months, he would work on the verses and choruses and slowly get ideas on what the song was about," Davies continues. "He would come in and say, 'I think I've got a first verse' and he would try it. Then he might come in later and say, 'I think I have a second verse,' or 'I think I've got a chorus.' It was pieced together, along with the rest of the music, over the period."

While much of the album's elements were recorded at Gallery Studio and Compass Point, "Avalon" came about one week-end in a flush of last-minute inspiration as the band was getting into mix mode with Clearmountain at the Power Station. Suddenly, Ferry visualized the essence of "New Scatter" as a much slower song and came up with the new version.

"Bob had previously been booked over the weekend on another project," says Davies. "We were away from home and at the Power Station anyway, so Bryan said, 'Let's go in there over the weekend,' and we basically re-cut the entire thing, from start to finish, over the weekend. It was the last track that we finished for the record."

Ferry had stayed up that Saturday night and composed what would be the lyrics to "Avalon." Then, happenstance would provide "Avalon" with one of its most memorable elements: the interpretive vocal contributions of Yanick Etienne. Sunday was usually a down day at the Power Station, so the studio would let local Haitian bands come in to do demos when there wasn't

much happening. It was then that Davies and Ferry, on a coffee break in the hallway, heard Etienne singing.

"Bryan and I could hear this girl from the Haitian band next door singing, and we thought, 'Wow! What a voice! We've got to get her singing some backing vocals on "Avalon.'" That was Yanick Etienne, who didn't speak a word of English. She came in with her boyfriend/manager and we described to him what we wanted and she sort of sang the choruses and the [word] 'Avalon'—the great sound that is on there. Then we said, 'Can she try and do something free at the end?' and we ran the end of the track and she did absolutely nothing. So I said, 'No, we want her to sing anything that she would want to sing, totally free.' So the second time we ran the tape, she sang exactly what you hear on the record at the end.

"Bryan then went straight out and re-sang his vocal properly, because he was so inspired by Yanick's singing. I remember Bryan's manager walked in the room and Bryan was just finishing his vocal. We were doing the playback and I'd never seen the look on his eyes before. He went, 'Jesus f\*\*\*\*\* Christ! That is *incredible!*' Well, we knew it was a really high point of the evening. I remember going, 'Wow! We have really created something special here.' That is how I felt. Then we mixed it the next day with Bob.

"It was one of those turnaround things, where the original track was just about to be thrown in the can. And then suddenly, we did a completely different version of the song that just *made* the record for me," Davies concludes. "I thought, 'That's it. That completes the record!' I remember we had dinner a couple nights later, and I asked Bryan, 'What are you going to call the album?' and he said, 'I'm going to call it *Avalon*,' and I thought, 'Yeah. Of *course*.'" ■

## WILL.I.AM AND THE BLACK EYED PEAS

FROM PAGE 138

band. By the time of their second album, the 2000 *Bridging the Gap*, word was definitely starting to get around about the Peas and their great live performances. They earned spots on a succession of big tours—traveling festivals like Smokin' Grooves and the Vans Warped Tour, and opening for the likes of OutKast, Macy Gray (who appeared on *Bridging the Gap*) and No Doubt.

But it's been their third, and most recent,

album—*Elephunk*, released in the summer of 2003—that has launched the band into the stratosphere, with more than a million albums sold in the U.S. alone (compared to just over 200,000 for *Bridging the Gap*, according to Nielsen SoundScan), propelled by "Where Is the Love," featuring guest artist Justin Timberlake. Another song from the album, "Hey Mama," with its infectious mixture of dance hall riddims' and rhymin' and the hypnotic wailing of the newest member of the BEPs—the gorgeous lithe siren, Stacy Ferguson (aka Fergie)—has been making waves on radio and on MTV. And there seems to be no end to the potential hits from this exceptional disc: their hard-rocking collaboration with Papa Roach (they were on the Warped tour together) called "Anxiety"; will.i.am and Fergie's verbal joust, "Shut Up"; the smooth, pleasant groove of "Latin Girls"; the group's exultant anthem, "Hands Up" (which contains the horn vamp from an old Yma Sumac record!); and funkier of all, "Let's Get Retarded," which has recently been retooled as the more PC "Let's Get It Started." You've got to love an album that features Sergio Mendes playing piano on one song, another that boasts a chorus sung in Tagalog (apl.de.ap's native tongue) and all sorts of old analog synths (will.i.am's great love) and even a *guitarron*.

"We don't put any boundaries on our music," will.i.am says, "and that may be one reason people all over the world like the Black Eyed Peas." He's not bragging, exactly, just stating the facts: "We're triple-Platinum in Switzerland, Sweden, Germany, the UK, Australia, New Zealand, Canada, Singapore. We've played Japan, Vietnam—we were the first group to play there since Joan Baez in 1972. That was incredible, man! It's been a whirlwind."

will.i.am produced or co-produced all of the tracks on *Elephunk* (the name, he says, is "to conjure a big, deep funk sound") and he even did a fair amount of engineering on the disc, much of which was recorded at his own studio known as The Stewchia in the Los Feliz section of L.A. A fine keyboardist and drummer, will.i.am has picked up his engineering and production chops by osmosis, working on the three BEP albums and a pair of solo "soundtracks." (More on that in a minute.) "I wouldn't say I'm naturally technical," he offers, "but I've always been *interested*, you know what I mean? I've had a whole bunch of people helping me in the studio: Dave Pensado taught me a lot of stuff. Rhett Lawrence is the one that taught me Pro Tools. Dylan Dresdow taught me a lot of

problem-solving on Pro Tools—he was Dave Pensado's assistant and now he does a lot of the engineering for us. Tony Maserati did a lot of the mixes on the [latest] album and he's taught me a lot, too. He's great! So I've been taught by some of the best."

Like so many current artists, will.i.am is a total devotee of Pro Tools. "I do everything in Pro Tools now," he says. "I used to program my drums on the Akai MPC 3000, but now I just do it in Pro Tools." His studio is based around "a full-blown Pro Tools HD rig. I've got the Mac G5 with the new [Pro Tools] 6.1 system, and I've still got the old [OS] 9.0 system with the slot cards. I've gotta have both. I like the new and I like the old."

hits the needle of the turntable and I get the vibration of the kick and the snare *through* the needle. I'll record that and put it into [Line 6] Amp Farm to give it distortion and then it sounds like a real drum kit. I like messing around with stuff like that."

will.i.am is also an aficionado of vintage keyboards, a big part of the Peas' sound: "There was a point in time when I collected Moogs and clavinetts and old synthesizers and Wurlitzers, Rhodes, Hammond organs, those little old Yamaha portable acoustic piano things—whatever I could find. But after I found the sounds I liked and was comfortable with, I stopped getting new ones. The Moog is fine, the clav is fine, the clav



PHOTO: MARINA CHAVEZ

We don't put any boundaries on our music, and that may be one reason people all over the world like the Black Eyed Peas.

—will.i.am

He also has the ProControl 24, "but I'm interested in getting that new Pro Tools console [the ICON] I've been hearing about. That's gonna change the world!"

"I hate it when someone runs the Pro Tools and it's slow," he adds with a laugh. "I gotta get behind the controls. I like to do the recording and punching in, editing, cleaning up, doing the rough mix. I like to make a reference mix for Tony Maserati. Then he comes in and he'll do his thing, cleaning up the frequencies and working on this part or that part, to where it can play on every radio and CD and Walkman and car."

Black Eyed Peas songs have sprung from many different sources: sequenced parts, samples, drum loops, even real instruments on occasion. "It depends," will.i.am says. "A lot of times, what I'll do is I'll have a mic and I'll play a beat with my hands on a table and get a tempo. I'll loop that, make a grid on Pro Tools and then start importing sounds. I'll put a kick wherever the kick should go, a snare wherever that lands. Then I'll go in and put a hi-hat over that programmed beat that was derived from me playing drums on the table. The thing about a real drum kit, though, is that it's the sound traveling from here to there—it's air moving. So what I sometimes do is turn up my system really loud, put a record on the turntable and then record the turntable in a stereo track onto Pro Tools. The vibration from the speakers

with the Rhodes is fine; I've got my clusterf\*\*\*. I've messed with some digital synths, too. I've used the [Korg] Triton a bit, but that sound is out there too much—it seems like every song's got it, and I like the older analog sounds better for what I do."

*Elepbunk* was a long time in the making, will.i.am says. "First we went out to a house in Bodega Bay [north of San Francisco] and recorded a whole bunch of songs. Our last day up there was September 11 [2001], and then we had to go on tour September 12. That was a weird time, as you can imagine. Then, right after the tour was over in October, we went into my studio and recorded some more. Then from there, I thought, 'I don't really know how to produce my own vocals,' so we went into Glenwood [Place Studios, Burbank, Calif.] to record the vocals there. After that, we waited a while, the record company digested the songs and they weren't really that excited with them. We were like, 'Whaaaat?' We already had 'Where Is the Love,' 'Shut Up' and some others. So at that point, I went back to my studio and recorded a whole bunch of new songs. This time, though, I decided to try doing the vocals there, so I put a Neumann mic right next to my Pro Tools rig and my keyboard and I recorded my vocals myself. So I adopted a routine: I don't write any of my lyrics down anymore; I just record them straight onto Pro Tools myself. I don't even need a second engineer."



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It must be noted, however, that Black Eyed Peas albums are extremely collaborative affairs. Most songs have multiple writers, with apl.de.ap and Taboo often contributing their own raps, of course, but also lots of input from guitarists J. Curtis and George Pajon Jr. (who tears it up as part of the live band, too), bassist Mike Fratantuno, keyboardist/arranger Printz Board and others. Mixer Pensado had a big footprint on the first two albums and to a lesser degree on *Elepbunk*. This time around, Maserati was the primary mixer.

Maserati says that he was such a fan of the band that he sought them out to work on *Elepbunk*, traveling from New York to L.A.'s Record Plant, carrying his own Pro Tools rig and mixing on Studio 3's SSL 9000 J through Tannoy DMT and ProAc Studio 100 monitors. He recalls, "I would spend six to eight hours going through the sounds and then will.i.am would come in and he would feed off what I was doing and do a bunch of edits, maybe change an arrangement part here and there, and then I'd work on it some more. Most of the songs took a day-and-a-half to two days to mix."

"I would always do a mix internally [in Pro Tools] before I'd hand it over to Tony," will.i.am adds. "Most of the sounds are developed during the writing process and then I put in what I'm looking for using plug-ins. Tony then would either keep the sound I had from the plug-in or change it by using outboard gear: 'Will, do you really want this much compression on the kick?' So he'll fix it if I've got it wrong."

"One of the things I love about Will," Maserati elaborates, "is he knows what he wants, which is always the sign of a good producer. But he's also willing to try other things. I'll always respect what he's got in his head. So we'll go back and forth between the sound that he was using and one I might come up with; see which one works better. That was a lot of fun because Will likes to experiment. He's not locked into an idea just because it's *his* idea."

And will.i.am is fairly brimming with ideas. He's also put out two albums under his own name in recent years: *Lost Change* is the soundtrack for an Internet-only film and features a blend of hip hop tunes and diverse instrumental pieces; and *Must B 21* was created for an ad campaign for Coors' Zima beverage and includes collaborations with KRS-One, Planet Asia, Johnny Legend and others. "I did *Lost Change* in two weeks and *Must B 21* in a week," he comments. "There's something to be said for a project that you don't put too much thought behind—you just get your ideas down quickly

and work on them when they're fresh."

More recently, will.i.am contributed a track to the *Dirty Dancing: Havana Nights* soundtrack and did a couple of remixes (with Maserati) for Sting. He's started his own clothing line—i.am—which will no doubt reflect his eclectic fashion taste: At the Warfield concert, he was dressed in baggy layers, with a vest and striped shirts and a Rasta cap over his dreads—sort of an Abercrombie & Marley effect. He's cutting a "hip hop bossa nova" album with Mendes ("I used to sample his *Brasil '66* albums when I was starting out 10 years ago," will.i.am says) and is deep in the planning for the next Black Eyed Peas disc, which he hopes will be out in the late fall.

It will once again be a highly diverse affair, capitalizing on the band's and rappers' development during the past year of touring, the further integration of Fergie (who joined toward the end of making *Elepbunk*) and will.i.am's maturation as a producer. "The driving instrument I'm thinking of using is an accordion," he muses as he wanders toward his dressing room at The Joint, cell phone in hand. "Accordions, oboes, trombones—it's gonna be different. Instead of a Rhodes, I want to have an accordion." Why accordion? "Italy, man. I've been traveling the world a lot and there's something about an accordion that gives you a sense of traveling. We've been traveling around the world on this *Elepbunk* thing and now I want that story to be told." ■

## NELLY FURTADO

FROM PAGE 139

traditional instruments with Furtado's and Track and Field's signature hip hop and dance rhythms: Besides the banjo, its songs feature a mandolin, harp, Portuguese ukulele, tabla, harmonium and church organ. "A lot of times, we just want to hear something interesting," says West. "What would be a crazy idea to combine with this? If it makes us laugh, then it's something we want to try to accomplish."

Several well-known artists lent their talents to the album. The fascination with banjos led to a guest appearance by Béla Fleck on the anthemic "Força." Brazilian superstar Caetano Veloso added his vocal to "Island of Wonder." And the Kronos Quartet supplied a string arrangement for "One Trick Pony" via the Internet. "They did it up at Skywalker Ranch outside of San Francisco. We literally posted our song on a Website and they downloaded it, added

their stuff and sent it back to us," West says.

One of the high points of making the album was the closing track, "Childhood Dreams," a 3/4-time ballad that was recorded in the First Congregational Church of Los Angeles using the church's giant organ. "I think it's the biggest organ in North America. It's this massive instrument with 64-foot-long pipes," recalls West. "Luckily, this is one of the cases where Brad Haehnel, the guy who mixes our stuff, is pretty adept at doing church recordings because he has a really big background in film music and that sort of thing; he's recorded organs in

The Gymnasium, Track and Field's laid-back, loft-style studio near the beach in Santa Monica, Calif., and MetalWorks, located near Furtado's home in Toronto, which they used when the singer was no longer able to fly to Los Angeles. Most of the album was recorded onto a Titanium PowerBook equipped with Pro Tools, using Neve 1073 mic pre's for the inputs.

West notes that the pregnancy had an effect on Furtado's vocals: "She definitely was singing lower and more from her diaphragm. And we also discovered this mic on this record: We used a Sennheiser 451,



I found that when someone else played the music and I would just have to be responsible for the melody and lyrics, I felt really free and I felt like I was growing.

—Nelly Furtado

churches all over the world." Haehnel miked the organ with a pair of M-50s.

Although the creative team was the same, the process of writing *Folklore* was significantly different than on *Whoa, Nelly*. "I wrote most of the songs on my guitar for the last album, the more straight-ahead stuff like 'I'm Like a Bird,' and 'Turn off the Light,'" Furtado explains. On her new album, almost everything was written collaboratively with Eaton and West in the studio. Songs often evolved from jam sessions where the producers played guitar and harmonium while Furtado improvised melodies. "I found that when someone else played the music and I would just have to be responsible for the melody and lyrics, I felt really free and I felt like I was growing," she says. "It set me free to dig deeper into the intent of the song and the emotion of the song."

Furtado's improvisational style reached an impressive extreme on "Força," which she wrote during a publicity shoot for her record label. "She had this whole camera crew come in and interview us," West recalls. "And she just decided to start singing to give them some stuff—to get some footage of her in the vocal booth singing. We just started to roll tape and she started singing, and basically [she] wrote the entire song within the first two takes while the camera crew was filming. It was pretty insane."

To accommodate Furtado's pregnancy, the recording took place at two locations:

which is usually a tom mic or quite often it's used on horns. We did a mic shoot-out with Telefunken and Sony, and it ended up that this mic just sounded really good. It had a nice little notch of compression right around where the real aggressive tones in her voice are, and it just fit her like a shoe. So she was really inspired; I think it was the first time that she was able to really sing and belt and go anywhere without worrying about blowing up a microphone."

Engineer Haehnel mixed *Folklore* on an SSL J 9000 board at MetalWorks during the final month of recording and found the mixing fairly straightforward. "[The vocals] were pretty much done by the time I got them, so that was actually an easier part," he explains. "We spent a lot of time on each vocal—making sure that we had the right path, the right sound—by the time that I got it. That was one major timesaver that we did institute early on."

After the toil of touring to promote her first album, Furtado found that recording *Folklore* was a rejuvenating experience. "It's funny," she says. "I finished this album a week before I gave birth to my daughter, and I remember sitting on a chair and listening to the final mix of the album for the first time, sitting with my CD player. After I finished listening to it, I just felt really excited about music again. I remembered what I liked about making music, which I think I totally forgot after I got off the road from the first one." ■

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**L.A. GRAPEVINE**

by Maureen Droney

How's this for a great gig? You get to work with top L.A. session cats recording *trés* cool hit tunes from the '60s with some of today's top artists on vocals. Add a budget that allows time for researching and reproducing the original sounds of those records. The job:



(L-R) American Dreams comprises drummer Gregg Bissonette, bassist Tim Landers, producer Danny Pelfrey, engineer Greg Townley, keyboardist Jim Cox and guitarist Tim Pierce.

recording songs for cameo performances on NBC's Emmy-winning *American Dreams*, the Sunday night program that follows a Philadelphia family through the turbulent (and music-rich) 1960s.

Producer Danny Pelfrey and engineer Greg Townley have recorded songs with artists such as Chris Isaak, Jason Mraz, Richie Sambora, LeAnn Rimes, Lil' Kim, Usher, Liz Phair, Macy Gray and Alicia Keys, among many others. On the afternoon that I stopped in Capitol Records' Studio B, they had two tracks in the can: Curtis Mayfield's "Woman's Got Soul" and The Velvettes' "He Was Really Sayin' Somethin'" with Wyclef Jean and supermodel Tyra Banks, respectively, scheduled for vocals that evening.

The band, comprising drummer Greg Bissonette, keyboardist Jim Cox, bassist Tim

Landers and guitarist Tim Pierce, was set up live in the studio for tracks. (Pierce was in the control room with amps in the studio.) The venerable Studio B hasn't changed much during the years, so with RCA BX44s, DX77s and other classic mics everywhere, it looked pretty authentic. "We've done the sessions here, at Ocean Way or at Cello Studios," comments Townley. "They've got the right vibe. We pay attention to the stereo im-

aging in the original track and set up the band as close as we can to how they were on the original date."

Research revealed little hard information available about specific recordings, so recreating sounds became a process of trial and error. "People expect that we'll be working with minimal miking, but we actually set up multiple mics because we have to be able to tailor the sound," Townley says. "Some of the tracks were recorded at Stax, some at Motown, some in Los Angeles at Universal or Capitol. Except for Motown, where we have pictures from the book *Standing in the Shadows of Motown*, we don't know much about the acoustics of the original rooms. Sometimes we'll open the room up and mostly use room mics, and sometimes we'll close it way down with

—CONTINUED ON PAGE 149

**NASHVILLE SKYLINE**

by Rick Clark

One of Nashville's most unusual studio complexes is situated south of town at 2465 Old Charlotte Pike on the way to Franklin or Leiper's Fork. With its many gables, covered outdoor walkways and dramatic lookout tower all positioned in a pastoral setting, Dark Horse Recording is as photogenic as it is unique.

Conceived and owned by Robin Crow, Dark Horse ([www.darkhorserecording.com](http://www.darkhorserecording.com)) has been in business since 1992 and boasts a client list that has included Dolly Parton, Jewel, Ricky Skaggs, Rick Trevino, John Hiatt, Larry Carlton, Neil Diamond, Alison Krauss, Béla Fleck, Amy Grant, Michael McDonald, Wynonna, Jars of Clay, Michael W. Smith and Jon Anderson of Yes, among many others.

The facility comprises four studios: The largest, called The Lodge, features Genelec 1039A monitors and a 48-input Bud Wyatt-modified Trident Series 80 desk married to a Martin Sound ACX 24-channel sidecar for a total of 72 channels of AMS Neve Flying Faders automation. The Lodge's three tracking spaces are substantial: 18x20x22, 9x12x12 and 12x20x17 feet.

The second-largest studio is The Cabin, which boasts the identical console setup as The Lodge. The smaller Barefoot Studio and a dedicated Pro Tools room round out the recording options.

I dropped by Dark Horse to check out the facility and connect with producer Chris Mara, who was working there. Mara's work has included projects with the Gin Blossoms, Juvenile and Anderson, for labels such as Arista, Sony, Capitol and Universal, and publishing companies like EMI and Warner Chappell. At Dark Horse, Mara was working with the Alabama-based hard rock trio Triple 40 (guitarist/singer Brandon White, bassist Nic Carroll and drummer/singer Kyle McCarter) on their upcoming album, *From Where I Stand*. There's definitely a buzz on the band, as a track titled "Run to Me" was featured on a prominent SXSW music sampler. *From Where I Stand* began as a devel-

opment project at Boss Studios in Foley, Ala., with producer Eddie Moore, until Mara became involved and signed on as a co-producer.

"Eddie called me and asked me to cut Triple 40 at Boss, which had a great room with a 56-frame Amek Mozart and a MCI JH-24 2-inch machine," explains Mara. As it turned out, Boss Studios shut down to relocate to a new address, so Mara decided to move the project to The Cabin.

"I do a lot of work at Dark Horse," Mara continues. "I know that whether I'm working on a label project or an indie rock band, they will treat me and my clients with the same care. [Studio manager] Bill Elder and his staff are great at tending to all of the details associated with clients who are from out-of-state, including having guest quarters right at the studio. This helps me to concentrate on producing and engineering instead of worrying about all the peripherals."

Once at Dark Horse, they made the transformation from 2-inch to RADAR. "This is rock 'n' roll," says Mara. "It should be on 2-inch, but sometimes the budget doesn't allow for it and keeping multiple takes costs money. RADAR sounds really good, especially when your front end is a great sound-

—CONTINUED ON PAGE 151

## NEW YORK METRO

by David Weiss

Are you capable of fighting a heated battle for survival with a smile on your face? If so, then the audio post industry for commercials, TV shows, film and radio in New York City wants you. In this city packed tight with competition, a shakeout has been going on since 9/11 and continues to this day, spurred by ad agencies increasingly moving their business in-house, video editing facilities that have added audio and shrinking budgets, among other factors.

The New York City facilities that will get ahead or stay afloat in the increasingly complex business of audio post believe that they'll make it based on their talent, first and foremost. "People who don't treat their employees right are the ones who will go out of business," observes Howard Schwartz, founder/CEO of hsrny (www.hsrny.com), one of Manhattan's largest audio post facilities. "I've been saying for 25 years that it's all about the people. People are attracted to creative talent."

According to Rex Recker, post-production mixer/owner of downtown's audioEngine (www.audioengine.net), there are reasons why quality people and services are particularly important in post. "In this age of the Internet and doing things remotely, it's still an old-fashioned process where everyone—composer, editor, writer, direc-

tor—comes into a room and works on a mix," he points out. "Client services and a comfortable facility are still very important because we're still dealing with human beings—clients that are on the premises. Everyone has Digidesign Pro Tools, so it's not about the hardware anymore, it's about knowing how to run a session, the concerns your clients have and just being able to interact with people."

For the post industry's ad agency clients like Peter Greco, executive music producer/senior partner of Young & Rubicam New York, that assessment rings true. "I can't stress enough that it's really the person behind the console—their instincts and ears," he says. "Having another great pair of ears is tremendously valuable, and when it's someone who knows what you and your agency are looking for, it's great to have a co-pilot. The film mix is the final make-or-break step in the production chain. I've seen really great commercial films with great music and sound design completely die with a terrible film mix. That's a calamity."

Young & Rubicam is not one of them, but several ad agencies have eroded New York City's core post business by building their own in-house facilities. "There are a number of large advertising agencies that have decided to do a lot of their test commercials and

—CONTINUED ON PAGE 153



PHOTO: DAVID WEISS

From left, Creative Group's Troy Krueger, Doug DiFranco, Charlie Suydan and David Jaunai



PHOTO: RICK CLARK

From where they stand in Dark Horse Recording Studios, it seems that Alabama-based hard rock trio Triple 40 (L-R: guitarist/singer Brandon White, bassist Nic Carroll, drummer/singer Kyle McCarter with engineer Chris Mara) have everything to look forward to.

## SESSIONS &amp; STUDIO NEWS

## NORTHEAST

Avatar Studios (NYC) had Alanis Morissette, Norah Jones and Blondie in for tracking *Sessions@ AOL*. Engineers Greg Thompson and Anthony Ruotolo were at the board. Meanwhile, Nathan Lane and the rest of the cast of *The Producers* were in to record the final episode of this season's *Curb Your Enthusiasm*...Angel Mountain (Bethlehem, PA) mixed some of the best of Bob Marley's concerts to 5.1 on the release entitled, *Burnin' Deluxe*, a project done with Universal Music Group and producer Jeff Glixman. Keep an eye out for the re-release on SACD...Sony Music Studios Mastering (NYC) had Grammy-winner Joe Palmaccio and Bruce McDaniel and Perry Gartner (otherwise known as Nine Mens Morris) to put the final touches on their forthcoming release, *It's a Wonderful Life*...Dubway Studios (NYC) tracked the star-studded *Live at VH1.com* at the VH1 set, featuring Dave Matthews, Nelly Furtado, Avril Lavigne and more.

## SOUTHEAST

At Cartee Day Studios (Nashville), Willie Nelson was in to sing with country vocalist B.J. Thomas; Chips Moman produced and Steve

Crowder engineered. Meanwhile, guitarist/vocalist Joe Nichols was in tracking with producer/songwriting partner Brent Rowan and engineer Gary Paczosa...The Sound Lab (Atlanta) welcomed Sony artist Big Floatie, who was in tracking his debut with producers Pretty Ken, Big Jimmy and Fourth Generation Music. Meanwhile, local Atlanta group Mandorico were in working on a new release of their hip hop/ska 'n' salsa/rock 'n' roll sound. Jan Nerud was in as producer/recorder/mixer, Jonathan Cantrell shared recording duties and Mike Philips assisted.

## SOUTHWEST

SugarHill Recording Studios (Houston, TX) played host to several hot sessions this past month, including one for Christian artist Shannon Cutts, who was in tracking *Dreams of the Forgotten People*, a benefit album for the Costa Rica Humanitarian Foundation; the effort was engineered by John Griffin and produced by MD Thompson. Country singer Deanna Kaye was in recording and mixing a new song that will be part of a General Motors credit card compilation CD, which also features Kenny Chesney, Keith Urban and other well-known country performers.



PHOTO: LACER WOOD

Rap producer RZA (pictured) was in *Scream Studios* (Studio City, Calif.) recording and mixing the soundtrack to *Soul Plane*, coming out soon from MGM.

## SOUTHERN CALIFORNIA

Supa Crucial Recordings/New Line Records electronica artist The Angel mastered her new album, *Covert Movements*, at Bernie Grundman Mastering (Hollywood)...In at Scream were Sara Overall, Anna Nalick and Michael Tolcher, all newcomers working with producer/engineer Mark Endert...Granada Studios (El Granada) just mastered the compilation entitled *Virtuosos of Voice*, which features the talents of Sarah Brightman, Yo-Yo Ma, Bobby McFerrin and Charlotte Church, among others. Guitarist Aliéksey Vianna, winner of the San Francisco International Guitar Competition, was in to record Jobim's classic *Corcovado*...At House of Blues Studios West (Encino), producer Don Was and engineer Krish Sharma worked with the talented, free-spirited singer Paula Cole and Australian singer Nessa Morgan on their latest. Producer Stuart Levine and engineer Rik Pekkonen were in recording and mixing Dr. John's upcoming New Orleans record. ■



New artist Maryanne Marino (Lava Records) was in *The Cutting Room* (NYC) to finish mixing her first album and worked with engineer Kevin Killen (left), producer Peter Zizzo (in glasses) and assistant Steve Rakidzioski.

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massive baffling. It gets especially challenging when we do multiple songs in a day, like a Motown song in the morning and a Phil Spector track in the afternoon!"

For "Woman's Got Soul," drums were miked with two RCA BX44 ribbons for overheads, with a Neumann U67 on hi-hat. RCA 44 ribbons were also on Cox's piano. Recording was to Pro Tools, where Townley favors Filterbank and Analog Channel for frequency manipulation. "I use original analog Fairchild compressors on the room mics," he notes. "When that's not enough, I'll subgroup drums and the band on separate channels and then use some massive Wave C4 multiband compression for old-school punch. I also find that the GRM Tools bandpass filter is indispensable for stripping out some bottom end when I need to make the tracks really crisp."

Townley points out that many of the original versions are mixed with individual parts and are, by today's standards, way out of balance. "A little guitar or a massively compressed brass will dominate," he says. "But that gives them character. Their idea of imagery was so much different than ours today, it really gives you pause."

The original song gets lined up in Pro Tools and then while the band runs it down, Townley and Pelfrey A/B for sounds. A secret weapon is an 11-channel Universal Audio console circa 1950. "The book *Temples of Sound* led us to it," reveals Townley. "As soon as we plugged it in, it sounded great. The integrity of the low end is amazing, and overall, it's just magic."

Each singer gets an old and a new mic set up side-by-side. Both are recorded; later, one is selected or a combination is used. All of the vocalists have earned high marks for their efforts. "LeAnn Rimes, for example, sang a childhood favorite of hers, [Connie Francis] 'Where the Boys Are,'" Townley remarks. "She came in knowing it perfectly and gave the most amazing performance. Jason Mraz did an incredible job on Dion's 'Ruby Baby,' and Alicia Keys blew us all away on [Fontella Bass] 'Rescue Me.'"

"The songs are intended to complement and accommodate the vision of the artist who's playing the role," explains Pelfrey. "It's an acting job, too. For example, Wyclef will be portraying Curtis Mayfield with period wardrobe, hair and makeup. They go all-out on the set and we do here, also. It's definitely all about the detail."

"It's been a labor of love," adds music supervisor Greg Sill, who's produced music for such shows as *ER* and *Friends*. "It grew out of an idea from [show producer] Jonathan Prince. At first, we were creating synthesized tracks. As time went on, we

decided to use more and more live performers. We go through tons of CDs [to select songs]. Jonathan is very particular, an admitted sound geek. He's a musician and technically savvy; he comes to every mix with very specific notes. We're lucky. Usually remakes sound pretty cheesy, but we've had the kind of creative direction that's allowed us to pursue it authentically."

"It really is a dream job," Townley concludes. "We've made a lot of them sound amazingly close to the originals. The interesting thing is that we do it with a process of blending both old and new technology."

Popular culture these days may be dominated by the outrageous contests of reality TV,

but when it comes to success, none of them holds a candle to that American classic (and world's longest-running broadcast game show), *The Price Is Right*. Now in its 32nd year, *Price* and host Bob Barker together have racked up 15 Daytime Emmy Awards. This year, they're nominated for five more, including Best Sound. Intrigued, and invited by production mixer Dirk Sciarrotta, I took a drive to the Fairfax District for a look behind the scenes.

It was an hour-and-a-half before showtime when I arrived at CBS Television City, but the crowd waiting to get in for *Price's* 6,000th show was already beside itself, pumped to the max. That's right, 32 years

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and 6,000 shows, *every one* of them helmed by the now 80-year-old Barker. What a gig that man has: Surrounded by gorgeous "Barker Beauties," every work day he gives stuff away—sports cars, tropical vacations, speedboats, electric guitars, hot tubs; close to half-a-billion dollar's worth so far. All the while, he's receiving the kind of adulation (and crowd SPL!) normally awarded to a rock star while remaining suavely calm, cool and in control.

I made my way through the CBS labyrinth to the sound booth of Studio 33 (the Bob

Barker Studio!) for a chat with its denizens: Sciarrotta, music director Stan Blits, music mixer Maryann Jorgenson and Jack Beller, who handles audience sweetening. In the hour before taping, amid constant intercom chatter, Sciarrotta gave me a run-down on the setup and the rest of the crew: sound effects mixer Denise Palm Stones, P.A. mixer Nancy Perry, and floor A2s Barney Neeley and Deedra Bebout.

"It's choreography out there," explains Sciarrotta, who is the same age as *Price* and



PHOTO: MAUREN DROONEY

**The Price Is Right's miracle-makers at the console in CBS Television City's Studio 33: (L-R) Jack Beller, Maryann Jorgenson and Dirk Sciarrotta**

says he grew up watching it. "Cameras shoot the show from all angles, including from on-stage toward the audience. Anything can be in the shot. It's pretty tricky for the director, Bart Eskander."

Pretty tricky for the mixer, too, who's running up to 19 mics: for Barker, the announcer, contestants, audience and onstage game sound effects. Also coming up on Sciarrotta's 64-input (56 mono/eight stereo) SSL 6000 G console are stereo music cues, audience sweetening, miscellaneous tracks such as video playback, pre-fade ISO record sends and sound effects (added on the fly by Palm Stones, stationed on the floor near the stage and producers).

Neumann KM140s get a workout for the contestant mics and, with a custom lightweight shaft, for Barker. It's the only mic Barker uses; he has three of the same. There's no backup lavalier or boom, and he uses it with a 60-foot cable, manned with great skill by one of the A2s. The all-important announce mic is an AKG 535 and the audience is covered with eight Countryman Isomax II Hypers.

Sciarrotta uses a 2-channel CEDAR noise-reduction unit to get rid of air conditioning and room noise: one channel on Barker's mic and the other on a bus combining the contestant mics. The P.A. is fed through two XTA Electronics DP200 2-in/4-out digital processors for EQ and delays.

Sciarrotta mixes for six of the seven fold-back monitors, with Perry responsible for one strategically placed "sweet spot" speaker for Barker. Barker does not use in-ears, just flown EAW FR153z monitors. The onstage announcer uses a pair of Sony 7506 headphones.

Music is complicated. Jorgenson follows scripts, mixing cues from eight Digicarts, which hold more than 20 hours' worth of music. On the *Price* crew for more than 10 years, Jorgenson laughs and says, "Believe it or not, there are 50 to 60 music cues. Most people think there's only one: the theme. Our favorite comment is, 'There's music in that show?'"

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Music director Blits gets a week's worth of scripts a week prior to taping and then tailors music from existing cues from companies including Killer Tracks and OGM, along with independent producers. One of those sports cars, for example, may get some up-tempo driving music with lots of brass. If it's a diamond ring, well, some soft, glamorous new age might do the trick. And then there are the special scores; for example, Blits has his work cut out for him for the next *Price* prime-time special, dubbed *The Prizenator*—well, you can imagine.

*Price* tapes five shows a week: two on Monday with Fridays off. Frequently, other shows tape in Studio 33 on *Price's* off-days. The stage and control room are completely struck, and as Jorgenson explains, "The crew of *Hollywood Squares* will be in at 3:30 Friday morning to set up for a 9 a.m. start."

The biggest mixing challenge? Without hesitation, Sciarrotta says, "The audience. Sometimes, there's more audience in Bob's mic than there is Bob. The show is all about audience reaction—sometimes getting the balance is almost impossible. Most contestants have no idea how to work a microphone. What saves us is that Bob is absolutely the best in the business at working the mic. When a contestant is onstage and the audience is screaming, he knows right when to shoot it out at a contestant to get their emotional reaction. The energy is truly unsurpassable, and we all work really hard together as a team to get the balance right." ■

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#### NASHVILLE SKYLINE FROM PAGE 147

ing Trident 80 Series like the one here."

On the last day of each session, Mara transferred the tracks from RADAR to Pro Tools|HD. The album is slated to be mixed by Russ Zavitsan on Nuendo in early April and will be released on the ElectiK Records label.

After hanging out with Mara and Triple 40 at The Cabin, I walked over to The Lodge to see Elder in session producing 19-year-old Oregon-based singer/songwriter Debra Arlyn, who's tracking with some of Nashville's finest session aces. The project is being done for Elder and engineer Michael Modesto's Burning Building Productions.

Elder first came to Nashville a few years ago after playing and recording in Texas and Colorado with a band called Ezra's Poundcake. He took the gig at Dark Horse two years ago and formed its production company with Modesto last October.

When I arrived, Arlyn and the band were laying down a rather sultry Norah Jones-like number. Most of her material,

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however, is geared more to the pop area inhabited by artists such as Alicia Keys, Vanessa Carlton or John Mayer. "The pop market is our primary focus on these sides. There is a fun, yet mature sensibility to what Deb is doing that would work nicely there or even in the Norah Jones world," says Elder.

For Arlyn's piano, Modesto employed a spaced pair of Gefell UM 92s on the ballads and a C 24 on the more up-tempo songs. "I love the sound of the C 24, but it doesn't give me the wide stereo image that a spaced pair does. And the piano is a main focus along with the vocal," he says.



Oregon-based vocalist Debra Arlyn (center) works on her debut album at Dark Horse's The Lodge with engineer Michael Modesto, right, and studio manager Bill Elder.

Arlyn's vocal was captured with a Brauner VM1 with a Universal Audio 6176 pre. "I used the Brauner because it is relatively flat and transparent," says Modesto. "When combined with the UA pre, the sound is nice and round and yet in-your-face." The mic collection that Modesto used to achieve Steve Brewster's drum sound included a D112, M147, SM57, 451 and the C 24.

"The sessions were tracked on a Pro Tools|HD rig instead of 2-inch analog because I didn't want the musicians to be limited by tracks," Modesto points out. "If they had an idea, I wanted them to be able to lay it down. We mixed 24 channels through a Trident 80B using both plug-ins and out-board gear—namely Distressors, Tube-Techs and an Eventide DSP 4000."

Arlyn was clearly pleased with her Dark Horse experience with Elder and Modesto: "I chose to work with Bill Elder because of his passion and energy for creating original music," she confirms. "Michael worked really hard with our ideas and changes. I've really enjoyed the work atmosphere at Dark Horse, and I think all the songs have come out great."

At the time of the session, Arlyn had fin-

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ished tracking four sides. "The flexibility and wide range of resources at Dark Horse make it really a wonderful place to create," says Elder. "This project is testimony to the fact that we are accessible to independent artists as well as major labels." ■

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**NEW YORK METRO FROM PAGE 147**

presentations in-house," says Schwartz. "They can buy similar technology to what we have, but they certainly don't have the expertise that our mixers or mixers from other prominent facilities have. One ad agency used to do about \$800,000 worth of work in-house, and now the \$12 million they do in-house came out of the supply side, which is us. Do they have the best editors? They have good, comfortable editors, and at some point, they may become stagnant creatively because there's no reason for them to excel. They're not competing—they're just in normal jobs."

Depending on who you ask, another great threat in New York City to dedicated audio post houses is the growing number of video editing facilities that add audio services to give their time-starved clients an "everything-under-one-roof" solution. While sometimes that might mean a spare office stocked with Pro Tools and last week's intern, it could also be something that advances the field. That was the case at Creative Group ([www.creativegroup.tv](http://www.creativegroup.tv)), a video editing company that brought in mixer/sound designer Troy Krueger in 1999 to supplement its visual services and ended up getting much more than they bargained for.

Today, Krueger, with sound mixers David Jaunai and Doug DiFranco, share three 5.1 studios—networked to the teeth with each other and multiple SD and HD video editing suites—in a new facility built from the ground up by chief engineer Charlie Suydan to maximize audio and video synergy. "It's New York City: Time is money," Krueger explains. "Here, ESPN can be on the Flame, and then I can put those visuals to Digibeta and move it to Flamebox. At 10 a.m., David can do a voice-over and dump it to Smoke through our Intranet. Now they can cut their picture against our VO, and they can download all the music cuts from our database, which is approaching 400,000 cuts of music from libraries all on a hard drive. So they come up with a great cut of video, add the audio—boom—done. People are blown away by the audio rooms; these are the jewels of the facility. Video is just as strong in terms of booking, but these are more pleasing aesthetically

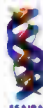
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and the most instantly gratifying.”

Capabilities like that are just the tip of the iceberg in an industry that has come to mean much more than just mixing to picture. “Before you come in to do the mix,” says Schwartz, “we do voice casting. We have a gigantic stock music library, the largest in New York City, from mSoft, with 15 terabytes of audio and 900,000 MP3s available online 24 hours a day. We have sound design, and we are all involved in your project from beginning to end.”



*hsr/ny CEO/founder Howard Schwartz agrees that a talented and creative staff is what it takes to stay in business.*

For straight-up mixing, however, the stakes are getting higher, as evidenced by the recent completion of audioEngine’s Studio D, a ground-up 5.1 room that is 100-percent Dolby-approved. “The whole thing about how to deliver your advertising message is taking off in the theaters,” says Recker. “That’s a captive audience that’s expanding, so we needed to build a room that simulates theater-style mixing. This is a hybrid room, like a mini-theater, and the speakers are JBL, which are the ones actually used in small theaters. So the majority of stuff I’m doing right now in 5.1 is commercial cinema stuff, but HDTV is a trend that eventually will happen. Right now, the HDTV programs are in 5.1 but the commercials are mostly in stereo. For audioEngine, stereo commercials are our focus. It’s expensive to work here, so the advertising budgets can support the price points of the rooms.”

Creative Group’s Jaunai attaches even more importance to surround. “The way the industry is going, surround mixing is going to be the key to a lot of facilities because the consumer is becoming more aware of it and DVDs are becoming so cheap. People are

expecting to hear what they hear in theaters, so the production facility to service that end of the business needs to be up, running and understanding it. Surround used to just be for film; it’s not anymore.”

Whether he wants stereo or surround, Greco is an example of a client with high expectations of the mixer and the mix. “It’s the person behind the console who can make it or break it,” he reiterates. “One of my pet peeves when I hear stuff on the air is that I find there are a lot of very, very dense film mixes without a lot of clarity. Where I find the ‘A Team’ separates themselves is that they take mixes with a lot of different elements and broad frequency ranges and you can hear everything. Everything has a place. That’s one of the things the young guys don’t understand: finding a place for everything in the mix.”

In the search for the next generation of audio post pros, Krueger acknowledges that traditional standards of quality are changing. “It’s getting to be a rarity that up-and-coming designers and mixers have experience with acoustic *anything*—be it acoustic bands, voice, et cetera,” he says. “It has helped me a great deal to have studied at a conservatory of music, understand how to count bars and that things have pace. The current generation is very good with technology but not good with listening. They can run the computer, but that doesn’t mean they can mix well.”

For Schwartz, there are two kinds of people ideally suited to do post at his facility. “Someone with a million dollars’ worth of a following or someone with a great attitude and we show them what to do—those are the two ends of the spectrum,” he says frankly. “We develop from within, and we have mixers here that started out as messengers. They come with street smarts, and we hire people with great attitudes and then train them to be great mixers.”

Between hiring the right people and giving them the right tools, the real trick to making it in this tough, crowded town may be having exactly the right amount of each. “There’s been a lot of turnover in the last couple of years,” Recker admits. “The trend is that the independents are surviving and the giant ‘we-can-do-it-all’ companies, like Tape House that had nine divisions, went out of business because they couldn’t survive any downturn in demand. You have to be lean and mean now, so if business dips, you can hunker down and glide through it.” ■

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—FROM PAGE 24, FOUR FOR '04

gives you control over the backlight color so you can match your car (or mood). But best of all is a button that you push when you hear a song that you like and the title and artist info is saved so that you can buy or steal the song later. Much better than driving off the road while attempting to write "Yanni" on a Kleenex. \$125 U.S. Inop elsewhere.

**BEST COMMERCIAL-ELIMINATION DEVICE (VIDEO)**

A technology takes first place in this category rather than a device: TiVo. And it is safe to say that this gen-2 technology will change the way you watch TV, forever.

The following is for those of you who have been holding out.

Have you ever felt a small twinge of anxiety as you glanced down at your watch to discover that your favorite show is beginning while you were:

- A) rolling your tenth take on a singer who will *never* hit it,
- B) caught in traffic after (see "A" above),
- C) finally taking your mate out for a nice dinner?

Well, that doesn't happen to us TiVo owners. We don't have that stress in our lives. We don't care when the hell a show is on because TiVo automatically gets every one we want, and we watch them when we want. We are liberated, we are free. We can sit on the beach with our loved ones and watch the sun set, even in daylight savings time, without the stress of missing our stupid shows, or worse—caving in and revealing to that loved one that any TV show is important enough to cause anxiety at all.

It is a fact that if you fidget or change your demeanor in any way, your date or mate *will* sense this and confront you as to the cause. If you tell the truth (dumb but necessary), said companion will immediately point out that you are in effect placing higher importance on a TV show than on them. This is both good and bad. Bad because you will find yourself alone. Good because you will find yourself alone (and therefore able to speed home and catch the rest of your show). More bad: You might get a ticket while speeding home and end up missing the whole damned thing...alone.

But for the price of that ticket you can buy a TiVo and avoid this scenario. Yes, TiVos not only save marriages, they make them possible. And, if used properly, they can totally hide your TV nerdery.

Call comes in when the best part starts?

Freeze it, take the call, show no anxiety, impress the caller. Show them that, no, *you* don't care who gets kicked off no stupid island. After the call, hit Play and the buffered live feed starts right up where you stopped. Nobody is the wiser.

My old Sony SAT-60 is geeked up to 180 gigs, I think. That's somewhere near 70 years of television. I can watch a show from disk while recording *two* more at the same time. It has two DirecTV tuners that record raw data without any D/A and A/D. Very nice.

And remember the category? Well, skipping commercials is easy. I haven't watched

one in two years (unless I wanted to). I mean this literally. I watch only the shows I want, *when* I want, commercial-free. Period. In fact, I—like many TiVo owners—no longer watch shows as they are broadcast even if I happen to be there. I let TiVo get it while I watch something off disk. You never know, you might want to stop for a sunset.

And there you have it, four things to think about while you are opening your tax refund. ■

*Too...Busy...Playing...*

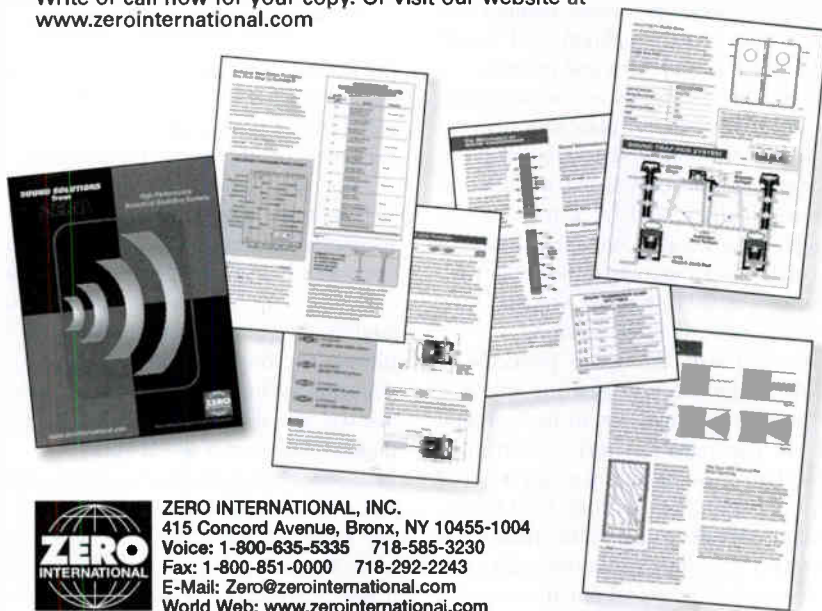
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—FROM PAGE 28, *LOUD AND LOUDER IN LONDON*  
there to be no long pauses between numbers, so everything in each half of the concert had to be preset. Meanwhile, each of the players' music stands needed a light (and a fresh bulb and an extension cord) because the stage lights would be dimmed to allow the audience to see the projections; all of the players needed a clear sightline to the conductor; and every single instrument was miked for house amplification and to feed a recording crew from BBC Radio.

And I haven't even gotten to the electronic performers' setups, which stayed on through the whole concert. Squarepusher's was simple: a computer tower underneath a table, with the keyboard, a glass of wine and a Victorian lamp on top. But Lidell's rig had a laptop computer, a vintage Mini-moog, an ancient Korg analog synth, a couple of scratching devices of some kind, a mixer, a couple of guitar amps and a rack of processing gear. In addition, he had an onstage video artist with him who goes by the name of Pablo Fiasco. He had his own computer and video mixer, plus a camera on a stand, another one on his shoulder and a third mounted at the end of a long elephant trunk-like pipe attached to a mutant football helmet. When Lidell put the helmet on, this "chin-cam" provided a disorienting close-up view of his constantly moving mouth.

It's hard enough to get all this to work in one space, but taking it on the road made things exponentially more complicated. Every venue, of course, was completely different in terms of the stage's size and shape, backstage space, lighting system, sound system, lighting and sound crews, projection systems and catering systems. In other words, it was just like a large rock 'n' roll tour. The plan was that the crew started loading in at each location (including the Royal Festival Hall) at 9 a.m. the day of the show, and by 2 p.m., a run-through of the London Sinfonietta's parts of the concert was supposed to be under way. Of course, it never worked out that way; inevitably, something went wrong.

The first day, the video projector—a massive, noisy piece of gear the size of a filing cabinet—turned out to be so bright that the musicians couldn't see anything and so had to be jacked up to get it out of their eyes. But then they found out it wasn't bright *enough* for one of the films to be shown on the hall's enormous screen, so they brought in a second one that was just as big, and spent a great deal of time lining them up so they would reinforce each other. The second day there was trouble

with the video feed from Squarepusher's onstage computer: It was making it into his monitor and into the projector, but not both at the same time. That took awhile to track down.

My time was mostly spent sitting in the dark waiting for the *Ballet Mécanique* rehearsals to begin and repeating to myself, "Stay calm, you have no responsibility for any of this." And when the rehearsal finally started, I did my best to justify my presence by jumping up to tell Ian to change the balance between the samplers or bring the siren level up a little, and then I sat back to enjoy the music as best I could.

The downside to all of this, along with numerous bitten-down fingernails, was that the audience was kept out in the lobby both nights for a good half-an-hour after the halls were supposed to open. Pop audiences, who are used to being abused by

Each faction of the audience  
had come to hear what  
they already knew about,  
but they couldn't  
help but learn something,  
and when they left,  
they were aware of a whole  
different kind of music.

promoters, take this sort of thing in stride, but it is *never* done at a classical music concert. But this being England, everyone was amazingly polite, despite the pressure.

All of the waiting, the work and the tension were worth it. Despite the chaos and seeming disorganization, the concerts were absolutely brilliant. Jurjen Hempel, a young conductor from Holland, masterfully guided the players through all of the pieces. The *Ballet Mécanique* was as gut-wrenchingly loud and energetic as I've ever heard it, and watching the film on the halls' huge screens was a revelation.

Besides being the most complex, *Ballet Mécanique* is usually the loudest piece on any program. But again, that wasn't true here. That honor belonged to the two electronic performers. Squarepusher's set was largely drum 'n' bass with choral pads in the background—reminiscent of early Pink Floyd and a lot of what a friend referred to

as "nasty HF distorted stuff" punctuating the proceedings. On record, Jenkinson's strength is filling rhythmic spaces with unexpected, ear-catching, semi-coherent samples and synth sounds, and he used that technique for much of his performance, as well. Thankfully, he left out the obscenities he often screams at the audience. A simple but effective computer display dancing along with the music was projected on the screen. A few audience members danced, too, but most were happy to sit in their seats to groove and gape. His levels hit some near-ear-splitting peaks, and I was glad I brought my musician's ear plugs.

Lidell's set went much further in complexity, length and even volume. Possessing a formidable vocal instrument that evokes, at times, Bobby McFerrin, David Crosby and Otis Redding, Lidell fabricated his own rhythmic backing on the spot by looping percussive vocal sounds on top of each other into a complex bed and then harmonizing on top of that. Adding little melodic squiggles from his analog synths into the mix and pulling up other sampled sounds from his computer, he created impressively complex, dynamic riffs that never sat still, theatrically ebbing and flowing. He finally ended his breakless set by slipping into an extended R&B/gospel tune with words you couldn't quite make out, but with unmistakable energy and enthusiasm. The guy is *good*, a virtuoso with his tools, both new and old, and he has a great sense of dramatic arc and timing in his improvising. He also does everything with great joy.

He was accompanied by live video that mixed industrial, architectural and abstract images with his own face from many angles, while his partner, Fiasco, dressed in a mad scientist's lab coat, darted in and out of the spotlight. Because it was so interwoven with what Lidell was doing, the video, for a change, enhanced his performance rather than distracted from it. Best of all, on the two nights I was there, Lidell's sets were substantially different. They combined DJ'ing, vocal improvis, looping and instrumental performance, and took them all to a very, very high level.

Obviously, it was a kick for me to be involved in a tour with such luminaries and at such prestigious venues. But these concerts meant more than that. At both shows I attended, the audience was incredibly varied: Older avant-garde fans of Cage and Reich were rubbing elbows with club-going followers of the Warp artists. One reason for this is that tickets (at least until they were sold out, which at the Royal Festival



Hall happened a week before the show) were easy to buy. You could get seats at some of the concerts for as little as £10 (\$18), and even the highest-priced tickets on opening night were only £22.50 (\$40). Compare that to the \$75 it costs to get good seats to a symphony concert in this country or the \$150 or more to get within binocular range of a top-tier rock band. How is this possible? Simple: In England, the government actively promotes and subsidizes culture. Fully 40 percent of the funding for the concert series came from national and local government agencies.

Each faction of the audience had come to hear what they already knew about, but they couldn't help but learn something, and when they left, they were aware of a whole different kind of music. The old folks (like me) could see the art, craft and virtuosity that can be part of the new electronic music, a medium we're (okay, at least *I'm*) often guilty of dismissing as music to stop thinking by. This stuff made you think.

The young folks learned that modern electronica didn't spring fully grown from the heads of Kraftwerk or Brian Eno, but that it grew out of a century of musical experimentation. Varèse was searching for, and finding, new sounds long before electronics could provide them. Cage had invented the art of industrial music, using real industrial objects. Reich could induce trances in a thousand listeners without a synthesizer or sequencer in sight. And Antheil and Léger were attempting a new kind of multisensory art form that could potentially be greater than the sum of its parts—that elusive thing called multimedia.

It's been a long time since we in the United States have been exposed to this kind of cross-pollination on a large scale. The market-driven record and radio industries are uncomfortable with crossing boundaries and would much rather stick their music, and their audience, in easily identifiable categories. But we need more category-busting events if we are to evolve a new music that is both artful and speaks to audiences. Leonard Bernstein's Young People's Concerts introduced a generation to Bach, Sibelius and Stravinsky, and showed their parents the connections between classical music and jazz. The London Sinfonietta's Ether concerts bridge the gap between yesterday's avant-garde and tomorrow's. More power to them—and to us. ■

*Paul Lehrman lives in Boston, one of the few American cities where you can fly to London without seeing the sun come up.*



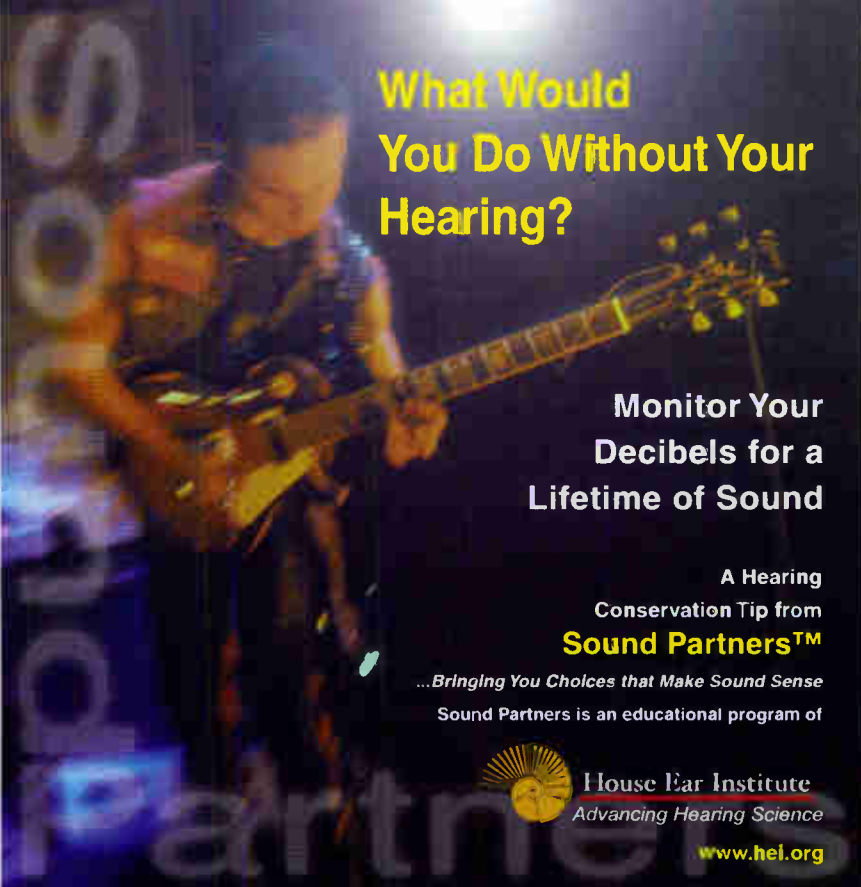
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
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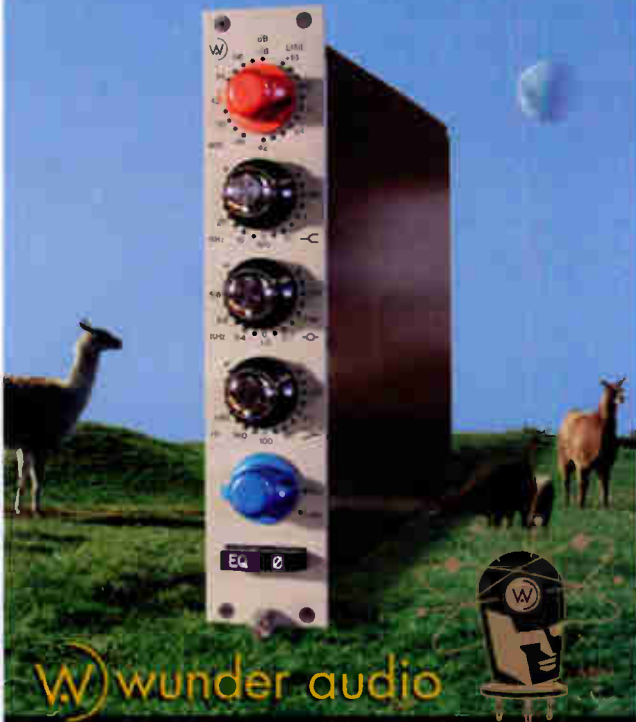
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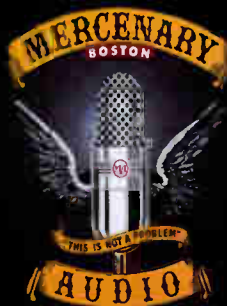
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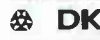
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Altiverb Version 4 has been heavily optimized for the G5 Power Mac. In a 48 kHz session on a single processor G5, you can instantiate 8 full stereo Altiverbs with 6-second reverb tails. Other convolution reverbs don't make it past two similar instances.

Altiverb is still the only true, 4-channel surround convolution reverb, and it offers the longest tails by far. For example, St. Ouen Cathedral in Rouen, France requires 15 seconds to die out, so Altiverb gives you all 15 authentic seconds, with no artificial truncation or scaling.

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# Neutrik Test Instruments Minitizer ML1

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After reviewing NTT's Minitizer ML1 (*Mix*, January 2001), I knew it was a welcome addition to my bench and control room. This handheld package has a feature set that starts where most specialized AC voltmeters end: measuring distortion, spectral analysis, frequency counting, signal visualization "scope" and more.

Used with the companion MR1 Minirator multifunction tone generator, the ML1 can determine absolute polarity (useful for mics and speakers) and log measurements (frequency response, noise and impedance) over time. A MiniLINK USB upgrade stores results and graphics to a PC. A MiniSPL option adds a calibrated mic for sound pressure

level (SPL) measurements and a Wavefile Generator is a free download. A -10dB attenuator (pad) expands the ML1's input range to accommodate the higher levels that old tube and discrete transistor gear can easily deliver—about +25 to +32 dBm. It's \$56 or you can build your own. The complete ML1 package with all options costs around \$1,500.

### IT'S ALL RELATIVE

In the audio world, volts and millivolts (mV) are unwieldy absolutes, making an AC voltmeter a cantankerous tool for measuring an audio signal. In contrast, the dB is a ratio between two voltages—the reference and the signal being measured—so you'll appreciate that the ML1 can display signal level as volts, dBV or dBu. For dBu, the reference is 0.775 volts; for dBV, the reference is 1 volt, both RMS. Older gear is referenced to 0 dBm = 1 mW, the amount of power dissipated by a 600-ohm load when 0.775 volts is impressed upon it.

The ML1's Relative mode is useful for comparative analysis. For stereo outputs, connect the ML-1 to the left output, move the cursor to Reference, click Enter, connect to the right output and the Minitizer will show the difference. Once the signals are confirmed, mechanical VU meters and LED/plasma displays can be assessed and calibrated if necessary.

To measure signal-to-noise/dynamic range, choose a filter. There are many different "weighting" options or turn the filter off for a flat/linear reading. Published specs are often A-weighted, yielding a more-impressive number by using EQ that resembles the ear's reduced sensitivity to extreme LF/HF signals. Choose Flat unless you have reason to apply any of the options. (See Fig. 1 for procedure and screen capture.)

### OVER TO THE RAINBOW

Gear with 16-bit resolution should deliver a 96dB dynamic range. With old tube and transistor gear, 80 dB will be typical. (See Fig. 2.) A quick visit to the ML1's spectrum analyzer could reveal a hidden problem like



Kit with ML1, MR1, SPL mic and MiniLINK PC interface

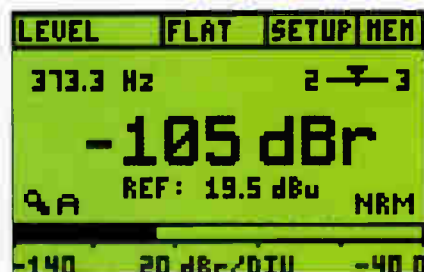


Figure 1: Measuring signal-to-noise using Relative Level mode. Set the reference (+19.5 dBu max out) with signal applied and then replace the signal generator with an input terminator (150 ohms for mic preamps) and—voilà—105 dB SN. Note: The ML1 reports the degree to which a balanced signal lives up to its name.

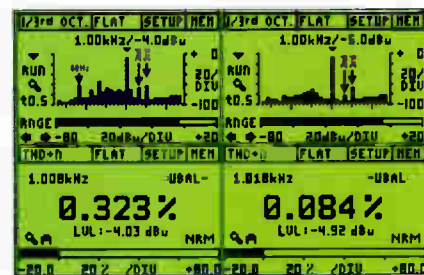


Figure 2: On the top, spectral analysis reveals the respective fundamental and harmonics of 60Hz power supply hum and a 1kHz test signal. The contribution of hum and its components to total harmonic distortion plus noise (THD+N) is detailed below left and absent (below right). The ML1 reports the signal as unbalanced.

hum. (Look for power supply, grounding or simple wiring issues.) This combo of metering and spectral analysis is a much better way to look at (and for) noise as compared to jacking up the gain and then accidentally blowing up monitors.

Relative mode is also useful when questioning the amount of signal processing being done by any compressor/limiter, especially a vintage optical, Vari-Mu or FET box. Start by establishing a reference level with no gain reduction and then set the threshold. Note the relative change on the ML1 and then compare that with the gain reduction meter. Even if you're afraid to make any internal adjustments, it's good to know what's working and what's not.

Many of the FET-based dynamics processors (UREI 1176/1178, A&D Complex Limiter and the Trident Stereo Limiter Compressor) have anti-distortion circuitry (some adjustable). Measuring distortion is easy enough, though rather frightening if you're not familiar with what dynamics processors do to a signal.

### SPL

You need a mic to measure the SPL of ambient noise or to calibrate monitors, which requires the optional MiniSPL accessory or a mic/external preamp of your choice. For the latter, you must recalibrate the ML1 to a reference SPL meter. For calibrating a 5.1 system, it's okay if your reference isn't traceable back to NIST ([www.nist.gov](http://www.nist.gov))—it's the relationship from speaker to speaker that is of primary importance.

Other useful apps: When doing acoustic tests of my control room, using slowly swept sine waves, the ML1 is indispensable as a frequency counter as only the sweep range was specified. ■

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