

MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

WIRELESS UNDER FIRE

FCC Sell-Off Threatens
Pro Audio Community

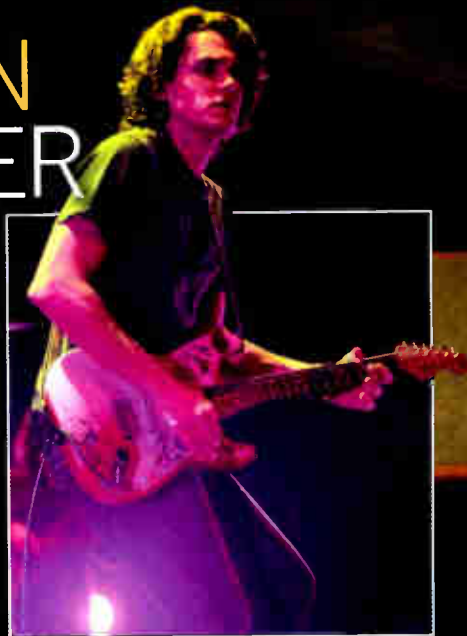
Portable Production

Compact drives for
storage on the go

Mixing for TV

- * Ghost Whisperer
- * Soundstage on PBS

JOHN MAYER LIVE



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World Radio History

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"I've reviewed quite a few ribbons, and this one has some serious chops on acoustic and electric guitars, percussion, piano and especially on vocals. I heard it used on two male vocalists and in both situations it enhanced the track, sat nicely in the mix without compression and captured a decent amount of top end. In most situations, surprisingly, the usual woof associated with close miking is reduced, while providing a silky and uncharacteristically extended top end."

"The pair (of R-122V's) excelled when placed about 1 foot above the hammers of a Yamaha C5 piano. It was simply luscious when put on a raging guitar amp and then a Leslie cabinet, producing a rich bottom end, smooth top and great grind when the Leslie was pumping at full throttle."

"This mic will have legs as long as you own it."

Mix, July 2006, by Kevin Becka

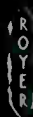
"Where the R-122V really excels is in its midrange depth and detail. It's interesting because, in one way, the mic sounds identical to its phantom-powered counterpart (the 122) but, in another way, it's totally different. I'd describe it almost like the difference between a 16-bit, 44.1 kHz recording compared to a 24-bit, 88.2 kHz recording."

"On electric guitar, ...it sounded astounding. The bottom end was tight and punchy, the mids were present and dynamic and the top end sparkled."

"On another session, this time at my studio, I used the R-122Vs as overheads. In this case I used my GML 8200 EQ to add some sparkle on the top end and the result was wonderful. The kit sound was natural and full. The mic worked equally well capturing tambourine, shaker and finger cymbals."

"I don't think there has ever been a ribbon mic that I would purchase solely for vocals. That has changed with the R-122V. I had wonderful results using this microphone on both male and female vocals. The mic has the ability to capture high frequencies without any harshness or distortion and it especially shines on female vocals."

Pro Audio Review, January 2007, by Russ Long



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"When working in a recording environment, I've found it critical to 1. create an atmosphere that people find comfortable and 2. make sure the listening environment, especially your speakers, are as good as you can get - so you don't second-guess what you're hearing. When I first used the LSR6300s, I just loved what I was hearing and I've been using them ever since. They're smooth across the entire spectrum. I don't hear the speaker - just the music. Working in a range of rooms in LA, London, and here in Manhattan, the ability to tune the LSRs to the room is extremely useful. I'm really stoked about the new LSR4300 series especially the 6-inch model. The 4300s, with automated Room Mode Correction, go one step further. I put the supplied calibration mic in the center of the room, push a button and the speaker does all the work. It not only does it, it does it well and it does it right! The technology's amazing - I'm blown away by it. I take my LSRs wherever I go."

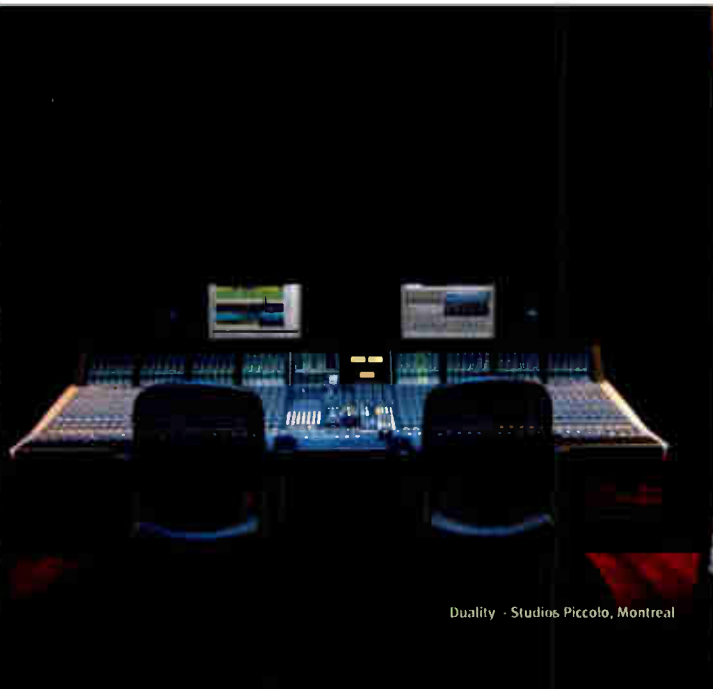
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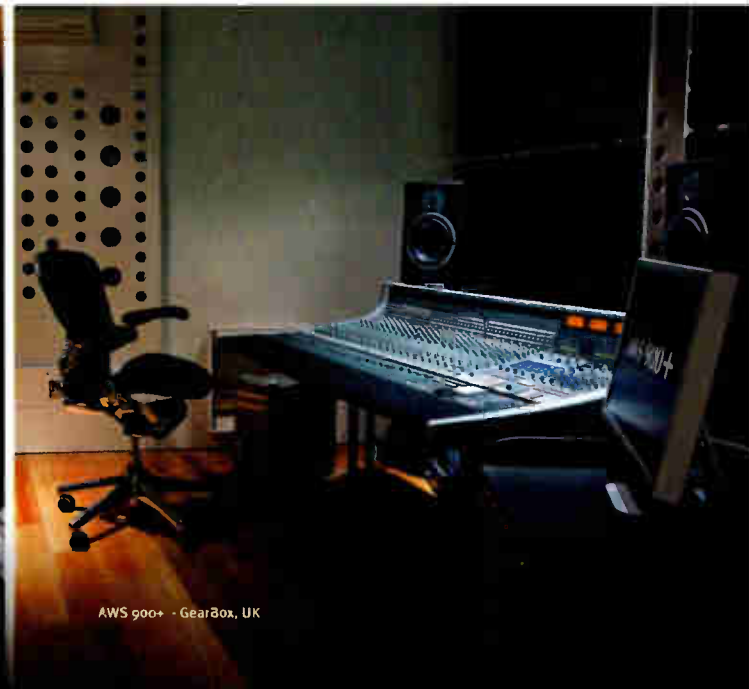
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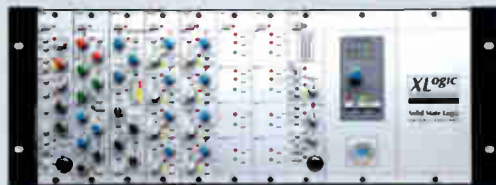
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World Radio History

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PAGE 52

On the Cover: MTV Networks' Mobile Unit 8 has been refurbished for 96k production with a 56-fader Lawo MC²66 console. The truck also houses Pro Tools HD rigs with Apogee X-Video cards and Big Ben master clocks. **Photo:** David Vespie. **Inset:** Paule Saviano.



We're working on a very important special May issue on hearing health and stress management, and we want to hear from you! Tell us your tales and we'll put them in *Mix* or on our Website. Let us know how you handle the ups and downs of your audio job by e-mailing mixeditorial@mixonline.com.

features

32 Wireless Issues

Wireless technology keeps improving, but recent FCC allocation actions, smaller budgets and more complex multi-camera shoots make the job of the production sound mixer for location TV shoots harder than ever. We talked to a number of top audio pros about working in today's cluttered airwaves and found both solutions and a lot of yet-unanswered questions.

38 Take It With You

The whole point of owning a laptop computer is being unencumbered by a massive—and heavy—desktop system, but can portable hard drives and data backup systems perform on a par with their larger cousins? Laptops still have size and speed issues, so manufacturers are offering new products and solutions to increase connectivity and performance.

46 Gearing Up for Summer Tours

It may be cold where you live, but sound reinforcement companies are thinking warm and getting ready for the onslaught of riders for this year's hot summer tours. From upgrades to packing the cable, *Mix's* sound reinforcement editor, Steve La Cerra, checks in with these providers to find out what will make it in the truck pack.

52 Bay Area Sound

In our ongoing coverage of audio for videogames, *Mix* spotlights Northern California-based Bay Area Sound, whose recent gaming credits include *CSI* and *The Chronicles of Narnia*.

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

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Maybe Chicken Little Was Right

The sky is falling—at least part of it is for wireless audio users, whether for broadcast, production sound, Broadway, concerts, sporting events or houses of worship, affecting mics, IFB, radio intercoms or in-ear monitoring. With the changeover to DTV broadcasting in February 2009, our old pal analog television is going the way of the rumble seat. Meanwhile some very large, well-financed players are looking at picking up a lot of soon-to-be-unused frequencies for new uses, such as portable Internet devices.

So what does any of this have to do with audio? Plenty. Because unlike CB radio and maritime navigation, pro audio never had an official allotment of frequencies from the FCC for wireless use. We rode on the coattails of broadcasters, first using unused VHF TV frequencies and later mainly moving to the middle and upper UHF bands. Now here's the rub: DTV operates with more precision than analog TV channels, which require large areas of "white space" padding around each frequency to avoid interference from adjacent channels. And that white space offered a mostly safe haven for wireless audio users. So with no white space requirement, DTV's arrival leaves a whole lot of ex-analog TV spectra, which the FCC has proven more than willing to reallocate to deep-pocketed companies such as Sprint Nextel, Verizon, AT&T/Cingular and others who see boom times ahead for wireless Internet and mobile communications.

The situation caught the attention of Sens. John Kerry and John Sununu, who introduced separate bills mandating that the FCC allocate the vacant spaces for wireless broadband. This is a good thing, with the potential of bridging Internet access to rural areas, and perhaps even bringing new players to compete in the cable and broadband markets. However, a few issues must be resolved. First, portable wireless products are two-way devices, operating as both receivers for downloading data, video, music, etc., and transmitting everything from e-mails and text messaging to baby pictures. With this burgeoning market, moving slowly with adequate testing to ensure that these devices don't interfere with existing products operating in the white spaces (such as wireless microphones) is essential.

With that in mind, Illinois congressman Bobby Rush introduced H.R. 1320, "The Interference Protection for Existing Television Band Devices Act of 2007." Rush's bill doesn't seek to negate the Kerry and Sununu proposals, but would allow some white space use for gear such as wireless mics, while asking the FCC to require interference testing of portable broadband devices. H.R. 1320 is a balanced approach, and audio pros should encourage their local representatives to support this bill. Get involved. Just go to www.house.gov/writerep, enter your state and zip code and an e-mail form pops up with your representative's name. It couldn't be easier.

The long-term effect of any frequency reallocation remains unsure. Will your wireless gear work after the changeover? Maybe, maybe not. It may come down to losing certain frequencies or having a shorter operating range, but at least the Rush bill gives our industry and the general public the best shot at maintaining high-quality wireless communications in the years to come.

George Petersen
Executive Editor

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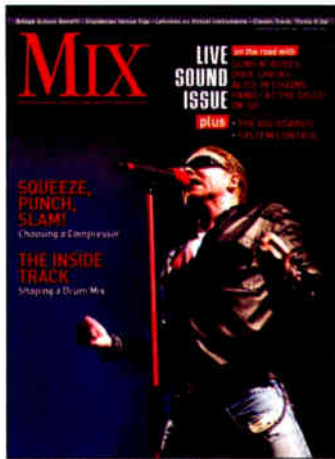
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Letters to Mix



TRY THIS ON FOR SIZE

After reading your article on mixing drums ("The Inside Track") in the January 2007 issue, I'd like to offer an additional technique to help center the snare drum in the mix. Try using an XY pair of microphones as overheads and aim them at the center of the snare drum. (I'll usually bring this pair of mics in from the rear of the kit and boomed over the drummer's head.) The mics will look off-center hanging over the kit, but there are a couple of benefits: The drummer's head is usually centered on the snare drum, so it's natural-sounding from the player's perspective. It helps to avoid the phase cancellations created when a lot of microphones are used together.

A spot mic on the hi-hat usually isn't needed, further reducing the number of mics on the kit. Aiming the XY pair over the middle of the snare drum moves the microphones closer to the hi-hat so that it becomes more prominent in the overhead drum mix. The ride cymbal also tends to balance better in the overall drum mix using this placement.

Dan Guerrie

THE "COMPLETE FAST LANE"

I have been a dedicated reader of *Mix* since the 1980s, and I always look forward to my monthly issue, which I never fail to read cover to cover. One of my favorite columns, of course, was "The Fast Lane" by Stephen St.Croix. I still look back at those articles and often laugh aloud at his irreverence—and sometimes his prescience. Are there any plans to compile his writings into a book?

Michael "Fraz" Kirch

Many of *Mix's* longtime readers have asked us to publish Stephen St.Croix's "The Fast Lane"

columns in book form. We are presently compiling a selection of columns, along with many of Steve's personal photos and drawings, for a collection to be published by MixBooks this year. Watch for a formal announcement in *Mix* and on www.mixonline.com. —Eds.

TILL THEN, HE'S STILL REMEMBERED

There are many moments in life when I think all of us experience feelings about whether what we do actually has some effect on others. I feel compelled to write after the shock of the news of the passing of Stephen St.Croix.

I have been an avid reader of *Mix* since 1985. Traditionally, after scanning the cover and briefly looking at the "Table of Contents," I've always read Stephen's articles first. They truly have brought me tremendous enjoyment and laughter at his humor, insight and awareness by the poignancy of his viewpoints and breadth of knowledge. He [always helped me feel] that someone else perhaps feels as I do, and has a voice and ability to let these ideas be heard. He has truly been an inspiration to me and, I am confident, to many others.

It has been fascinating to me to grieve for someone I have never met, yet feel so connected to through his writing. There were so many instances when I wanted to write to him and say, "Yeah, you're right," or, "Thanks for bringing it up." Sadly, now it is too late. He has, as he stated in his last article, "been writing personal letters to his friends," and this friend just wanted to send a long belated and much overdue "Thank you, Stephen!"

Frank Prpic

Platinum Glass Productions

TO OVERLAP OR NOT OVERLAP?

I have a question for Bobby Frasier regarding his October 2006 review of JBL's LSR 4328P. You mention that overlap on the shelving EQ bands would enable you to quiet down the 1kHz range that seems a little forward. The overlap seems like a good idea, but because the frequency range you want to drop happens to be at the boundary between EQ bands, could you not drop it, in effect by using gain on both bands and setting the corners to either side of 1 kHz?

Chris Dobson

Chris, you are absolutely correct. It will work this way, but to get just a 1dB "drop" in relation to the 2dB boost you've entered, you need to have your "corner frequencies" set

at about 667 Hz on the low shelf and 1.37 kHz on the high shelf. To get a 2dB drop, the corners go out to about 354 Hz and 2.59 kHz, respectively, due to the nature of the filter slopes (as witnessed on their software graph), effecting quite a bit of territory around 1 kHz. So, more correctly, I should have requested a variable slope in future updates for more of a notch effect. But again, you are correct, sir!

—Bobby Frasier

DO YOU HEAR IT?

Regarding Heather Johnson's piece "Sting With Edin Karamazov" (December 2006 "Recording Notes") about Sting's new CD of songs by John Dowland, I know the lute produces a soft sound and is not easy to record well. But the solution is definitely not the gross compression that afflicts the sound of this CD. Among all the folks who were involved in the recording and mastering, didn't anyone notice the grotesque sound?

Doug Pomeroy

Pomeroy Audio

ACRONYM BUZZWORDS?

In reading the December 2006 *Mix*, I came across the article on the Romus Studio in Italy ("Sound for Picture"). It looks like a very beautiful, well-designed space, and it probably sounds fantastic. However, my gripe is with a new acronym I came across in the article: "SAE," which stands for "Stealth Acoustic Environment."

According to the article, the SAE technique is based on military applications that enable planes and ships to give low radar return. According to designer Giuseppe Zappata, this design "sculpted" the area around the sound engineers' listening point to trap the flow of acoustic energy. I don't know how far behind the technology is in Italy, but in the U.S., during the past 20 or 25 years, most control room designs have tried to minimize reflections at the mix position. If Zappata really has a new design breakthrough in reducing reflections at the mix position, I would love to hear more about it. But if SAE is just the new \$0.50 (or 0.38 Euro) B.S. buzzword acronym for the S.O.S., I would love to see this term packed away with my "digital speaker cable."

Kip Williams

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MIKE CLARK, 1943-2007

Mike Clark, co-owner and manager of Southern Tracks Recording (Atlanta), died on February 1, 2007, after an eight-month battle with cancer. Clark was inducted into the Georgia Music Hall of Fame in 1999 and is scheduled, posthumously, to become a 2007 Recording Academy Honors Award recipient.

Clark's affinity for all things music began in fifth grade, when he played drums as part of his school's band. In high school, classmate Tommy Roe and Clark formed their combo, Tommy Roe and The Satins. In 1958, their single "I Got a Girl" was recorded at music publisher Bill Lowery's studio, which at that time was an old schoolhouse equipped with a Gates Radio console and a 2-track tape deck. Lowery pitched Roe's song to Judd Phillips (brother of Sam Phillips), and it became a regional hit for Memphis label Judd Records.

After graduation, Clark toured with Dick Clark's Caravan of Stars, which featured headliner Sam Cooke, The Drifters, Little Eva and other top R&B acts. Back in Atlanta, the drummer was in demand for many sessions, as well as being billed at top clubs—all the while still touring with the likes of Roy Orbison and Ray Stevens. In 1966, Lowery asked Clark to work at the Lowery Music Company, where he was soon promoted to national director of promotion; at night, Clark was still behind the skins. Soon, Clark was producing records and, in 1979, managing the old schoolhouse studio. When Atlanta's rapid transit system, MARTA, acquired the old schoolhouse property in 1983, Clark and Lowery picked up and moved to the current northeast Atlanta site, now named Southern Tracks Recording.



MIX FOUNDATION UPDATE SCHOLARSHIP WINNERS ANNOUNCED



Georgios Pesios

The 2006 TEC Awards announced the following recipients of its Scholarship Grants:

Richard Chilcott is a student at Ohio University and is pursuing a degree in Music Production. He is currently working on a project in which the School of Music and the School of Telecommunications will create a digital archive of performances from the past 30 years. Michael Lunoe is working on a dual degree at University of Hartford: a B.S.E. in Acoustics and Music, and a Music degree in Percussion Performance. After graduation, Lunoe plans to work as an acoustician, with a primary interest in designing musical instruments, specifically percussion, and pro audio equipment. Georgios Pesios is a junior at the City College of New York. He is working on a degree on Music and Audio Technology.

Applications for the 2007 TEC Awards Scholarship Grant are currently being accepted. The scholarship grant(s) is offered to students currently enrolled in audio education programs. For more information, go to mixfoundation.org/hearing.html or call Karen Dunn at 925/939-6149.

In other news, the 12th Annual Mix L.A. Open (Monday, May 14, 2007, at the Malibu Country Club) has confirmed sponsors including Absolute Music, Acme Audio, Audio-Technica, Harman Pro/JBL Professional, The Pass Studios, Record Plant, Shure, Sound Design Corporation and Yamaha Corporation of America. A limited number of playing spots and sponsorships are still available. Visit mixfoundation.org/la_open/la_open.html for information.

The Mix Foundation also announced that \$45,000 has been contributed to hearing organizations and audio education programs. Nearly half of the amount will support the Sound Partners campaign of the House Ear Institute to educate professionals and music consumers about protecting their hearing in the music environment. Funds were also donated to scholarships and student assistance programs of the AES Education Foundation, SPARS, H.E.A.R., five existing endowment funds at colleges and universities, Sound Art L.A. and three individual TEC Awards Scholarships. For more information, visit www.mixfoundation.org.



Michael Lunoe



Richard Chilcott

TOLLEN HEADS SOUND ONE



New York City-based post-production facility Sound One has a new managing director: Steven Tollen. He will oversee day-to-day activities at the facility, which recently hosted work for *The Good Shepherd*, *A Prairie Home Companion*, *Closer* and *Match Point*.

WINNERS CIRCLE

'DREAMGIRLS' TAKES OSCAR

Mike Minkler, Bob Beemer and Willie Burton took home the Oscar for Sound Mixing for their work on *Dreamgirls*. The team used the Euphonix System 5-F dual-operator console at the Todd-AO West mixing stage to prepare Bill Condon's adaptation of the Broadway musical for the big screen. From left: Minkler, sound editor Richard Yawn and Beemer.



PHOTO: WIREIMAGE.COM/ROBERT MORA



GREENE SCORES AT CAS

Television sound mixer Ed Greene received the Cinema Audio Society's Career Achievement Award at the 43rd CAS Awards on February 17, 2007, in Los Angeles. Greene also won the CAS Award in 2003 for Outstanding Achievement in Sound Mixing for Television-Non-Fiction, Variety or Music Series or Specials for *XIX Winter Olympics Opening Ceremony*. Other winners include Mike Minkler, Bob Beemer and Willie D. Burton for *Dreamgirls*; Mark Linden, Tara A. Paul, Liam Lockhart and Harry Snodgrass for *Flight 93*; R. Russell Smith, William Freesh and Geoffrey Patterson for *Deadwood: A Two-Headed Beast*; Sound Devices 744T Recorder (Production Technologies); and Digidesign Pro Tools Version 7.2 (Post-Production Technologies). Log on to www.cinemaudiosociety.org/ for a full list of winners.

PHOTO: COURTESY WIEENAGE



ON THE MOVE



Who: Rick McClendon, Tascam VP
Main Responsibilities: build strong relationships both inside and outside of the company while telling people why they should care about our products, marketing, strategy and goals.

Previous Lives:

- 2000-2003, Harman Music Group, director of sales

- 1986-2000, Roland, district sales manager

My favorite experience while working in pro audio was: watching as someone understands what great audio sounds like for the first time; and at the recent NAMM show, watching as our dealers, consumers and reps took in our new product, look and message.

The last great book I read was: *Who Says Elephants Can't Dance* by Louis Gerstner—a great story about business good and bad and how to make a difference; *A Long Way from Home*, [by] Tom Brokaw—a story about growing up in America's heartland and one of my favorite stories about overcoming the odds; anyone can be successful as long as you are persistent.

The one thing in my office most like my personality is: TREO phone, it's a great communication device. The value we bring is the ability to communicate ideas and challenge those around us.

Currently in my iPod: U2's *Achtung Baby*, Van Morrison's *Organic* and Al Green.

When I'm not in the office, you can find me... reading and listening, trying to figure out how to make Tascam better. The Japanese have a word, "kaizen," which means continual, incremental improvement. Business is very competitive today, and if your business isn't getting better, then it's getting worse or standing still (which is the same), and for that there is simply no

excuse.

INDUSTRY NEWS



Marc Lopez

The Stanton Group (Stanton Magnetics, Cerwin Vega, KRK Systems; Hollywood, FL) named Timothy Dorwart and Mike Quandt as CEO and president/COO, respectively...Stephane Ecalle was promoted to director of marketing for L-Acoustics (Oxnard, CA)...Joining Lab X Technologies' (Rochester, NY) engineering staff is Stuart Wood...Filling in the newly created position of director of business development at Symetrix (Mountlake Terrace, WA) is Michael Worona; in other news, Audio Geer (L.A.) is the company rep for Southern California, southern Nevada and Arizona, and Audio Agent (Bellevue, WA) in Latin America...Dawn Birr returns to Sennheiser (Old Lyme, CN) as product manager for HHB and other professional products...

Yamaha (Buena Park, CA) news: Marc Lopez, marketing manager; David Hatmaker and Chris Taylor, R&D managers; Chris Hinson, district manager; Lon Brannies, consultant/AFC marketing manager; Christine Marceau, senior credit manager; and Marianna Pellissier, customer service associate...Supporting Audio-Technica's (Stow, OH) Audio Solutions department is Chris Nighman... New distribution deals: Kaysound Imports (Lachine, Quebec) is U.S. distributor for Hiwatt (Chatsworth, CA); SLS Loudspeakers (Ozark, MO) appointed Seattle-based First Choice Marketing Inc. (Seattle) as its Northwest rep/distributor; HME (San Diego, CA) is represented in Italy and Portugal by Sisme (Ancona, Italy); West L.A. Music/Westlake Audio (L.A.) now deals SSL (Oxford, UK) AWS 900+/XLogic Range and Duende gear. Minnetonka, Minn.-based American Pro Audio is also a new SSL dealer; and CME named Kaysound Imports (Champlain, NY) for distribution in the U.S.

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



All Access: Snow Patrol

WATCH: Check out this *Mix* exclusive video with the show's front-of-house and monitor engineers discussing the gear for this year's tour.



Recording Notes

LISTEN: Get audio clips for Ricky Skaggs and Bruce Hornsby, Fountains of Wayne and Booker T. & The MG's' "Time Is Tight."



Field Test: Cube-Tec

LISTEN: Reviewer Barry Rudolph takes you through a recent project's restoration using DeScratcher, DeBuzz, DeCrackler and Spectral DeHiss Expert.

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CURRENT

NOTES FROM THE P&E WING

A LITTLE BREATHING ROOM FOR THE RECORD BIZ?

BY FRANK FILIPETTI

CD sales are down—way down. Digital downloads are up, but not nearly enough to compensate. Media piracy is rampant. Old news, right? It's been the music business scenario of the past decade (has anything really changed since 1997?) except that CD sales, which once topped \$14 billion (U.S.) a year, are now less than \$10 billion. So how have we handled this crisis? Not very well.

We're still releasing albums in the same 16-bit, 44.1kHz CD format that was all the rage in 1982. And we still expect the consumer—who is now accustomed to buying a \$200-million-dollar budget movie on DVD for \$18.99—to drop \$18.98 for an album that costs a thousandth of that to make. Okay, the movie recouped some of that money before its DVD release, but do we really think we're providing enough value in a CD? Finally, rather than leading the way, we in the music industry have let a computer company define our pricing and the structure of the future of music distribution. And that computer company (as well as consumers) has opted for convenience over quality.

But have we really given them a choice? Isn't there an alternative? It's true: Many proposed solutions involve long-term paradigm shifts in production, marketing and distribution. But here are two potential solutions that could provide some breathing space while those longer-term answers are being implemented.

Idea #1: Phase out the outdated, resolution-challenged CD. Instead, release audio in a high-resolution, hi-definition, 24-bit/96kHz format on DVD. Think about it: A track on a current audio CD is hardly a step up in quality from a \$0.99 MP3 download on your computer. But a hi-res DVD is not only a serious step up in quality, but it's also *copy protected*. Why not release all new titles on DVD—or Blu-ray or HD-DVD, or any hi-res format—in 5.1 surround? Let's relegate the 2-channel, 16-bit version to being the digital download format for your iPod or Zune. *Convenience*. And for those who don't feel the need to invest in 5.1 audio, the DVD stereo version would still be high-definition widescreen as compared to the CD/MP3 standard def, 4x3—96k/24-bit vs. 44.1k/16-bit. *Quality*.

Current estimates indicate there are nearly 100 million DVD players in consumers' homes. Whether purchased for DVD-Video, DVD-Audio or as part of a gaming system, they all play some form of hi-res surround audio. That's a much larger share of the market than when we first switched from vinyl to CD. Gamers and movie-makers insist on surround sound. Why is music the only industry still stuck in stereo, a format first introduced more than 60 years ago: Patti Page, black-and-white TV and AM radio. Television delivery is moving from standard to hi-def. The movie industry is moving from DVD to hi-def DVD. Gamers are moving from low-res 2-D gaming to hi-def 3-D. The music industry? We're enthusiastically embracing a format that in recent tests has been found to be less satisfying than a 50-year-old analog cassette. The MP3 player, while portable and convenient, can best be described as the emotional equivalent of watching *The Lord of the Rings* on VHS. Why are we the only entertainment format going backward in quality?

Idea #2: Instead of cutting the budget per song on a 15-song album, why not simply reduce the number of songs? A 10-song album should cost 33 percent less than a 15-song album to make, with less stress on the writers, producers and mixers. Let's not even discuss the fact that the last three to five songs on that 15-song album are more than likely filler anyway. Just because we can doesn't mean we should!

It's imperative that we don't leave the task of music distribution to electronic hardware manufacturers whose only interest is selling electronic hardware. The solutions I'm offering aren't the only ones out there, but we need to stop living in the 1980s and start looking forward. If we don't, music delivery will be left behind in the 20th century while the rest of entertainment lives in the 21st. ■

Four-time Grammy® Award-winner and Producers & Engineers Wing member Frank Filipetti numbers among his clients James Taylor, KISS, Luciano Pavarotti, Courtney Love and Hole, Korn, Paul McCartney and Bob Dylan. He also works on film soundtracks, Broadway cast albums, live concerts and television broadcasts.

PHOTO: BROOKS AVOLA



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MTV Networks' Mobile Unit 8

By Claire Hall

MTV Networks managers and engineers knew they had a tough challenge in front of them. With the 22nd Annual *Stellar Awards* gospel show set for Saturday, January 13, 2007, at the historic Grand Ole Opry House in Nashville, the mobile audio truck scheduled to record the broadcast was driven tag-team style back to its Nashville base only a few weeks before engineers were to complete a technical refurbishment of the truck in time for this prestigious awards show.

From its base in Nashville, and as a frequent traveler to production locations throughout the United States, this 48-foot truck has been at the audio heart of hundreds of broadcast concerts and television music shows spanning the past 10 years. The Neve Capricorn console at its center—the first all-digital, large-format audio console and a remarkable piece of technology for its time—was beginning to show the stress of constant travel. Therefore a decision was made one year earlier to replace the console, upgrade the video monitors to HD and move toward 96kHz recording.

Greg Lankford, EIC for Mobile Unit 8, describes the project as a unique experience: "We used as much MTVN staff as possible to meet the engineering deadline of January 8. Stan 'Quack' Dacus, audio mixer at MTVN, was even tasked to cut and haul cables—everyone got involved. The challenge was not just to finish the refurbishment and upgrade on time, but also to be on location on January 10 for the rig and technical rehearsals. So there was very little margin for error." The planning stage took three months, with Lankford and MTVN project manager/audio mixer Marc Repp hammering out the details. Using as much of the existing infrastructure as the new specification allowed not only saved money, it also saved time.

"We decided to use the existing analog patch fields," says Repp. "In the initial construction of the truck in 1996, we had configured the patch fields to terminate in DL connectors, which then mated to DLs feeding to and from the Neve console and other on-board equipment. It was then a simple matter, wherever possible, to build new DLs to feed the new console, a 56-fader Lawo mc²66. The Lawo digital console proved to be a familiar

operating surface—similar to the Capricorn in many ways, but with the added bonus of being able to give us lots of DSP paths at 96 kHz and a massive 512 DSP paths at 48 kHz.

"This truck is now only one of a very few that can handle such a large amount of inputs and track sends," Repp adds. "I can now change the whole soundstage smoothly and at speed, so for multiple band shows, this is ideal. And what's more, the sound of this board is outstanding." With space saved, it was also possible to physically change things around. The existing pair of Pro Tools HD systems, for example, could now be moved to the back of the truck. Each was connected to the console I/O interface via separate AES cards. This one-to-one input connectivity was preferred to a MAD1 style of distribution, minimizing connections to additional conversion racks and providing a further level of redundancy. A third AES card handles another 64 tracks, if required.

"With the new console, we have a lot more redundancy than we ever had before," says Lankford. "We decided to continue this into other systems, especially in the blackburst and word clock synchronization system, as well as throughout the fiber-connected I/Os. We are extremely conscious to make sure everything is held in sync to prevent any chance of signal glitching due to synchronization issues, and to protect not only against equipment failure, but also to minimize connector-cabling problems due to on-the-road mechanical vibration or through connector oxidation."

Mobile Unit 8 uses two Apogee Big Ben master digital clocks, each fitted with Apogee's X-Video card, which has a connection for a video reference input and three video reference outputs, in addition to the existing six word clock outputs gen-locked to the incoming video. The video-reference inputs to each of the Big Ben units are fed from a separate video isolation DA, whose inputs receive the external reference from the video production truck or any other video-reference source.



PHOTO: DAVID VESPIE

At work in Mobile Unit 8 are, from left, Marc Repp and Stan "Quack" Dacus (at console, respectively) and Greg Lankford at the Pro Tools rigs

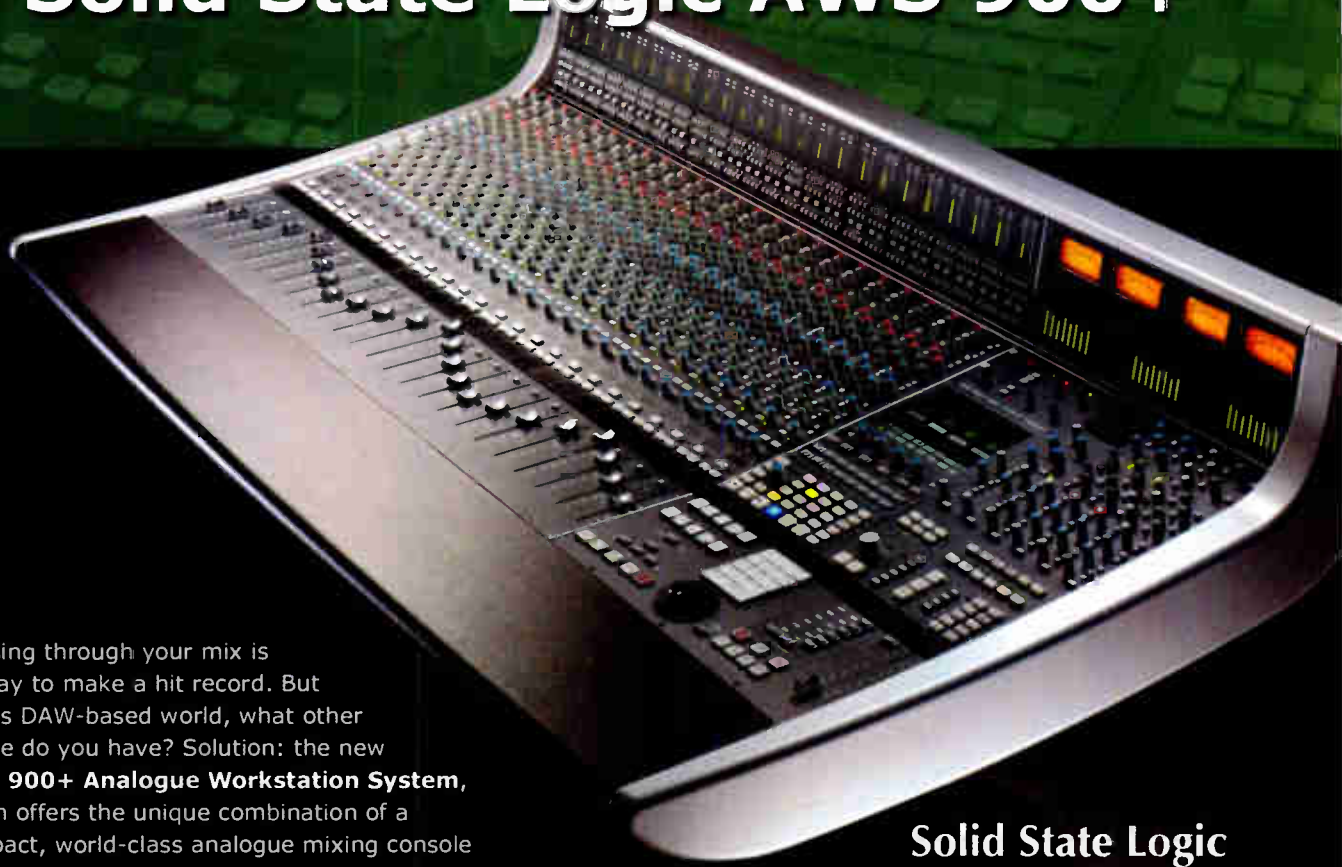
A video-reference output from each of the two X-Video cards then connects to a change-over switch, whose output is connected to a pair of video DAs to distribute gen-locked blackburst to other equipment. In addition to this arrangement, a word clock output from each of the two master clock units connects to a Rosendahl Nanoclock word clock server, which provides up to 12 word clock outputs. These outputs are then used to distribute word clock throughout the truck.

To check for the presence of the external reference source into the truck, Lankford used an additional output from each of the two video isolation DAs at the front of the master clock units to feed an audible alarm and signaling rack. This custom unit checks for the absence of the video-reference signal into the two master digital clocks: If one of the input references is lost, an audible alarm will inform the crew. The changeover switch feeding the reference blackburst into the pair of video blackburst DAs is manually switched to receive the output of the second master clock unit. "I know we could have done this many different ways," says Lankford, "but the method we finally chose is simple and cost-effective."

A second, smaller Lawo control surface provides added redundancy; in the future, this surface will be used as a separate stand-alone mixer. "We all felt that putting as much redundancy as possible into the truck would be the best investment we could make," says Repp. ■

Claire Hall is a freelance marketing consultant and broadcast engineer.

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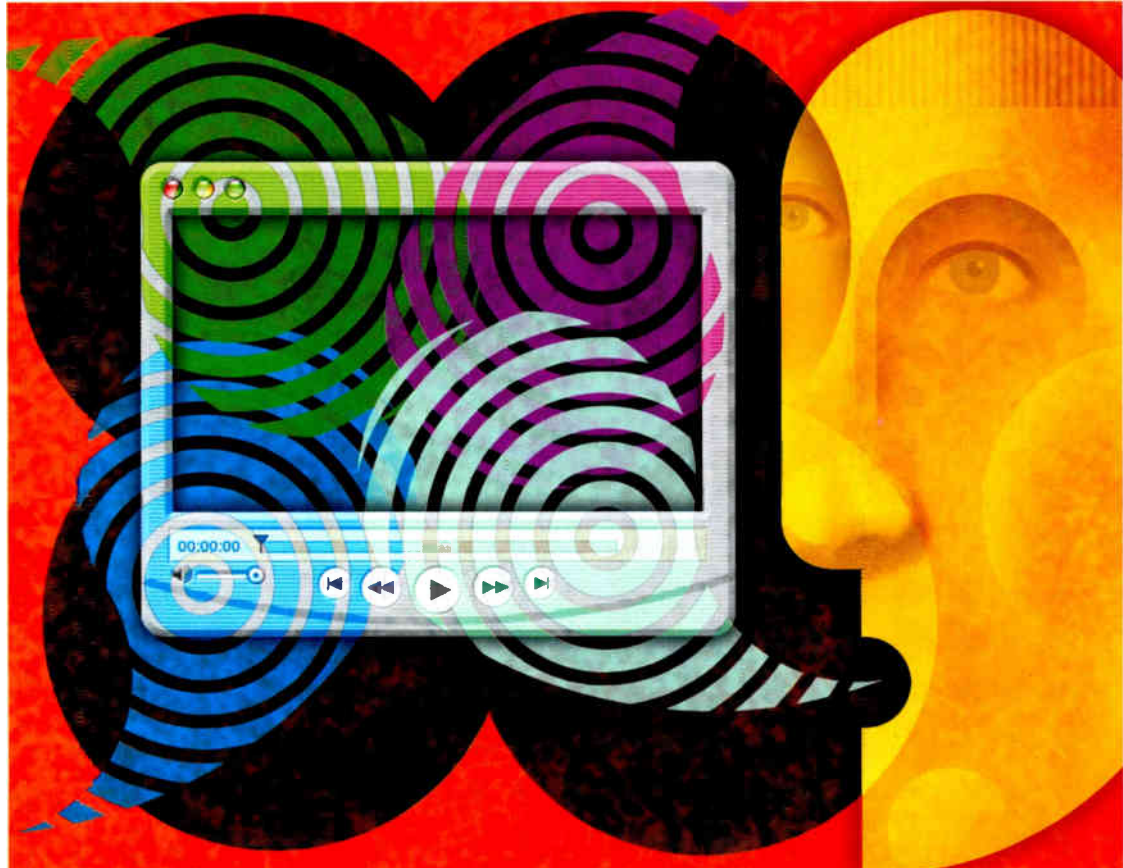


ILLUSTRATION: GORDON STUDER

What's a nine-letter word for "the greatest thing since sliced bread"? Well, even if you don't like sliced bread all that much (I always think it's fresher when you cut it yourself), when it comes to doing audio for video, the answer has got to be "QuickTime." If you've used QuickTime extensively in your work, then you know what I'm talking about, but if you haven't, well, you should. And even if you're already a fan, I'll bet there are a few things you could learn about it.

QuickTime is Apple's format for audio and video. Although it was born in Cupertino, Calif., it is multiplatform. And by that I mean not only can it be used on both Macs and Windows PCs, but it can also deal with just about any file format you throw at it—often straight out of its virtual box and sometimes with the aid of a helper or two. It can input, output, convert, extract and even edit in a huge variety of ways. It's free, at least in its basic form, and best of all, unlike so many new media formats, it is designed to encourage file exchange, not to thwart it.

If you're doing audio for video, QuickTime has made it so you barely need your video hardware anymore. Just

about every audio workstation program out there—from Pro Tools to ACID to Sibelius—supports QuickTime playback inside the application. Consequently, synchronizing audio and video—once the subject of countless articles, books, online forums and heated argument—is now almost a total non-issue, and there has grown up a whole generation of lucky studio cats who have never heard a blast of SMPTE timecode frying their tweeters. I still own a few analog video decks, but they are basically gathering dust these days as the only time I find I need them is when I have to digitize some old material.

The free QuickTime Player software that came with your Mac (or that you can download for your PC) is fun, but it is merely the mild-mannered secret identity of a much more powerful program: QuickTime Pro. They are the same program, but the free version is crippled. To un-cripple it, you simply need to purchase a serial number from Apple, which will set you back all of \$30, for either the Mac or Windows version. If you already own Final Cut Pro, there's no need to bother; you already have your QT Pro serial number.

What's the difference? While QuickTime Player is a neat

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little program for playing cute little movies, QuickTime Pro is a true Swiss army knife for video and audio manipulation. For one thing, it lets you record video directly from a DV source, so if all you want to do is digitize video to use in your DAW, you don't have to go through the time-consuming export or share routines required when you're using iMovie, Final Cut, Premiere or other more sophisticated programs. You can load, save and convert files in a zillion different formats, including AVI, iPod and FLC (Flash video for animations), and you can extract audio tracks in our industry's favorite uncompressed audio formats: AIFF and WAV. You can also grab stills from a movie and save them as JPEGs or uncompressed PICTs. And you can also edit video in a fairly limited but, especially if you're in a hurry, pretty useful way.

The editing capabilities are your basic trimming and splicing. Extracting a portion of a video clip or stringing multiple clips together is a snap. It's hard to get frame-accurate edit points because frame numbers aren't displayed, but you can get fairly close using the little pointer-things at the bottom of the screen and counting how many times you hit the arrow keys after the seconds turn over.

The best part, however, is that you can

Whatever codec and frame rate you choose, the audio and video will stay in sync so your other-side-of-the-world director doesn't have to guess how your sound locks to his picture.

add an audio track to an existing clip in seconds. With your video clip open, open the audio file within QuickTime Player, select the whole thing and then go to the video window and pull down "Add to Movie"—not Paste. This will create a new audio track in parallel with the video file, which you can confirm by looking at the Movie Properties window (command-J). Save the file and you're done. For this to work perfectly, be sure that the video and the audio start at exactly the same place—if they don't, then you'll have to pad the beginning of whichever track starts earlier with silence or blank video. You don't need to be concerned about whether the files are the same length.

If, on the other hand, you want the files to finish together, or you want the audio to end at some other specific time, then instead of using "Add to Movie," first select

the part of the video track you want the audio to match and then pull down "Add to Selection and Scale." The audio will shrink or stretch accordingly. I wouldn't use the time-shifting algorithm on a finished orchestral track, but for matching a voice-over or a temp track to a clip, it's terrific.

This ability to add audio tracks to a video isn't limited to just one mono or stereo track: You can layer as many discrete audio tracks in a QuickTime file as you like and you can turn them on and off at will. This is great when you're working with temp music, dialog, effects tracks and other elements that you need periodically during production, but which may not be in the final mix. It also means it's easy to do something in QuickTime Pro that you would otherwise need Final Cut Pro for, and in the latter program, you'd have to jump through a lot of hoops to

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Say you've mixed down your session in Pro Tools to discrete surround or stems or alternate language tracks. You can import every one of those tracks into the QuickTime video file and, if you're careful to set the pointer at the beginning each time, they will lock perfectly. You or your client can retrieve and remix your audio anywhere down the line. Among other ugly situations this neatly

avoids is the one in which you've encoded your surround mix in one format, only to discover that whoever's going to broadcast the film uses a different format and so they have to decode it and re-encode it—a procedure, as I outlined in my recent columns on sports audio, that is fraught with danger.

I used this feature on a film of a museum installation I worked on, which I had recorded in Ambisonic surround. We decoded the Ambisonic track into four discrete AIFF tracks and I played it back from a laptop with a multichannel audio interface at the Ambisonic session at last fall's AES conference. It was glorious.

QuickTime is also a great way to get temp mixes and edits back and forth quickly to a distant production house so they can check out your tracks. When you've layered your audio onto the QuickTime file, save it using the lowest-quality video codec you can get away with to create a nice small file. You want as much of the audio quality to come through as possible, but the only purpose of the video is to act as a reference for your audio. Whatever codec and frame rate you choose, the audio and video will stay in sync so your other-side-of-the-world director doesn't have to guess how your sound locks to his picture. You can achieve data-reduction ratios as high as 100:1, making the files small enough to e-mail, or post to a private server, or send them using a service like www.yousendit.com.

If you work primarily with Windows Media files and you're on a Mac, you have two choices: You can download Microsoft's free Windows Media Player, which will play the files, or you can get Flip4Mac's Windows Media Components for QuickTime, also free, from www.Flip4Mac.com. This site also offers a bunch of utilities that cost money, which I'm sure are useful if you're working with Windows Media a lot, but if you're just importing those files (as well as AVI files made with Microsoft's MPEG-4 encoder) or you want to export your QuickTime files as Windows Media, the free download, listed on the site as "Flip4Mac WMV," is all you need.

If you need access to even more media types, there's an open-source package, also free, called Perian (www.perian.org). Currently, this tiny package—the download file is all of 948 kilobytes—supports AVI, FLV, 3ivX, DivX, H.263, H.264, AAC, AC3 Audio using A52Codec, MPEG-4 and a bunch of others I've never even heard of.

If you're working with a video house that uses an Avid system, importing its video files into your audio workstation can be a problem. Avids have an option to save sessions as QuickTime files, but, in fact, QuickTime Player on its own (and thus the QT window in DAWs) can't open those files. One solution is to use Digidesign's pricey DigiTranslator, but unless you're passing audio session files back and forth as well, that's overkill. The neater solution? Avid's free "Meridian Codec," downloadable from www.avid.com/onlineSupport/supportcontent.asp?contentID=3555. Drop it into your QuickTime folder, and from then on, Avid files will look like any other movie. Just make sure you have plenty of room on your disk because Avid files tend to be a whole lot bigger than DV files—as much as a gigabyte per minute.



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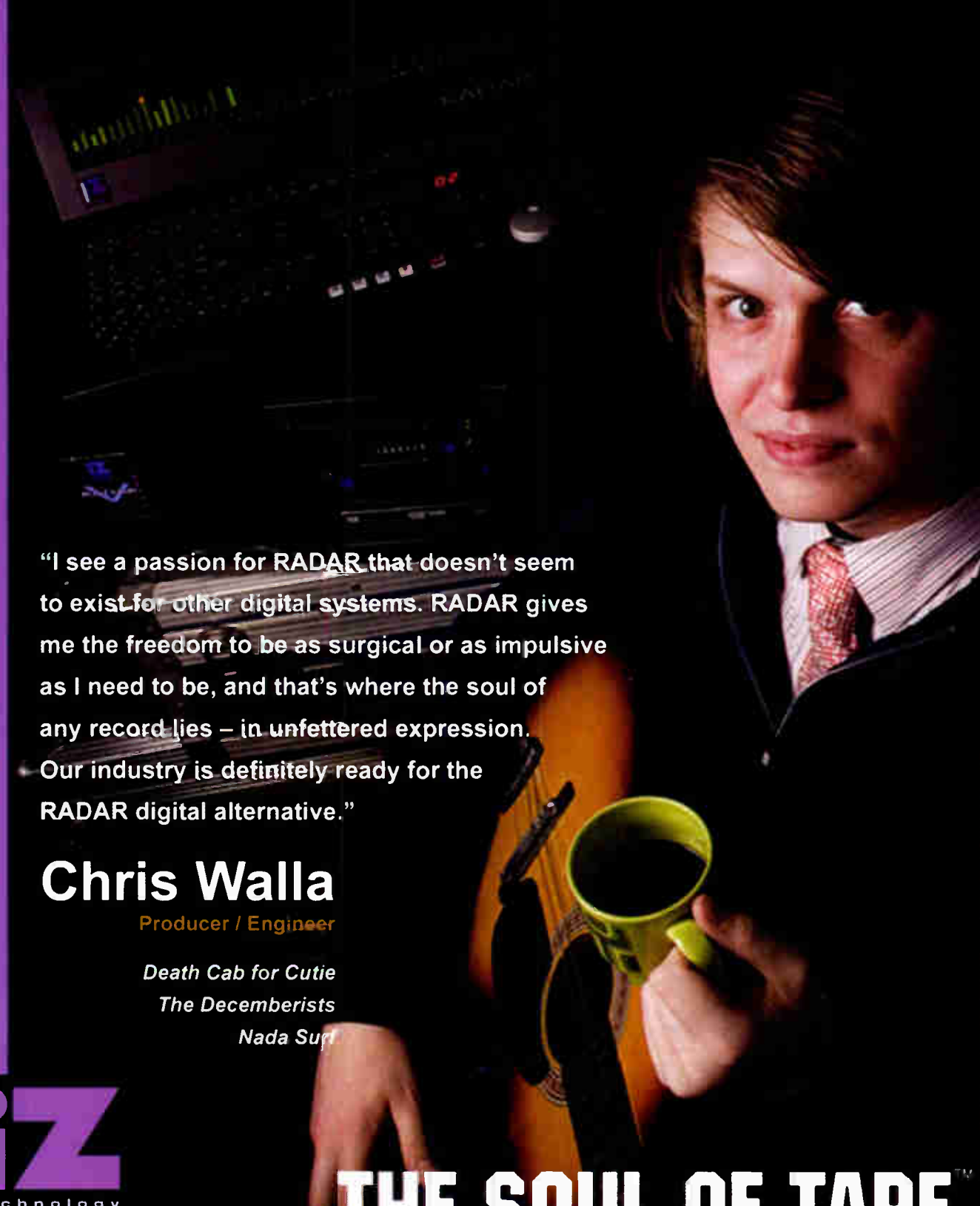


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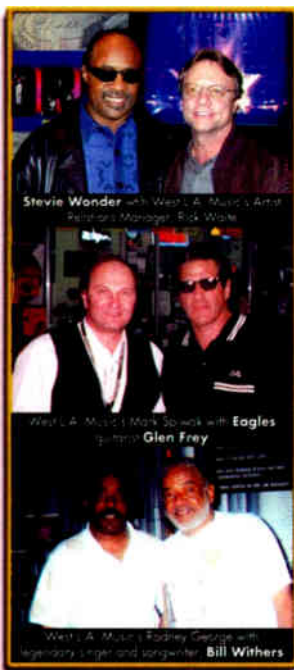
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And how about importing commercial DVDs? Now don't raise your eyebrows: We're all professionals here, and we have many reasons to want to do this that have nothing to do with piracy. And it's still true that there's nothing illegal about it if we're using the files for private purposes (although who knows when that might change). Well, there's a huge community of folks out there who are tirelessly working to come up with ways of overcoming the various copy-protection schemes that have come into use. While perhaps some of their motivations are not always pure, and they're not exactly doing it for our benefit, we can certainly take advantage of their work.

Some utilities, like the rather blatantly named MactheRipper, are designed to let ordinary folks copy their DVD libraries, and they don't easily convert DVDs to QuickTime files, if they do it at all. But the lesser-known, obscurely named HandBrake (and it has an even more obscure icon, having something to do with a pineapple) is a lot more flexible and has the ability to extract DVD video and audio in a number of file formats, including MPEG-4, which QuickTime can handle quite nicely, thank you. I've been using this to make QuickTime files for my film-scoring classes, and it works superbly. HandBrake is a free, open-source program, and has a very active and knowledgeable user community, as well as really good online documentation at <http://handbrake.m0k.org>.

And, finally, my new fave rave QuickTime trick arises from the ability to put protected iTunes files into an iMovie project. I'm not sure of the reasoning, but Apple has made this easy, and it has interesting ramifications. Maybe it's to encourage iMovie fans to buy iTunes inventory to use in their home movies. Regardless, all you need to do is open or start a project and drag the sound file from your desktop onto the project's timeline. It will show up as audio. Then "Share" the project as a QuickTime file. Select "Expert Settings" and look for the "Sound to..." options. They will let you export the soundtrack as AIFF or WAV, in the word length and bit rate of your choice. And those file formats, of course, are unprotected.

There's plenty more to enjoy with QuickTime, including getting audio and video to your iPod, your cell phone, your Blackberry and no doubt other new media to come (can you say iPhone?). For \$30, QuickTime Pro is an amazing tool. Get it and use this remarkable technology to its fullest. ■

Paul D. Lehrman is up to his eyeballs in new video and audio gear. His book, The Insider Audio Bathroom Reader, is available at www.mixbooks.com.



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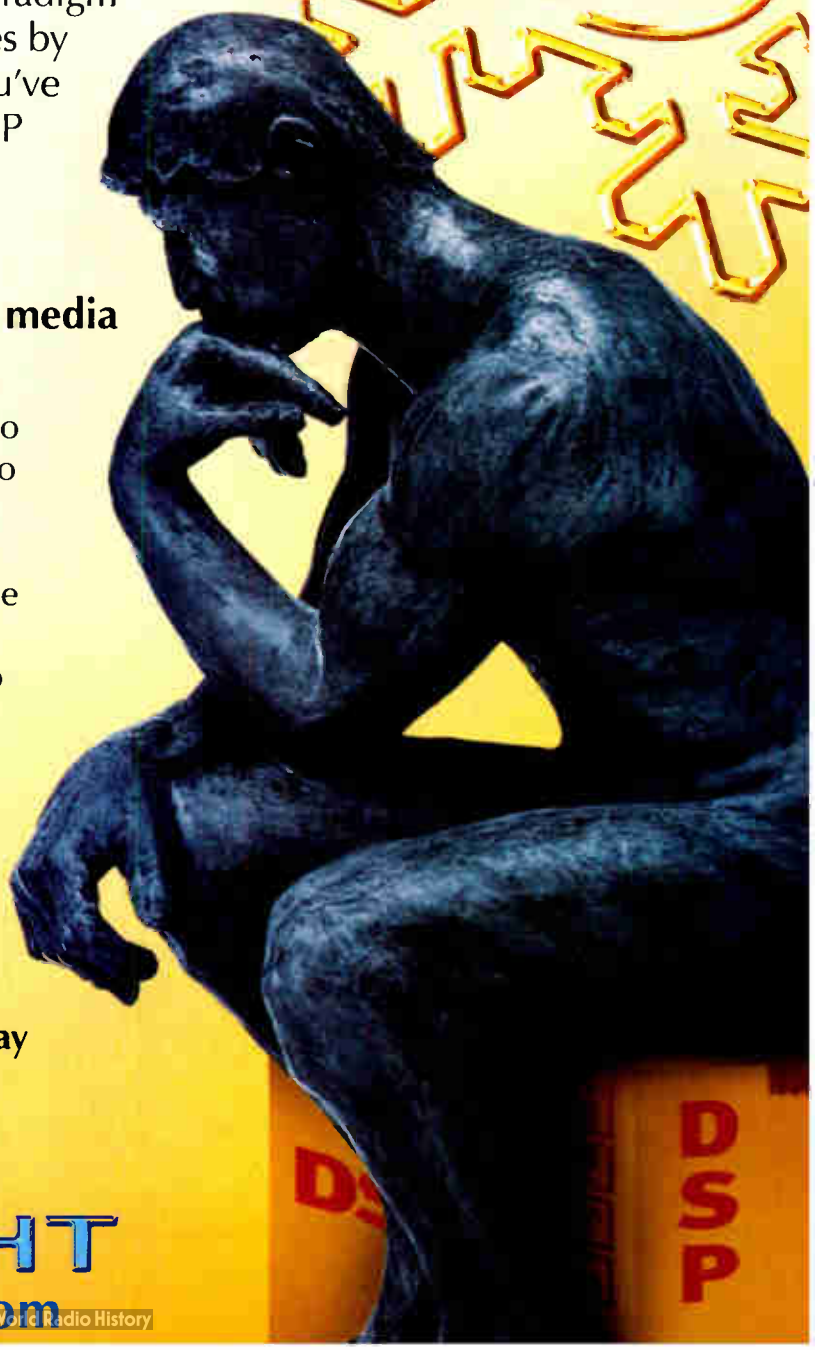
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The Sky Is Falling

BY GEORGE PETERSEN

A not-so-funny thing happened on the way to this article. Last fall, while we were planning our issue topics for the 2007 year, we felt that a piece with wireless tips and techniques for location sound recording would dovetail nicely with this month's NAB theme. But while we were doing our planning, there were some changes afoot that were well-intentioned but possibly devastating to wireless audio users.

The story starts a long time ago. Unlike what was done for other wireless apps—navigation, aeronautics, amateur radio, CB, cell phones, pagers, military, satellite, radio location, police, public safety and even taxis—the FCC never allocated any frequency band for pro audio use. Pro wireless simply existed

by using unused broadcast channels or riding on the “white spaces”—easements used to prevent interference between the 6MHz-wide analog TV channels. Digital television (DTV) broadcasting is more exacting than analog TV, and channel frequencies can be butted against each other without guard bands. And with no need for these white spaces (especially after the February 2009 demise of analog TV), it has been assumed that these frequencies could be reallocated to other uses.

BRING ON THE LEGISLATION

Currently, the FCC is considering legislation with two separate new bills from John Kerry (D-Mass.) and John Sununu (R-N.H.), which would allocate white spaces to wireless broadband devices. The plan is to open wireless Internet to vast new markets, especially in rural areas. “Instead of just talking about it, we need to make affordable broadband a reality everywhere,” says Kerry. The problem is that both the Kerry and Sununu bills recommend taking a huge swath of frequencies ranging from 54 to 698 MHz. In fact, this high-stakes game is already under way, with the cash-strapped FCC raising

\$13.7 billion last fall when players such as T-Mobile, MetroPCS, Sprint Nextel, Verizon, AT&T/Cingular and U.S. Cellular snapped up spectra in the 1,710 to 1,755MHz and 2,110 to 2,155MHz bands.

“It’s a real concern for our industry,” says Paul Gallo of the Professional Audio Manufacturer’s Alliance (PAMA), a group representing the interests of pro audio companies. “The key point here is recognizing the process: The government wants to move ahead with wider applications for broadband, and you can’t stop what is perceived to be good for the country.”

After meetings with leaders in the pro audio community, Representative Bobby L. Rush (D-Ill.) introduced H.R. 1320, The Interference Protection for Existing Television Band Devices Act of 2007, which requires unlicensed device manufacturers to demonstrate that their products will not interfere with existing white spaces products, including wireless microphone systems.

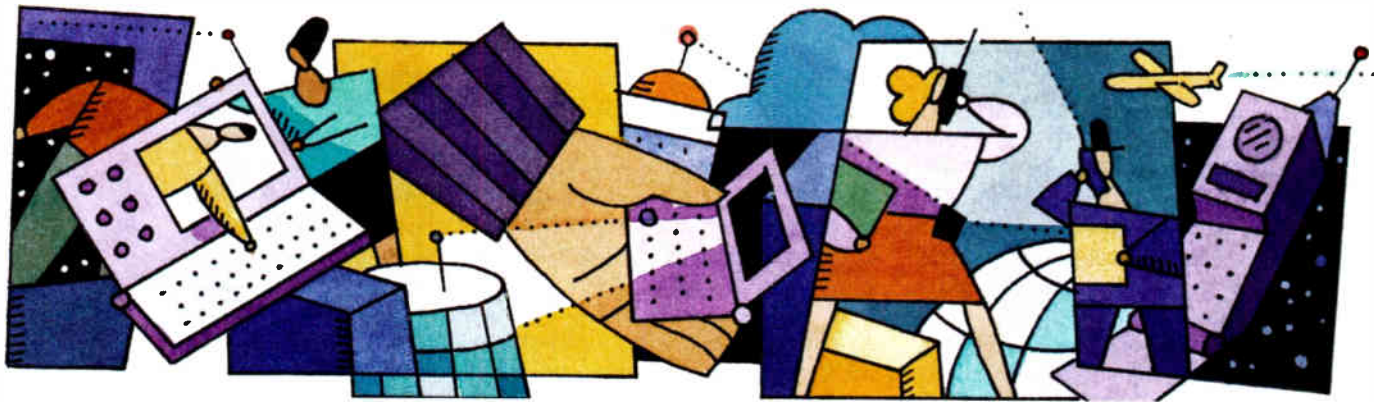
Shure president/CEO Sandy LaMantia described the Rush bill as “an astute and balanced approach to the so-called white spaces debate in Washington. It promises the continued development of new technologies without creating mass disruption in the production of major entertainment, religious, sports and news events.” The bill also suggests portable (mobile) unlicensed device use of the white spaces, but only after the fixed devices operate for three years without causing interference. In addition, portable device manufacturers must assure noninterference from their devices with thorough engineering analysis, design and testing.

“Our meetings with Rush have been about protecting legitimate pro audio wireless users, rather than trying to stop the expansion of wireless broadband,” adds Gallo. “This proposed legislation is the one that the audio industry could live with and we’re encouraging people to support his bill.”

CHANGES AFOOT

Even if the Rush bill passes, however, the net effect will be a loss of frequencies. “At

Major Changes Coming for the Pro Wireless Industry



best, the industry's going to be severely limited by the amount of available spectrum and that's going to change the way we do business," predicts John Coffey of Coffey Sound, a major supplier of gear to location sound pros in Hollywood. "If you're doing a reality show like *The Apprentice*, you may be using 50 to 60 radios, but the odds of getting 50 free frequencies that work together will be somewhere between slim and none. However, everybody looks at this situation differently. Some aren't worried at all; others think we're in deep trouble. I subscribe to the theory that's somewhere in the middle: We'll be able to use some of the stuff all the time, but we won't be able to use everything all the time. And it will change as you move from location to location."

There may be some validity in that approach, says Karl Winkler of wireless manufacturer Lectrosonics. "We've made some tests here where we scanned the entire spectrum and picked out a strong DTV broadcast signal. Setting our [wireless mic] transmitter to operate right in the middle of that, we walked 50 to 60 feet away where it worked fine and then started dropping out. So the range may be diminished, but it's not as

though it can't be used. We do have to fight this and make sure the FCC understands what the impact will be, because there *will* be an impact: When you've got hundreds of channels coordinated at major events like the Grammy Awards or the Super Bowl, this change will cut down on the number of channels available. We know it's gonna hurt, but as of today, we can't say how much."

The reallocating and crowding of available spectra will also bring changes in production. "One thing I've noticed is users in the field are reporting more problems these days, especially in certain areas of town where people just didn't have RF problems before. Frequency coordination will become a new job that we didn't have to deal with so much in the past," Coffey predicts. "We'll have motion picture companies or event coordinators sending people with scanners out on locations the day or the week before an event, searching for problems that could occur during the hours they'll be shooting. We're going to be looking at everything differently, with more contingencies and backup issues to deal with."

There are other concerns, adds Professional Wireless Systems' founder and top RF consultant, James Stoffo. "We've already

kissed away about 60 to 65 percent of what we used to call the wireless mic bands to DTV, public safety, LANs, mobile radio—it's all definitely gone in 2009. The saving grace would be if the analog [TV] stations opened up, but now wireless broadband over UHF wants those frequencies. People in our industry who own multiple wireless systems should be making noise about this. And let's now forget the need for wireless com units backstage, which also impacts public safety. Someone could get killed or maimed backstage because they couldn't hear a warning about a moving set piece. This is an important issue."

However, there are rays of hope. "The presentations to the FCC from just the Broadway community alone—where there are 400 wireless channels in use along a single block of 46th Street in New York—brought a fresh dimension of thinking to the government," Gallo reports. "Yet the pressures of the broadband group are enormous—these companies do more business in one day than our industry does in one year."

Coffey adds, "Wireless radio companies need to be looking at other alternatives, such as removable bands that go across more spectrum spaces, and not just be in Block 21 but several blocks at one time. Even when you're scanning for available frequencies, they might be clear one moment and gone the next. But technology always finds a way to catch up, and hopefully the manufacturers are working on ways to solve the problem with new ideas."

IN THE TRENCHES

While Congress, the FCC, big-money telcoms and the pro audio community slug it out over the future of wireless frequencies, life goes on for tens of thousands of radio mic users throughout the country. Wireless technology keeps improving, but smaller budgets and more complex multi-camera shots make the job of the production sound mixer for loca-



Among those meeting with the FCC in January 2007 to discuss pro audio's concerns with upcoming legislation were (L-R): Richard Fitzgerald, Sound Associates; Bob Rendon, PRG Audio; Representative Bobby L. Rush; Geoff Shearing, Masque Sound; Paul Gallo, PAMA; attorney Danielle Burt; and Shure's Jeff Krull.

tion TV and film audio harder than ever. We talked to two top audio practitioners about working in today's cluttered airwaves.

JOE FOGLIA (*SCRUBS*)

Joe Foglia began his audio career in more traditional recording, as the co-founder of the Artisan Recorders mobile unit, followed by 10 years behind the board at Miami's Criteria Studios. Moving to film/TV work on shows such as *Miami Vice*, he eventually moved Westward, and has been the production sound mixer on NBC's hit series *Scrubs* for six years.

Foglia's sound cart is miles removed from the simple Nagra setup of a generation back. "I'm using the new Sonosax SX-ST mixer with its eight digital I/Os connected to a Zaxcom Deva V," says Foglia, who is ever-concerned about the need for backups. "I record to four hard drives that I rotate so that you don't put all your eggs in one basket. Then we pump out a DVD in UDF format. Parallel to that I run a 4-channel Sound Devices 744T."

Production on *Scrubs* is anything but typical. "Our producer, Bill Lawrence [*Spin City*], wanted a facility where he could

shoot, edit and do construction," Foglia continues. "On *Scrubs*, we do everything in an abandoned hospital, which is a four-story building we've completely taken over. We rarely go out on location and shoot mostly within the hospital on the roof, first, second and fourth floors, with the third floor used mostly for production, makeup, hair, wardrobe and dressing rooms."

Because the series is shot in a hospital, the ceilings are low, which means the sets lack the headroom that a soundstage would provide. "It's hard to boom anything or follow a walk-and-talk," laments Foglia, "but I had worked with ABC Sports and did a lot of golf, where I learned a lot of RF tricks, like using a balloon to raise RF antennas over the last nine holes of the course. On *Scrubs*, we had to adapt, so I came up with the idea of planting Lectrosonics 600 omnidirectional antennas throughout the whole hospital, and I run them through a combiner, so it's all amplified. The actors can walk the entire length of the fourth floor without dropouts. That signal goes to the 'A' side of the diversity. The 'B' side gets a sharkfin directional that's aimed at the main activity. We've never had any dropouts whatsoever."



Joe Foglia at his setup for *Scrubs*

When using wireless, antenna performance is everything. "My normal antenna setup is an omnidirectional at one end and an array of sharkfin-types on the boom operator's cart. That works pretty good for the [diversity's] 'A' and 'B' sides," Foglia says. "On occasion, I'll pull out a PSC splitter/combiner so I can run four antennas over a large area if needed."

"My newest antenna addition—which few people use because they're expensive [\$1,000]—is the A5000CP dome antenna

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from Sennheiser. It works really well when I'm getting a lot of dropouts or problems from a nearby RF transmitter. It's made of Lexan and is made to hang straight out or upside down facing downward. NBC uses a bunch of them on the outdoor sets for *The Today Show* and surround the set with those facing inward. I heard they worked like a dream, so I bought two. Not only do they provide long-distance pickup, but if you're receiving hash on your sharkfin, you can often get a clean track by switching to the dome. It's made specifically for Sennheiser wireless, but I've found it works on anything 450 MHz on up. It can also work as a transmission antenna. I carry a lot of antennas around, but this one's my favorite."

Other problems—even seemingly mundane ones—require creative solutions. "I encounter a lot of clothing noise when doing walk-and-talks, especially with actors wearing clothes underneath doctors' jackets," Foglia explains. "So I took all their stethoscopes, put a hole in the back of the tube and ran a Sanken COS-11 [miniature lavalier] down through each one with the cable end exiting at the other end. We call them 'stethomics,' and they sound great."

Foglia has experienced increased RF problems in the packed airwaves in downtown Los Angeles and has found one possible answer. "What's coming of age is the internal recorder. Memory is getting cheap and it's great to back up all your wireless to a card. It would be great if we could run these all day, but a lot of actors don't want to wear a pack if there's a boom mic on the shot. You're trying to do a backup, but you're constantly explaining the concept. It's a tough trade-off."

MATHEW PRICE (*THE SOPRANOS*)

Mathew Price has numerous Emmy and C.A.S. Award nominations (and a 2000 C.A.S. win) for his work on *The Sopranos*, a show he's been with since its 1997 pilot. We caught up with Price in late-February, as he was working on the series' final episode.

Price's recording chain includes a Zaxcom Deva II. "I love nonlinear recording," he says. "I never bought a DAT machine because it didn't make sense to have a linear digital recorder once you're working in digital. I've been using a Nagra IV-S for backup, but now that Quantegy has discontinued analog tape, I'm looking to upgrade to either

the Sound Devices 744T or to the Deva V, with my Deva II as the backup.

"There's rarely a day when we don't use radio mics on actors," Price continues. "And my boom op, Paul Koronkiewicz, is almost always radio'd, mostly for convenience and mobility. I've been using Audio Limited's 2000 Series for a while. I have up to eight radio mics available, although I don't like to wire people more than I have to. I'm still mixed about the whole multitrack thing—a lot of post-production people don't want to have to sift through eight tracks of audio to find what they need, although I can see the advantages of it.

"I didn't get into this industry to be a recordist—I really like mixing. And picture editors don't have a lot of iso'd tracks; they're working with your mono dialog mix when they're doing the preliminary sound edit. Although when the audio people start working with it in post, it's nice for them to go back later and pull up separate radio mics."

Asked about his favorite lavaliers, "I mostly use Sonotrimms. My utility/second boom, Timothia Sellers, prefers them because they lie flat, are easy to hide and have an open sound that blends well with

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Mathew Price on location for *The Sopranos*

my Neumann KMR-81 shotguns. One of my favorite mics is the Sanken CUB-01, the little boundary mic. We use that everywhere, especially in cars or on tabletops. They don't sound quite like the Schoeps boundary, but they cost a third as much and are so light they'll stick to anything with a bit of Topstick double-sided tape."

A big factor in effective wireless reception comes down to antenna placement and getting it "as close as you can—or you can outboard the antenna and run it up a pole with a cable to get it closer to the actors. I usually work with just dipole—bidirectional—antennas," Price explains. "I have a little tree with four of these mounted—two for each of my systems—and they work pretty well. I'll use a directional sharkfin antenna when needed. We're kind of lucky with *The Sopranos* since most of it is shot in New Jersey, so interference is less of an issue than when we work in Manhattan. Part of the secret of antennas is keeping a line of sight to the transmitters. These little things can make a huge difference. The human body will absorb a fair amount of RF, and we sometimes do walk tests with transmitters and they're fine until you put them on somebody and lose part of your reception."

Ironically, wireless mics are occasionally the key to an interference-free take, says Price. "We've shot a lot of scenes at the internationally known Bada Bing strip club and it's located next to a TV tower. We've found that you can't run boom cable there—even with my five-wire Canare Quad cable, which is about as good as you can get in terms of reducing interference. In this location, any mic cable acted as an antenna, but when we go wireless, there's no problem."

At least for now, the analog vs. digital

wireless issue seems moot. "It's all secondary to having something that works—however it works," Price says. "The technology has gotten fairly reliable, even in rough situations. I have an older system, but most people get by running very frequency-agile systems, and within that range, you can usually find something workable. My eight systems are split evenly between two different [frequency] blocks, so if I have problems on one, I can go to the other. I did a scene last year near the Empire State Building and it was rough—we had a lot of

radio mic hits. Here's where that Zaxcom recording wireless [TRX-901] would have solved the problem. Being able to record right on the transmitter is a phenomenal, face-saving technology. It may be just the answer. No one wants to ask for an extra take due to RF problems and multitrack won't necessarily save you there.

"For me, the biggest issue is the frequency squeeze: It's a dire situation. We're outnumbered and out-gunned." ■

George Petersen is Mix's executive editor.

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Take It With You

BY GEORGE PETERSEN

In many ways, the laptop computer forms the basis for the ideal recorder in the field or studio. In terms of compact, powerful design, the portable CPU has it all, with horsepower rivaling the fastest desktop machines, the convenience of a built-in high-resolution screen, input devices (tablet, keyboard) and the versatility of AC or battery powering. If a larger screen is needed, then DVI or S-VGA graphics ports can drive an outboard flat-panel display, and USB ports support any number of tactile external controllers: trackball, mouse, MIDI keyboard, etc.

The main drawbacks to the laptop studio are heat- and size-related limitations, such as those inherent in the CPU. While typically not as fast as their desk-bound cousins, new laptops often surpass the performance of the fastest machines from just a few years ago. Another issue is the laptop's lack of expansion slots, but recent products have brought new levels of connectivity. Among these are the Magma (www.magma.com) line of ExpressCard slot-to-PCIe card accessories; Apogee's (www.apogeedigital.com) Symphony ExpressCard PCIe card interface to its Rosetta and AD-16X/DA-16X converters;

and Universal Audio's (www.uaudio.com) UAD-Xpander ExpressCard DSP system.

Beyond that, a new generation of FireWire-connected digital audio interfaces are offered from any number of manufacturers—PreSonus, MOTU, Focusrite, Digidesign, TC Electronic and M-Audio, to name a few. Combined with modern, native-processing DAW software, these have elevated the laptop studio concept from simple conveyance to full-on powerhouse.

The Achilles Heel in laptop computers remains the issue of hard disk capacity. Due to size, heat and power draw (always a consideration with battery-powered devices), most current laptops have 2.5-inch internal drives ranging from 60 GB to 160 GB, with a few high-end machines fitted with onboard 200GB disks. And as we create more complex, higher-resolution recording projects, the need for more storage rises exponentially.

One well-known axiom in audio production is to store your audio data on a drive *other* than the boot drive where the OS and application software reside. The reality is that production *can* be done on a single-drive system. However, with the OS, applications,

Production Drive Solutions for On-the-Go Storage

plug-ins and virtual instruments running simultaneously on the same disk, the seek times for reading/writing data becomes progressively longer as the disk fills and the project becomes more complicated, leading to a reduced track count and/or reduced reliability, so—particularly on a laptop—an external drive is a must.

File sizes for typical single-song DAW sessions are usually in the 1GB to 10GB range, with 96kHz/24-bit 48-track work consuming an average of about 1 GB/minute. A full album project's worth (i.e., a 60-minute CD) could easily require 60 to 120 GB of disk space and maybe more, depending on complexity and the amount of unused takes, edits, plug-ins, automation changes, virtual instruments, etc., stored with the project. The bottom line? You're going to need some auxiliary storage for serious audio work.

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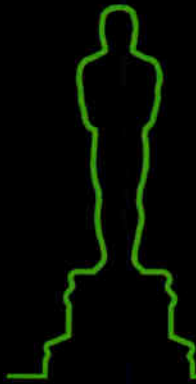
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Take It With You

POCKET FLASH

Portable storage exists in many forms. Compact USB Flash drives—sometimes referred to as “thumb” or “jump drives”—typically range from 256 MB on up to the pricey (\$2,800 or so) 64GB models. Mac, PC and Linux-compatible, these offer a convenient means of doing a sneaker-net move on project files. Essentially, all are USB 2-compatible and simply plug into a USB port and appear to you as another disk drive. The



The Victorinox Swiss Memory Knife provides up to 2 GB of USB storage.

current draw for these varies with drive capacity, so it's best to connect these directly to a computer's USB port or hub rather than use an unused USB socket on a keyboard where power is limited.

One significant advantage of the USB Flash drives is the fact that they're self-contained and do not require a specialized card reader or hardware with a card slot, as do other forms of solid-state memory, such as CompactFlash and Secure Digital (SD)



Buslink's Pro2 puts 64 GB into a USB Flash drive.

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M-Audio's MicroTrack 24/96 recorder uses CompactFlash cards.

H4 (SD). Here, the removable media is a bonus, as the media is easy to find (even at drugstores) and the cost remains fairly affordable due to the high use of such cards in consumer applications. Meanwhile, a low-cost card reader can be left at the studio, allowing the recorder itself to be in the field, equipped with a second card.

DISC APPROACH: CD-R, DVD-R, BD-R

Another low-cost, yet high-capacity storage possibility is recordable disc. The stalwart CD-R is great for storing mixes and making reference copies for artists, clients and labels, but with a maximum size around 700 MB, it is unusable for archiving all but the simplest multitrack projects. At 4.7 GB, the single-layer recordable DVD uses discs that are easily made for Mac/PC readability, with well-under-a-dollar-per-disc pricing and ample room for all but the most complex single-song files. The burn rate can be painfully slow, even at 8x or 16x, and the load-in (read: speed) is hardly blazing, but the price is right, and because you probably already have such a drive in your computer, it provides a near-universal backup solution.

Also on the DVD scene are double-layer burners (internal and external versions) offering 8.5 GB of storage and read/write compatibility with standard single-layer DVD media. More recently, we're beginning to see Blu-ray burners that can store up to 50 GB (or 25 GB as a single-layer disc) using a Blue-Violet laser with a wavelength numerical aperture that's approximately one-fifth that of the red laser used in conventional DVDs. The Blu-ray format is still in its infancy, so drives aren't exactly commonplace, but in terms of inexpensive high-density storage, we're certainly getting a glimpse of the future with Blu-ray recordable (BD-R).

OUR OLD FRIEND

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Take It With You

speed and throughput to handle real-time workstation files in a live production environment. And when dealing with high-resolution, multitracked projects with dozens or hundreds of edits, automation data, loop and sample playback, our old friend the hard disk still reigns supreme.

The performance king remains as drives in the 3.5-inch form factor. These represent the larger-capacity drives and are available in many varieties, with the fast 7,200,



Glyph Technologies offers a variety of hard drives in padded transport cases.

10,000 and 15,000 rpm models offering the ability to host very large audio sessions on a single drive. Digidesign (www.digidesign.com) gives a fairly conservative, estimated Pro Tools track count of 32 tracks on a single SCSI drive at 44.1/48 kHz; for a 96kHz session, this is divided by two (to 16 tracks). Of course, more drives spread out means more tracks, and this spec maxes out with 192 tracks at 44/48 kHz divided among six drives. On 7,200 rpm FireWire drives, the number of tracks drops to (again, a conservative) 24 tracks at 44/48 kHz (halved at 96 kHz), although the total number of FireWire drives supported goes up to eight, for a total track count of 192 at 44/48 kHz.

For applications requiring a transportable drive, companies such as Glyph Technologies (www.glyphtech.com) and Avastor (www.avastor.com) offer drives in stand-alone enclosures with onboard—no wall wart—power supplies and padded transport cases. I've always found it somewhat ironic when drive suppliers tout the compactness of their drive enclosures while ignoring the fact that the drive requires an external power supply. Adding to the issue, you must keep track of the easy-to-leave-behind wall wart when moving from studio to studio.

One way of sidestepping the power supply issue is the relatively new genre of bus-powered drives that draw operating power directly from the USB or FireWire connection. As 3.5-inch drives can draw a

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World Radio History

startup surge in the 0.75-amp range, bus-powered models typically are the less-power-hungry 2.5-inch models. A major concern—which hasn't really been addressed on a manufacturer level—is the quality of the power supplied from the FireWire or USB port. In my experience, the ports can vary greatly, particularly from “no-name” generic, third-party PCI FireWire cards. At the same time, Apple's (www.apple.com) 6-pin (FireWire 400) ports are rock-solid, and what comes off a clone PC motherboard can be anybody's guess.

As with other 4-pin FireWire connections, Sony VAIO i.LINK™ ports supply no power at all. As a solution, Avastor includes a “Vampire Cable” with its bus-powered drive. The cable terminates in a “Y,” with a compact FireWire drive connected to the i.LINK port while a breakout cable connects to USB to supply power to the drive.

Housed in stylish and compact enclosures, the 2.5-inch drives represent the ultimate in portability, but have a few drawbacks. The maximum storage capacity of 2.5-inch drives is limited to a few models in the 200GB range, while most are 60 GB to 160 GB. Also, the less-expensive 2.5-inch drives tend to be 4,200 and 5,400 rpm designs. These lower rotational speeds have a negative effect on track count, especially in an overdub situation where the drive has to record and play simultaneously. Also, when tracking direct to disk, such as when making a live recording, a 4,200 rpm drive *might* perform perfectly well. In such cases, knowing exactly how a particular drive will deliver becomes the great unknown, and investing in a faster 7,200 drive for portable applications is money well spent.

DRIVE TIME

Fortunately, the huge consumer and business demands for ever-smaller/faster/cheaper drives continues to push quality (and capacity) up and prices down. Bargains abound, yet if we depend on disk media to store and back up our creations, is digging around to find the cheapest drive on the Net really a smart solution? Somehow, the same engineer who will spend \$2,000 (and weeks of research) before selecting a high-end mic pre may grab some cut-rate model.

In some ways, buying a drive is like buying a parachute or a brake job, so budgeting a little extra may make your life easier down the line. With prices well under the dollar-per-gigabyte mark, this is one audio investment where you can afford to splurge.

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The High Tide Hits

BY STEVE LA CERRA

It's a cold, gray, rainy winter day in Fort Wayne, Ind., where I'm currently stopped for a Blue Oyster Cult gig—the kind of day that sends a chill through your bones. Summer is almost four months away but it's not too soon to start thinking ahead to the three- to four-month summer touring season. Like Santa's workshop, SR company

and upgrades; that staff strengthens in numbers during the summer months. We also address these issues by trying to deploy as many projects from the main home office/shop to keep quality control under close observation. This goes hand-in-hand with equipment update of, for example, digital console software."

While Procise cites digital consoles as an example, many other sound companies are pointing to these in-demand boards as an integral detail of their forecasts. Jack Boessneck, executive VP at Eighth Day Sound (Highland Heights, Ohio), "hasn't purchased an analog desk in four years. We get requests for the [Midas] XL4 and I have multiple XL4s out now, but I won't buy any more of them." Digital consoles facilitate festivals—most-often seen during these peak months—where multiple bands perform on the same stage. In the past, there was a need for multiple analog desks to speed changeover between performers, but digital desks eliminate that requirement, providing prebuilt scenes for each band. "Sending out two digital consoles is much easier than four analog desks with multiple patching harnesses," reveals Paul Owen, VP at Thunder Audio (Taylor, Mich.). "The prep time on an analog system is very time-consuming. I find that if all of the engineers are 'on the same page' and we give them one digital console, then no one complains. If you tell engineers that it's a [Yamaha] PM5D, a DiGiCo D5 or Digidesign VENUE, they are more than happy to bring their own key [i.e., memory stick]. You'll find on the festival circuits—especially in Europe—that a lot of engineers will walk in with their key, whereas in an analog situation, they'd be carrying a rack with effects, gates, comps and cables."

In some cases, a sound company will ask for an engineer's input list or mixer configuration file well-before the summer festival months, enabling the desk to be ready on-site.

Sound Companies Gear Up for Summer Tours

warehouses are cranking away with hot solder, epoxy, paint and miles of cable. The summer months are the most demanding and busy time for sound reinforcement companies that provide the gear and personnel to large touring acts, but these companies do not rest on their laurels during the "off-season."

As Clair Bros./Showco Texas executive VP of sales, ML Procise III (who is also a six-time TEC Award nominee), explains, "Forecasting as much as a year in advance can save considerable amounts of money and avoid what we refer to as 'crisis management.' In the fall of 2006, we started, and continually update, the company-wide sales forecast driving into the new year with a focus on equipment and human resources required to service our global client base. We concentrate our efforts on ramping up during the summer 'peak season' months, solving conflicts, and creating build and purchase schedules. We have a very strong staff in each of our global shops to handle maintenance issues, updates



Although digital desks are all the rage, many engineers are still chasing the analog sound. "I find a lot of engineers asking for boutique studio tube compressors and preamps to make their digital console sound analog," says Frank Provenzano, CEO of Pro Sho Sound Inc. (Staten Island, N.Y.). "There's a place for digital consoles due to footprint, truck pack and setup time, but sonically, a Heritage 3000 is superior. Maybe I'm just an analog guy in a digital world."

Albert Lecesse of Audio Analysts (Colorado Springs, Colo.) agrees: "There is always what I call the analog 'money channel.' Whether for the lead singer or the lead guitar player, there are always one or two channels of premium studio-level processing, like a Crane Song limiter and Avalon mic pre. In any case, we use a multicable system that is pretty much universal for our systems. What changes is what is inside the rack—connection to the console is via multipin. It's very quick to get up and running. We have certain prebuilt racks such as amp racks, drive racks and even computer racks—we have to be IT [information technology] people, too, nowadays. Then we have what I call the 'flexible stuff,' like two Avalon pre's with a Neve compressor inserted to a PM-5D. That kind of gear gets examined on

the component level—the individual mic pre or compressor is tested—then it gets racked up with its multipin interconnect. Then it's tested at the rack level by another person and goes out to the loading dock where we have a separate area called the system test area. That is where we bring all the effect racks, the amp racks, the consoles, the snakes and hook them up to one set of cabinets for stage-left, one set for stage-right and one subwoofer. I don't hook up all 72 cabs to test the electronics. [Laughs] We make sure that everything works as it should, because when you are doing one-offs [such as in a festival situation], you want to show up with pre-programmed templates. Once that gear has been tested, it can be packed into a truck."

"When we send a tour out, we send spare cables, connectors, amps, drivers—the whole nine yards," stresses Owen. "That makes it easier on the crew who are out in the field with the system. We have been using the Meyer MILO line array, and it has built-in, modular amplification, so you can easily swap out an amp. Some people shy away from powered monitors and line arrays, thinking, 'What if you have a failure?' We have been very fortunate in that we really haven't had any failures during a show."

MAINTENANCE BEFORE GETTING ON THE TRUCK

Maintenance and upgrades are at the top of any sound company's off-season to-do list. Unfortunately, the workload doesn't wait for refits. "Upgrades are always done on a watched, controlled basis," explains Boessneck. "You can't just go ahead and say, 'Yeah, we're going to change all the amp racks,' because they are never all here, so we retrofit on a gradual rolling basis. Gear comes back to the shop, we retrofit it and run it back out."

For Jon Monson, systems coordinator at Rat Sound (Oxnard, Calif.), "Maintenance is a constant process. We work hard all year on this task. Every year, we make a list of company-wide upgrades to perform in December and January. We call it our 'December List.' It involves less maintenance and more upgrade or exchange. For example, we have some cabinets still on EP connectors and we're changing them all to NL. This isn't really maintenance as the cabinets with the EPs work fine, but we want to standardize things. Unfortunately, this is getting more challenging as we have become busier year-round. We also try to do inventory in those months to reconcile what's in the computer with what we actually have on hand, which is also getting tougher when we have several

large tours out over this period.”

In the touring world, gear that doesn't work is unacceptable, and everyone has a routine for evaluating gear returned from the road. “Once a year, all of our chain motors get re-certified,” reveals Lecesse. “I have a few guys on staff who are CM hoist-trained. We keep a meticulous record of when they were last tested. We do a load test every year, look at the cable connectors and so forth. Same thing with the rigging: If a piece is bent or choked, we replace it with new material. That concept goes down the line even to mic stands, which are almost consumables to us. They get taken apart and put back together constantly. Turning them over is a great source of used gear for the local bands here, and there's a little bit of recycling involved. They look a little ratty for me, but they are fine for a young band starting up.

“Concurrently, I have two people whose full-time job is basically to sweep, buzz and rattle-test every single loudspeaker when it comes back,” Lecesse continues. “For microphones, I built a small booth about the size of a broom



Forecasting a year in advance can save money and avoid what we refer to as 'crisis management.'

—ML Procise, Showco

closet. It has an EQ'd speaker on the bottom and an SPL meter with a standard calibration mic. Then we have pre-saved curves in [SIA] Smaart for various microphones. When we need to test 27 [Shure] SM58s, we load the difference trace, compare the response of the microphone to the standard curve and look for gross frequency response changes.”

“Rather than wait for a new order to be pulled and checked, we check all outboard dynamics, effects, playback and record equipment upon return from a project,” Procise says. “After it's checked, it can be put on the shelf, ready for the next project. When board groups are

assembled, those individual pieces are checked with the entire console group connected. We maintain a tremendous amount of inventory of all types of equipment and have sophisticated testing systems for mics, cabling, amps, speakers, et cetera. We rely on road reports from staff and independent engineers on equipment performance. The only real measure of road-worthiness and application is by the acceptance and specification by the touring road engineers.”

Provenzano agrees, stating, “All of our production managers have a gig sheet that they hand in at the end of their event with necessary equipment or truck repairs that

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If all the engineers are on the same page and we give them one digital console, then no one complains.

—Paul Owen, Thunder Audio



need to be made. This is checked first, so any gear that is malfunctioning can be red-flagged and sent to the bench before it ends up on another event. We try to maintain good relationships with other production companies in our area and even some of our clients, making it easy to get gear in a pinch."

Rat Sound evaluates all of its loudspeakers "with tone sweeps and noise, and for polarity issues," notes Monson. "Wedges are also tested with voice, because problems can pass all the other tests and only show up when the monitor engineer starts talking into the wedge—and that's the first thing a

monitor engineer does on a one-off or the first day of a tour. In my opinion, you'd better test your wedges in the shop with voice to make sure there are no audible issues. You don't get a second chance to make a first impression."

Boessneck tests Eighth Day's loudspeaker components "the minute they come back. Everything we have in our inventory is tested and ready for the road. It's the same with everything else, even something as simple as cleaning the amp racks. If it's been on the road for six months, you'd better clean it out because God knows what's in there. [Laughs]

LOAD IT UP

With increased fuel costs (which typically sky-rocket during the summer months), one of the issues addressed by Provenzano is the truck pack. "All of our smaller speakers that in years past have been in covers are now getting road cases. Along with that, we are streamlining our case designs across the board so that we can facilitate a better truck pack. With everything in an ATA case, storage at a lot of our events—especially corporates in hotel ballrooms—is becoming an issue. We find that more often we have to load out our 'deads' back into the truck, which costs us time, labor and money. So streamlining our truck packs is just another little way we can become more efficient as a company."

Prociase's view of road work sums it up well: "No matter what equipment you're talking about, there is only one topic of concern for a road company: How to make it more road-worthy. It's a never-ending quest." ■

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



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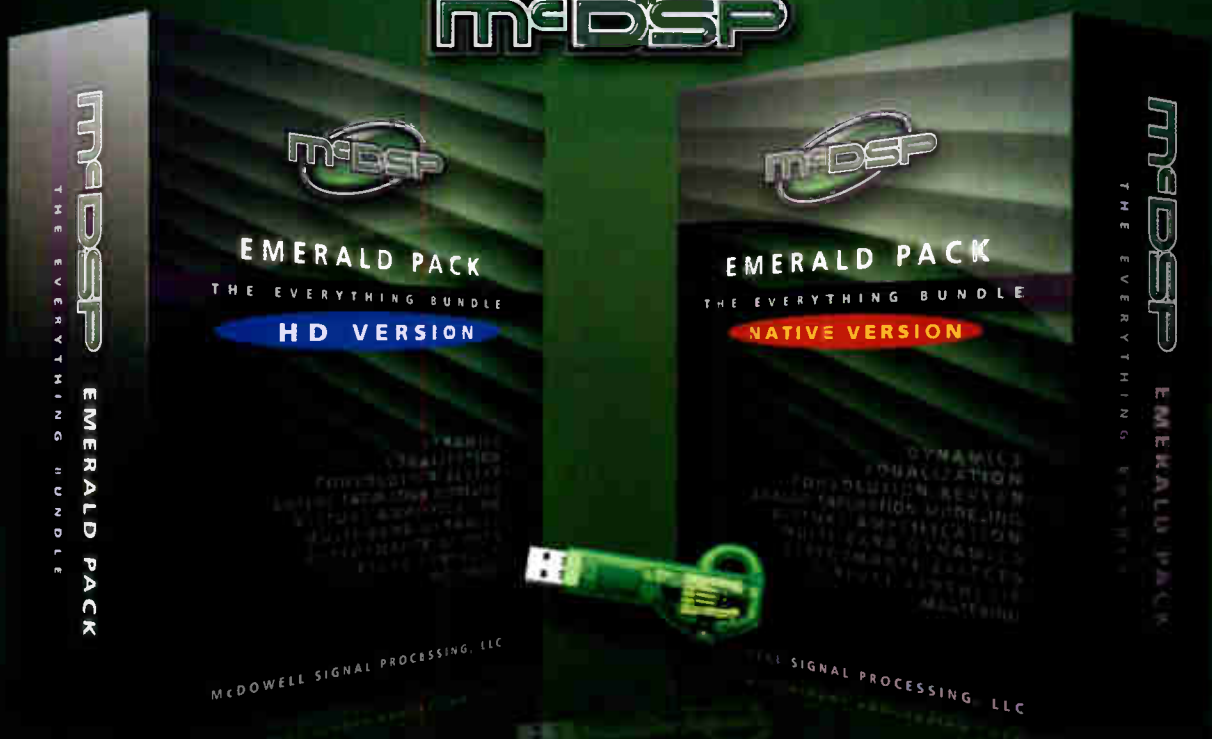
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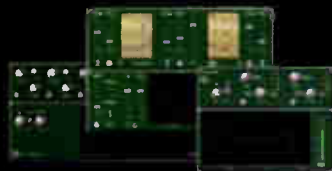
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Bay Area Sound

BY BLAIR JACKSON

uring the past several years, Marin County-based Bay Area Sound has quietly grown to become one of the leading independent game sound facilities in Northern California, contributing to a wide variety of projects by leading and smaller companies, and bringing work to a talented coterie of outside sound and dialog editors, composers and others. Though the entity known as Bay Area Sound (www.basound.com) has been around since 2000, the roots of its principals, Julian Kwasneski and Jared Emerson-Johnson, go back much further.

Audio director Kwasneski got into game audio through a slightly unorthodox route. Though he was a musician from a young age and a serious gamer since the era of *Pong* and the first Atari systems, his first job out of school was as a stock broker for Merrill Lynch. "I did that for two years and I was miserable," he says. "I got in touch with Mooka Rennick of Prairie Sun [Studios, in Cotati, Calif.], quit Merrill Lynch and started waiting tables and bartending in Calistoga while working for basically nothing at Mooka's studio. I'd clean multitrack heads and align tape decks and get coffee for people. I loved it!"

Then, after a cousin got a job at George Lucas' Industrial Light & Magic, Kwasneski landed in the voice department of another company affiliated with the filmmaker: LucasArts Entertainment, whose principal raison d'être seemed to be to turn out an unending stream of *Star Wars*-based videogames. "It was immediately apparent I'd stumbled into something very cool," he says. After a year as a dialog editor, he moved into other sound editorial positions. "I worked

on every project LucasArts did from '95 to 2000," he says. "It was a tremendous learning experience. We worked out some great production systems at LucasArts—they were really trying to advance the state of the art [in game audio] there.

"We started doing Foley, and we would score the noninteractive portions of the game as if they were little films; all the while, I was working with other friends of mine who were at ILM making their own independent films," Kwasneski continues. "It was the beginning of digital audio [in game post], and we were doing live music recordings and starting to cast big-name actors, and we really pushed that side of it. By about '98, we really started to take it to the next level."

Eventually, however, he got restless and wanted a change of pace. That change came in the form of a dot-com called Ibeam Broadcasting, which was a sort of precursor to YouTube, but evidently ahead of its time: "It crashed and burned," he says. From there, Kwasneski joined forces with another former LucasArts game audio employee—Clint Bajakian—in a company initially called CB Studios, then The Sound Department and finally Bay Area Sound. Bajakian left in 2003 to work for Sony's game division.

At that point, Emerson-Johnson came onboard. He has a music degree from Cornell and a background in classical composition, conducting, violin and other aspects of music. More than just the primary composer in the company, Emerson-Johnson is also now an experienced sound designer, recordist and editor. Together, they've worked on such titles as *Sam & Max (Season One)*; *Alien Syndrome*; *CSI: 3 Dimensions of Murder*; *Bone: The Great Cow Race* and *Out From Boneville*; *The Chronicles of Narnia: The Lion, the Witch and the Wardrobe*; *God of War*; *Star Wars: Knights of the Old Republic—The Sith Lords*, *Republic Commando* and *Apprentice to the Force*; *Psychonauts*; *James Bond 007: Everything or Nothing*; *The Lord of the Rings: The Return of the King*; *Rise to Honor*; *Indiana Jones and the Emperor's Tomb*; *The Bard's Tale*; and *Mercenaries*.

"Right now," Kwasneski says, "I'm working on a very intense *Conan* game [with Nihilistic and THQ] that has a lot of hand-to-



An Independent Game Sound Company Changes With the Industry



Principals Julian Kwasneski (arms folded) and Jared Emerson-Johnson create sounds for games ranging from *Sam & Max* (far left) to *God of War* (above).



hand combat and a lot of rich ambiences—really colorful creatures. There are so many things in it that if you looked at it and you spotted everything that could make sound, you'd never finish and it wouldn't be right if you did score it all—it would be a cacophony of crap. In this job, you have to make the call as to what's going to serve the player and the game experience the most. Hearing that little cloth rustle probably isn't it, but hearing these killer swishes and these big tips of the weapons and the menacing roars—that's important. On a basic level [as a player], you want to feel like you're interacting with the world, so you do what needs to be done."

Bay Area Sound emphasizes original recording for games rather than relying on libraries "because you not only get the thing you're recording perfect, but you can also try to get the space it's in," Kwasneski says. "If you're recording something that occurs 15 virtual feet from the virtual camera [the game's POV], you record it that way if you can; you don't record it really close and then process it to sound like it's 15 feet away."

Kwasneski also emphasizes that building in variety and a certain randomness helps make the game more interesting, so he likes to provide as much material as possible. He sings the praises of development tool FMOD, a cross-platform audio engine he describes as "the go-between between programmers and game developers and the sound guys. So, for example, if [an in-game instruction] says, 'dude kicks in door,' there's a sound

tag for that and then, unbeknownst to the player, what happens when 'dude kicks door' is [activated] in the game. We have all this level of intricacy and variation and we don't have to say to the programmer, 'Okay, I want you to pick one of six of these, mix that with one of 10 of these, take this and pitch it down a little and vary the pitch a bit each time it happens.'" Instead, it is built into the game engine.

"Anything we've done recently, if you go up and kick a door in and then you quit the level and then go back and kick it again, I don't want it to ever sound the same, so we put enough different layers in that your possibilities are close to infinite." FMOD supports 13 different platforms, including Xbox 360, PlayStation 3 and Wii. Kwasneski notes that the increased bandwidth available to audio in the newer formats means that he's no longer having to deal as much with down-sampling of effects and/or music "There's no converting to 22k now; it's all 44/16 or 48/18. The bandwidth benefits everyone, including the visual people: 'Ooh, we can do this many pixels now,' and, 'The frame rate is 1,000 fps.' You don't have to think about whether you can do something now. You're just limited by your programming resources and your creativity with it."

Bay Area Sound is equipped with a Pro Tools HD2 and several LE rigs, G5s and multiple Genelec 1030A monitors, and has a vocal booth, but Kwasneski also uses a number of regional studios. "If I need to do a full dialog session, we'll hire a studio that's set up for it, and I'll go there and direct them," he says.

When Kwasneski and I spoke, he and

Emerson-Johnson were busy doing production on Episode 5 of the ongoing *Sam & Max* online series, as well as working on a few longer-term projects. "Working on *Sam & Max* is almost like working on a TV series," Kwasneski says, "because it's quite time-consuming, it's a very tight schedule and new ones keep coming up. We're constantly improving it. Jared did an extensive jazz score in which he hired a lot of live players, and it has been very well-received by the fans. Despite the fact that the games are downloadable titles—which can sometimes mean limited bandwidth—we use pro voice talent, record most of our own sounds and produce live music scores."

Talking to Kwasneski, one gets the sense that he loves every aspect of his job—that recording dialog for the ultra-realistic *CSI* games is as fun and challenging as working on sound for the cinematics of the *Chronicles of Narnia* game. He had just completed work on a fanciful title called *Alien Syndrome*—an update of a crude 1987 Sega arcade game—and there were other titles waiting for him and Emerson-Johnson to dive into.

"I think that rather than me choosing game audio, game audio chose me," he says, "because I always loved games and I always paid attention to the sound, but it seemed like one of those untouchable things. And then all of a sudden there I was doing it and working 100-hour weeks. Now we've got our business and it's a little more manageable, but it's doing something I really love and care about." ■

Blair Jackson is a senior editor at Mix.

Vapor Trail Productions

Tom Zehnder Brings Home the Game Audio Projects

It's a relatively typical story: Musician lands day job but spends most waking hours trying to book his band. However, for Los Angeles-based composer Tom Zehnder, the day job turned into a music career that put him on the ground floor of the boom in game audio production. Sixteen years later, he has a new studio and zero regrets.

"I've watched the game audio biz completely blossom to be on a par with film," he says. "I just rode that wave. I remember doing 7k/8-bit files, but the A-list game titles now have huge budgets, just like big films."

A singer, songwriter and guitarist since childhood, Zehnder majored in music composition at UCLA and graduated summa cum laude in June 1991. Soon after, he got a job as a part-time program tester at Davidson & Associates, a start-up developer of children's educational software. Looking ahead, the company eventually built an in-house studio and asked Zehnder to take charge of it. "I basically learned by doing," he recalls. "I didn't have a lot of supervision. I was in a position of purchasing gear, and it was great to spend someone else's dime. I was also doing independent band stuff in real studios and watching the engineers."

By 2003, following some corporate acquisitions and mergers, Zehnder was lead composer in the audio department for Vivendi Universal Games, where he scored two titles that were honored in 2005 by the Game Audio Network Guild: *Van Helsing* and *Barbie—Princess and the Pauper*. Then, in June 2004, VUG eliminated its audio department as part of a cost-saving move. Zehnder negotiated to buy the company's studio equipment. "I got the entire setup—stuff that I had hand-picked over 10 years—for really cheap," Zehnder says. "I paid more than a liquidator would pay, but way less than retail. To top it off, I got to pay it off through work over a two-year period."

Confident on his own, Zehnder built Vapor Trail Productions (Culver City, Calif.; www.vaportrailpro.com), a one-room, 280-square-foot studio within a 482-square-foot guesthouse on his property. He is currently working on projects for Ubisoft and Ogilvy & Mather, as well as two documentary films. He also scored music for recent Disney DVD releases and Yahoo Web shows *Snap* and *Cheap 'n' Easy*.

In building his studio, Zehnder consulted Chris Pelonis, who designed and built the studios at Davidson and VUG. "I had to build the room around the [custom] desk," Zehnder says. He paid meticulous attention to acoustic treatment and isolation, constructing an isolated machine closet and dividing the room into dead and reverberant spaces. "I had to use lots of drywall and soundboard, and design acoustic doors," he says. "I made sure I had big bass traps and hard surfaces, as well



Tom Zehnder seated at his custom-built workstation desk in Vapor Trail Productions, his studio in Culver City, Calif.

as [Fiberglas] foam. I ensured that there were no parallel surfaces. I spent lots of money on the [two] dual-paned Mylar windows."

Vapor Trail has a dual-core 2GHz Mac G5 and Pro Tools HD3 system with one Digidesign 192 I/O interface and one DSP expansion card. A Compaq PC hosts Tascam GigaStudio. "I use Pro Tools as the sequencer, which really surprises other composers," Zehnder says. "But I just track everything. I get the performance out of GigaStudio and then record that performance."

Zehnder has outboard gear from TL Audio, Joemeek, dbx, PreSonus, Lexicon and Studio Technologies, and mics from RØDE, beyerdynamic, Electro-Voice and Shure. For monitoring, he relies on Tannoy System 1000 speakers, a Tannoy PS350B active subwoofer and Audio-Technica MMS337 multimedia speakers. He also has a Mackie HUI MIDI control surface; his synths comprise a Kurzweil SP88, Korg MS2000R, E-mu Orbit 3 and Roland M-GS64. Plus, he owns a wealth of stringed and percussion instruments.

Tracking live performances is central to Zehnder's production process, and he creates his own sample libraries from scratch, often tailoring them for individual projects. "It's funny that I go into digital but love that human, breathing thing," he says. "I find that people still will come back to the sound of a live orchestra and a live guitar. A film composer will say the best soundtracks are the ones you don't hum; they [provide] the right emotion. The underscore has to feel right, and often those feelings are connected to a 'real' instrument. It always comes down to your ears—that's your biggest asset."

Over the years, Zehnder has developed ways for integrating his acoustic, performed compositions into the nonlinear realm of computer games. "I sit with the game designer and the producers and talk grand-scale about the music and interface with the programmers to see what we can do. Every game is like a new venture." ■

Matt Gallagher is an assistant editor at Mix.

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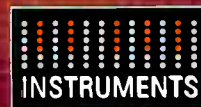
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Ghost Whisperer

Sounds of the Dead Updated for Modern Times

By Matt Hurwitz

Who knows what a ghost sounds like? The old clichés of moans, rattling chains and wind don't quite hold up in 2007—especially when sound effects creators have to deal with new sounds for a weekly TV series, as on CBS' hit show *Ghost Whisperer*.

"That's the challenging thing about this show," says supervising sound editor Mark Friedgen of Burbank, Calif.-based Smart Post Sound. "We sort of have a 'ghost of the week,' so each week we have to ask ourselves, 'What is this show's ghost going to sound like?' They all need to be different." Roberta Doheny, who, along with Bob Edmondson, mixes the show, agrees: "Every show has a different ghost character, and that has to be reflected in the mix, too."

As with most series, the process begins with creating a temp track by the show's picture and music editors (referred to as the "Avid mix"). This includes effects



Jennifer Love Hewitt (right) plays Melinda Gordon, who communicates with spirits in *Ghost Whisperer*.

Smart Post Sound has sent and any from libraries the picture editor has available. Music editor Gordon Fordyce also adds a fairly elaborate temp music track—including music from previous episodes and even non-show-related music—to substitute for composer Mark Snow's forthcoming score.

Even at this early stage, Smart Post is sometimes called on to create a ghost sound, particularly for a more challenging spook. "I'll get a call from the editor even while he's in his very first rough cut," Friedgen notes, "and he'll say, 'You know, Mark, I need a sound for this ghost. Maybe you can come up with some ideas.'" In as little as a half-hour, after receiving a QuickTime clip from the editorial team, a sound will be developed, which can be uploaded to Smart Post's server for quick incorporation into the temp track.

SPOTTING FEAR

On the Monday or Tuesday the week before the mix, a spotting session is held in the editorial office, typically attended by executive producers Ian Sander and Kim Moses, co-producer Juanita Diana Feeney, the picture editor, Friedgen and ADR editor/co-

supervisor Tim Terusa. In addition, composer Snow may participate via telephone from his studio in the New England area.

Sander and Moses will elaborate on the episode's tone and, most importantly for the sound team, about the nature of the ghost. "In one show, for instance, the general feeling about the ghost was cold," Friedgen explains. "So we'll have a lot of icy, rattly kinds of sounds," some of which Snow will provide in his score. "We'll look for those opportunities and discuss them, some of which the producers will like and some they won't. It's a give-and-take process. We're deciding what a ghost sounds like. You kind of have to sell it." The sound is often dependent on how the ghost character died, Edmondson notes. "It depends on whether they were in shock, hit by lightning, et cetera."

The series also contains some visual effects shots, which are often fairly complex. "They come up with lots of interesting visuals on this show and those need sound to help support the images they're trying to get across in their storytelling," Friedgen explains.

After the spotting session, Friedgen and Terusa return to Smart Post, where Terusa will begin assembling a master ADR list to cue each line. Friedgen's notes from the

—CONTINUED ON PAGE 60



From left: sound mixers Roberta Doheny and Robert Edmondson, and sound editor Mark Friedgen

PBS' Soundstage Steps Into the Digital Age

The Venerable Music Program Leaps Into Hi-Def

By David John Farinella

When PBS' *Soundstage* first hit the air in 1974, the idea was inspired—an hour-long television program that featured some of the era's best-known musicians performing their hits and some of their deep album cuts. Bob Dylan, Aretha Franklin, Al Green, Bonnie Raitt and Harry Chapin were just some of the artists who lent their talents. In fact, *Soundstage* made Chicago's WTTW television station a musical hotspot for 11 years.

The first incarnation of *Soundstage* went off the air in 1985, and it may have remained in the mothballs if it weren't for Joe Thomas, a music industry veteran who had become enamored with all things hi-def and was looking for ideas. As a Chicago native, Thomas grew up with *Soundstage* and remembered how much it influenced him as a youngster. Five years ago, he approached WTTW management with an idea to bring *Soundstage* back and update its look and sound. Today, it is broadcast in hi-def

a live sound company that has been in operation in the Chicago area since 1973, and the duo outfitted the room with a Meyer P.A. system that didn't overpower the 400 or so audience members.

Thomas then made sure that the audio was captured with enough accuracy and fidelity to ensure a successful 5.1 mix. Frank Pappalardo, who had worked with Thomas at a number of Chicago-land recording studios and has dozens of engineering credits, stepped up to accept that responsibility. Pappalardo works out of HD Roadie, a mobile recording truck that is parked outside of the WTTW studios during the recording of each show.

Pappalardo gets a split from the stage and records up to 94 channels of audio into Pro Tools. He will often add a handful of analog outboard devices to the recording chain, including an LA-2A and Avalon mic pre's; more often than not, he'll use various plug-ins to add warmth to the track as it goes into the digital domain. "A lot of what I'm trying to do is make it sound like it used to sound," he explains. "That's your chance to make it sound good."

As the band plays, Pappalardo mixes the show through a pair of Yamaha DM2000 consoles. "I'm trying to do the best mix that I can. It's not a crucial mix, but it is the mix that the director is hearing and what gets printed to a couple of the cameras, so that when the video

editor begins to edit, he is not editing to camera audio, he's editing to the mix that I did," he explains. "So it's certainly listenable, but I'm not catching every solo."

In addition to the usual complement

—CONTINUED ON PAGE 65

PHOTOS: BILL RICHERT

Peter Frampton



Joss Stone



Robert Plant



K.T. Tunstall



Director/producer Joe Thomas in the HD Roadie truck

with full 5.1 sound.

With an agreement in hand, Thomas' first step was building out a studio/performance space at WTTW that balanced intimacy and technology. The director and producer turned to T.C. Furlong of T.C. Furlong and Associates,

Tom Fleischman

Re-Recording Mixer Finds Niche in New York City Post House

By Gary Eskow

A Manhattan native who has spent his entire career in New York City's audio post industry, Tom Fleischman has seen the good times come and go. According to Fleischman, whose credits last year included Martin Scorsese's *The Departed*, David Frankel's *The Devil Wears Prada* and Jonathan Demme's *Neil Young: Heart of Gold*, these are good times.

"Business is thriving in New York," says Fleischman. "The tax incentives of the last several years have brought a lot more production here. Filmmakers still want to be based out of New York and the major post companies are in good shape. [This interview was conducted before *Ascent Media's* recent closure of the famed *Todd-AO* stage, though that move should have little real effect on Fleischman's work, except that there's one fewer large dub stage.—Eds.] I see that trend continuing. As far as the lingering effects of 9/11, other than providing ideas for material in the future, I don't think it's going to have a significant impact on us."

Today, the lean and smiling Fleischman, long a staple at the venerable Sound One post-production facility, mixes on a Euphonix System 5 console at Soundtrack Film & Television in New York City. He is still a first-call re-recording mixer for A-list directors such as Scorsese, Demme, Spike Lee and Ron Howard, and he's worked magic on countless low-budget films for first-time directors; he's just in a different home, which is proof-positive that the jobs follow the talent.

The son of film editor Dede Allen and Stephen Fleischman, a writer, producer and director of television documentaries, Tom Fleischman caught the film bug early on. "I grew up on the Upper West Side, went to school in the area and spent my spring and summer breaks apprenticing for my mother on films like *Bonnie and Clyde* and *Rachel, Rachel*. I knew I wanted to go into the film business, but I was initially attracted to editing and directing, not sound."

After spending a few years at the NYU School of the Arts, Fleischman dropped out to pursue a career. "My early education in the industry was fantastic," he recalls.

"Elisha Birnbaum had just come over from Israel and established a small effects house [Image Sound] in the Brill Building. He had a Nagra, a 2-track Scully and a couple of 16/35 recorders.

"Elisha also had boxes of ¼-inch reels of effects that he'd picked up at an auction in Israel," he continues. "He had me listen to them all and make lists of their contents. Then he taught me how to cut and splice the tapes so that all the car sounds were on one reel, the birds on another and so forth. When that work was complete, we had a library and I knew where everything was. Sound editors would come to the office and I'd sit down with them and dub the effects they needed onto 35mm mag tape. By this time, Elisha was building a small Foley room in the adjoining office and I did some carpentry work when I wasn't pulling effects. It was a great education."

While working for Birnbaum, Fleischman met Dick Vorisek, the most well-known feature film re-recording mixer in New York at the time, whose credits included *On the Waterfront*, *The Hustler* and a slew of New York-based films. With Birnbaum's blessing, he left Image Sound and moved over to Trans/Audio Inc., where Vorisek was based.

"I started out doing transfers for editors, and it was a full-time job," he explains. "During breaks, I'd sit in the back of his room and watch Dick work. Eventually, I got to assist him and even execute little mixes. Trans/Audio offered a program for film students attending the three film schools in New York: the NYU School of the Arts, the School of Visual Arts and Columbia's School of Journalism, which had a film program. On weekends, students would come into the studio, and so would I, to help mix their work. It was great training, particularly since I ran into just about every possible problem a sound mixer can encounter!

"Obviously, the technology we used back then was quite rudimentary compared with the tools we have available to us today," Fleischman continues. "Chris Newman, a production mixer who we worked with, took a liking to me, and one day he asked me to apply some EQ and noise suppression to one of his tracks. It was all very basic; we



had some notch filtering and a Magnatech tube expander/gate. I'd pick up tapes from the lab at 7 a.m. and have two hours to work on the studio's console before the real business rolled in. More great training; between that work and the student mixes, I was starting to get comfortable mixing."

Fleischman's first commercial project as a re-recording mixer was Errol Morris' 1980 documentary, *Gates of Heaven*. "It was a film about pet cemetery owners. Around this time I also got to work on Barry Brown's *The War at Home*. Barry, who now edits Spike Lee's films, has also done some more directing since this film was released in 1978."

In 1985, Fleischman, who had by this time established himself as one of the top sound re-recording mixers in the industry, with a credit list that included *Melvin and Howard*, *Reds* (for which he received an Academy Award nomination in 1981), *Silkwood* and *After Hours*, moved over to Sound One. "Elisha, who had welcomed my exit from his company years earlier, always said that we would work together again. When Image Sound made a deal to merge with Sound One in 1985, the operation became much larger, and I went to work there until joining Soundtrack at the end of 2003."

Soundtrack, with offices in New York and Boston, has a long history in the television side of the audio post industry. At the time of Fleischman's hiring, Rob Cavicchio had decided to steer the company into film and was building a small stage on 22nd Street.

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Pyramix

DIGITAL AUDIO WORKSTATION



Sound re-recording mixer Tom Fleischman worked on *The Departed*, which won Oscars this year for Best Picture, Film Editing and Best Director.

Bob Chefalas was mixing HBO series *Sex and the City* on this stage when Fleischman came onboard.

"To be honest, I wasn't real happy with the corporate setup at Sound One," Fleischman says, referring to the period following Ascent Media's purchase of the New York operation, "so the move to Soundtrack came at a good time for me. The room I mix in is small, but it's the best-sounding room I've ever worked out of. Our mixes translate well into all kinds of theaters. Obviously, mixes sound different in different rooms, but the balance is always retained.

"We have two mixing rooms and both use the same Euphonix System 5 console," he adds. "The larger room has a dual engine, which gives us twice the amount of signal processing. Our work flow starts out with Pro Tools files from the sound editors. As you'd expect, there are generally four Pro Tools workstations used in a session for music, dialog, sound effects and Foley, and they're all locked together with our Soundmaster SMPTE synchronizer. Master timecode comes from picture. I output my mixes onto the Akai DD8 recorders that we still use as 8-track dubbers.

"Next, we output the Akai data back onto Pro Tools for the editors. These sessions contain all of the original session elements, plus the predub we've just created. While this process is going on, another mixer or one of the sound effects editors is preparing the effects and balancing them against dialog.

"Once I've finished my predub, which includes EQ'ing and balancing the dialog against all of the other elements, everyone comes back for the final mix. At this point, the predub is placed alongside the music and effects. If I have to make changes to anything I've worked on, we generally go into one of the Pro Tools rigs. If necessary, I'll load my console automation from the predub session, rip the elements I used initially and remix them. Back in the analog days, digging into this earlier work was tedious and time consuming.

"I went out to the recent AES show and the most exciting development for me [was] the new hybrid consoles, probably because they are very much in our future plans here at Soundtrack," he continues. "We want to make things as easy as possible for our clients. Right now, editors bring in their Pro Tools workstations, generally with either a ProControl or ICON, so that they can reproduce their mixes exactly and make alterations during our mix sessions.

"Hybrid consoles would allow us to use the board as a stand console, as we do today with the System 5, but they offer the prospect of a significant advantage as well, since they have the ability to emulate a ProControl, for example. Then all of the Pro Tools plug-ins would appear on the console whenever I loaded up a Pro Tools session. The same goes for Nuendo and Pyramix sessions. At that point, it would be unnecessary for editors to haul their hardware into our facility. We're very excited

about the development of these hybrids, and they're definitely in our future."

Just back from a week in Copenhagen, Denmark, where he traveled with a small group of colleagues who have worked on many of Scorsese's films to speak with Danish filmmakers, Fleischman is relaxed and ready for the next round of work. "Skip Lievinsay, Phil Stockton, Marko Costanzo and I had a great time in Copenhagen," he smiles. "The weather was great, and so were the people. This weekend I'll be spending some time at the Beacon Theater on the Upper West Side that I know so well. Marty [Scorsese] is shooting a Rolling Stones concert there, and I'll be working on that project, hopefully by the early summer." ■

Ghost Whisperer

—FROM PAGE 56

session are transcribed, and he will run through the reels with his dialog and effects editing teams. After the production dailies are loaded and assembled at Smart Post, the two dialog editors, Anton Holden and Joy Ealy, prepare those tracks for dubbing.

Effects editors Bob Costanza and Mike Dickeson then dig into creating the sounds for the episode. "With our tight schedules, we split the show up, with Bob cutting the first two acts and Mike cutting the last three, which is roughly half and half for each," says Friedgen.

The ghost sound effects are created mostly from what, at this point, is a fairly extensive library of sounds, manipulated in any number of ways. "With Pro Tools, there are so many different ways to manipulate sound," Friedgen continues. "We can take pre-existing sounds, perhaps a combination of several, and slightly pitch them up or down," and process them in a variety of manners to produce a unique ghost identity.

Though the tight schedule necessitates using a library, typically one or two sounds per show require field-recording a new source. Sometimes, these can include the proverbial "kitchen sink"—or something close to it. "A couple of weeks ago," Friedgen remembers, "we had a ghost that was like a spinning vortex. I had a sink in my garage that made this great sound when it would drain, so I recorded it. We brought that back to the studio and pitched it a bit and worked with it and added some wind sounds. And we ended up with this pretty cool spinning vortex sound."

Ghost Whisperer spirits do have some signature sounds that audiences get to know, most of which are spelled out in a "Rules for Ghosts" bible back at the

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chapter two: BASICS OF A VIDEOHELPER TRACK

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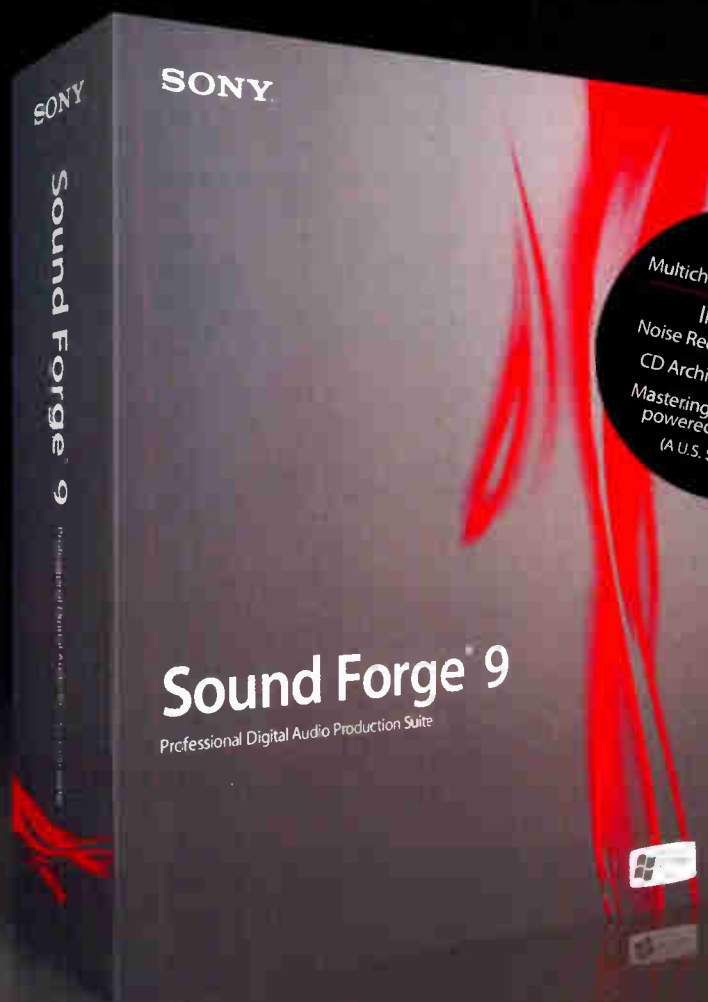


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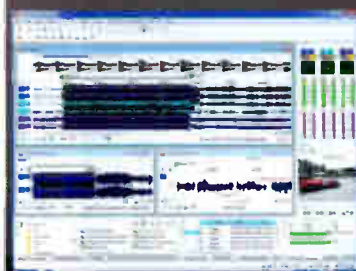
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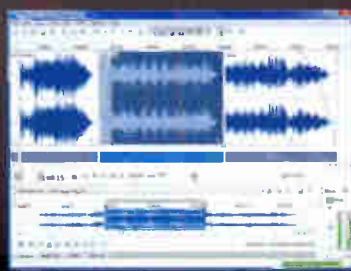
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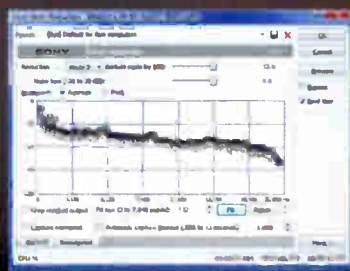
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A GHOSTLY MIX

By Sunday night, Smart Post's sound files are loaded onto FireWire drives and brought to Dub Stage 1 at Universal's Henry Mancini Building, where the mix takes place over the next two-and-a-half to three days. "I can't begin to say enough about how wonderful it is working here at Universal," says Doheny. "We have some of the best engineers in the world here. They're constantly keeping the equipment updated. It's a fabulous environment."

The team doesn't actually walk in cold on the week's episode. "They always bring us a DVD of the show that we're going to be working on the following week, which we have a chance to watch at our leisure," Doheny explains. "We listen to the editor's mix track and get a feel for where they're going so that when we come in Monday morning, we know the story." While the team may begin to have a grasp of the show's approach from viewing the edit, it is the arrival of Snow's score that sets the final tone.

All of the source reel material is loaded into the system, including the temp track, sound effects, dialog, ADR, Foley and Snow's music stems. "We actually cut the

temp tracks right into my session and then we cut around them," Doheny explains. "We integrate what we think is really good, and a lot of it is." The Avid mix is also kept on hand to compare against the final mix to make certain the editor's original intent is kept intact.

Joining Doheny and Edmondson are Friedgen and/or Terusa, recordist Richard Coleman, music editors Gordon Fordyce and/or Grant Conway, and co-producer Juanita Diana Feeney. "Juanita runs the mix," says Friedgen. "We follow her guidance very, very closely, so that when the executive producers come for playback, we're as close as possible to what they expect."

Having worked together for five years on such series as *Law & Order: Criminal Intent*, *LAX*, *Providence* and others, Doheny and Edmondson have a work process established that allows them to proceed smoothly through an episode. Generally, they split the work—Doheny focusing on dialog and music, Edmondson tending to the sound effects. "I first work on the dialog and try and smooth that out and get it to work with the ADR lines and match them as best I can," says Doheny. "Then we work

in the music and effects."

"It's a great show because the sounds are extensive," Edmondson adds. "The executive producer, John Gray, is in New York, and he listens to our mix on a nice 5.1 system, and his notes always say, 'The more you put in the surrounds, the better.'"

"There's lots of panning around, lots of surround work in this show, which is fun," Doheny notes. "Audiences have better systems at home now, which gives us more freedom to exploit more interesting uses of the effects."

The two perform on a two-layer 384-input Harrison MPC3-D digital console (which they split into two sections: effects on the left, music and dialog on the right), supplemented by various outboard gear, including a Junger Audio B42 4-channel digital dynamics processor, a Harmonizer and a Cedar DNS-1000 digital noise-reduction system. "The Cedar works like a very gentle gate," Doheny explains. "You can reduce background noise in the production tracks without hurting the sound of the dialog." For the occasional missing sound effect, Friedgen travels with a 750GB sound effects library, ready to



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Studio Essentials

Remember the old days? That was back when most of us walked 10 miles (each way) to school in the snow with no shoes. It was also a time when audio gear was either designed by studio owners themselves or from small companies that took an old-world craftsman approach to creating quality products that were meant to last longer than a year or two.

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

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

George Petersen
Editorial Director

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

Our Products Offer the Best Performance Regardless of Price

With Auralex, quality is not fixed on a sliding scale that rises or falls depending on the budget. Whatever price you have in mind, Auralex quality is the market's best. This way of doing business has earned us countless loyal customers, who in turn spread the word and bring new customers our way. By sticking to this quality commitment, we get more repeat business and referrals than any business textbook says a company should.

The Golden Rule Is Alive and Well at Auralex

It's one thing to say you have your customer's best interest at heart; it is another thing to prove it every



day. For instance, we go above and beyond our competitors by providing you with your own personalized room analysis. Because we spec your room, we know exactly what it needs. End result? The most accurate, best-sounding acoustics possible. Unlike others, we use independent acoustical laboratories to make sure all our products deliver outstanding and predictable performance. Working with our valued Auralex Dealers, we make sure you get only the materials you need—nothing more—while providing friendly service and honest, expert advice. In short, you can have total confidence that the system you install is the best your money can buy.

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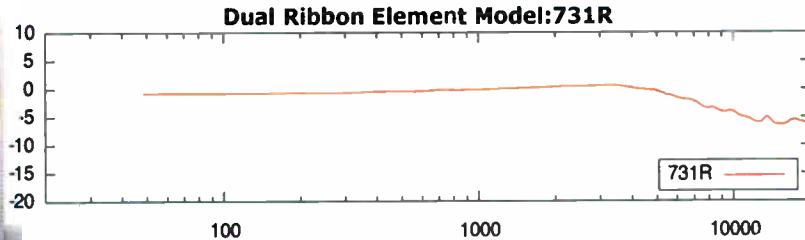
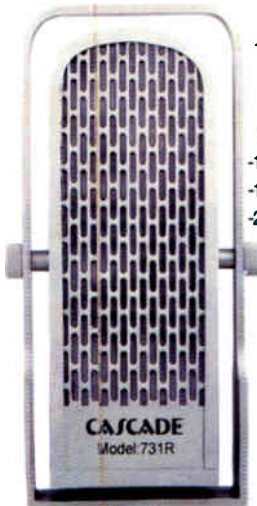
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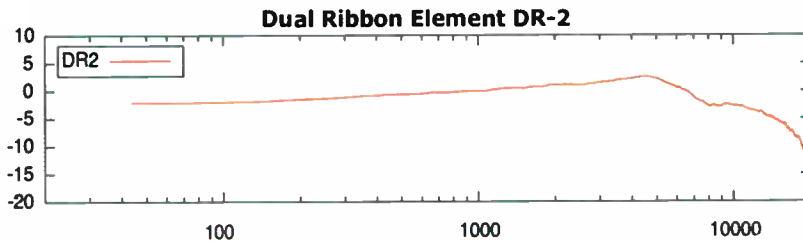
Cascade Ribbon Microphones Feature *Center-Field* Technology



Deco Vibe Premium Dual Ribbon

Ribbon type: Dual 2.5-Micron, 99% Pure aluminum
 Polar pattern: Symmetrical figure 8
 Sensitivity: -57.1 dB (1.4 mV/Pa)
 Frequency response: 30 - 15kHz (± 3 dB)
 Max. SPL (1% THD@1,000Hz): 165dB
 Equivalent noise level to IEC 651 (a weighted): 17dB
 S/N ratio re 1Pa: 70dB
 Connector: 3-pin XLR

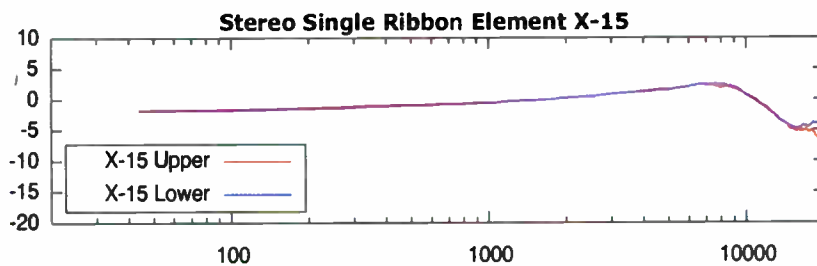
\$399.00



Classic Style Premium Dual Ribbon

* Ribbon type: Dual 2.5-Micron, 99% Pure aluminum
 * Polar pattern: Symmetrical figure 8
 * Sensitivity: -57.1 dB (1.4 mV/Pa)
 * Frequency response: 30 - 15kHz (± 3 dB)
 * Max. SPL (1% THD@1,000Hz): 165dB
 * Equivalent noise level to IEC 651 (a weighted): 17dB
 * S/N ratio re 1Pa: 70dB
 * Connector: 3-pin XLR

\$239.00



Stereo Single Ribbon

* Type: Stereo Ribbon (velocity) Microphone
 * Ribbon type: 99% Pure aluminum, 2.5-Micron
 * Polar pattern: Symmetrical Figure 8
 * Sensitivity: -51.7 dB \pm 2 dB (2.6 mV/Pa)
 * Frequency response: 30 to -18,000 Hz (\pm 3dB)
 * Output Impedance: \leq 200 Ohms
 * Recommended load impedance: $>$ 1000 Ohms
 * Max. SPL (1% THD @1000 Hz): 165 dB
 * Connector: Heavy gauge 5-Pin male XLR

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microphones and compare the characteristics and limitations that make them great – and then take those qualities and build on them.

Though steeped in the heritage of legendary classics, these are unique, new products. Each and every proprietary capsule and microphone is handmade and hand-assembled from start to finish in the Korby facility in Nashville. Korby's current product roster includes three new microphones (**The KAT Blue, KAT Red, KAT White and KAT FET**) as well as the critically acclaimed **KAT Hot-Swappable Capsule System** that lists

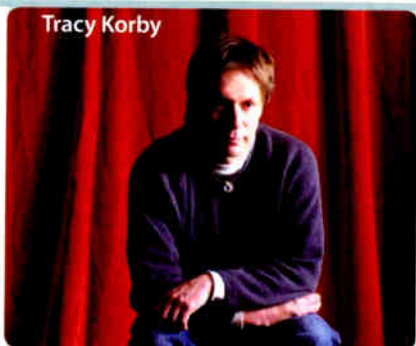


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Mercury M76m - "Vintage V76m" Tone and Craftmanship



Mercury EQ-H1 - "Vintage Pultec" Tone and Craftmanship



Mercury EQ-P1 - "Vintage Pultec" Tone and Craftmanship



Mercury 66 - "Vintage Fairchild" Tone and Craftmanship

MERCURY RECORDING EQUIPMENT CO.

Since 1994, David Marquette and Marquette Audio Labs have provided clients with new and vintage recording equipment, as well as, the "benchmark" in custom racking of vintage modules. With David's years of experience, it was obvious to see, as time passed, that the equipment from the glory days was starting to fade. In 2000, with his passionate vision and pride in craftsmanship in the forefront, Marquette started Mercury Recording Equipment Co.

The Mercury product line started with three "11 tube and all transformer" classic re-creations, paying homage to some of the best recording equipment ever made. The highly regarded Mercury 66, a variable-bias style compressor, is a tribute to the Fairchild 660. The Mercury 66, using similar circuitry, tubes, design ideas and custom transformers, re-creates the Fairchild's sonic characteristics, performance and features. The Mercury EQ-H1 and Mercury EQ-P1 program equalizers have the warm, distinctly rich tube sound desirable for both analog and digital recordings today. Focusing on tone, the EQ-H1 and EQ-P1 re-create the same sonic qualities as the vintage Pultec equalizers and are powerful tools to add musicality in your tracking sessions or in bringing mixes back to life.

Mercury Recording Equipment Co later released re-creations of two of the most sought after vintage tube studio microphone amplifiers. The Mercury M72s is a proud salute to the Telefunken/Siemens V72s modules, made in Germany in the '50s and '60s. The V72s is famous for being used by George Martin on the early Beatles recordings. The Mercury M76m is an enhanced re-creation of the vintage V76m modules. The Mercury M76m has output attenuation and level controls, as well as selectable impedance. Other

REVIEWS

"The Mercury M72s is a remarkably versatile recording tool. Getting great sounds on all of the sources I tried was never easier!"

- Barry Rudolph, *Mix Magazine*

"The Mercury EQs are flawless. I compared them to the two "vintage" Pultecs I had side by side, you couldn't tell the difference!" "I thought the Mercury 66 sounded BETTER more times than the original "vintage" Fairchild. When I pulled them both up in the mix I could hear the difference."

- Scott Humphrey, *The Chop Shop (Rob Zombie, Motley Crue)*

"The Mercury M76m could very well be the ultimate "vintage-style" mic preamp available today"

- Pete Weiss, *Tape Op Magazine*

"The Mercury Grand Pre delivers on its promise of dishing out the classic British sound of yesteryear."

- Michael Cooper, *EM Magazine*

M72s and M76m features include: phantom, phase reverse and a direct input per channel. With Marquette's knowledge of the old Telefunken/Siemens modules, the Mercury M72s and M76m studio microphone amplifiers were very successfully re-created.

In 2006, expanding the line to 11 products, Mercury debuted the M72s/1 and M76m/1 single-channel versions of the popular M72s and M76m. In addition, several new re-creations were unveiled. First, the Mercury AM16, dual-channel and Mercury AM16/1 single-channel microphone preamplifiers. This is a tribute to one of David's favorite mic preamps from the 1960s, the Vintage Langevin AM16. This American classic is a discrete class A circuit known for being very open and musical. Second, Mercury completed a long-awaited project, the Mercury Grand Pre, a solid-state discrete 1970s British-inspired microphone preamp. The Mercury Grand Pre is available as a dual-

channel version of the Mercury GP1 single-channel version. Based on a vintage Calrec circuit, the Grand Pre is not a Neve 1272 clone but rather the new classic British alternative.

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Large scale installations in 2006 have included a 7 room suite for Pamplin Broadcasting's new facility in Portland, OR and 9 rooms at Westwood One's west coast center in Culver City, CA. As usual, Omnirax collaborated closely with engineers and architects to

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make these into true showpieces.

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"I'm blown away" - Dave Williams, Director of Engineering, Clear Channel San Francisco

Several University Radio Stations have upgraded to the Innova line. They include; KCWU in Ellensburg, WA, KSCR in Los Angeles, KSFS in San Francisco and KRUA in Anchorage.

Omnirax has continued working closely with Westwood One on new projects at their Data Monitoring Center in Houston and Bulfinch Operations Center in Boston. These two projects feature plasma wall arrays and multi position workstations.

"...Ease of installation is important and we got that with Omnirax. Customer service was superior to almost any other vendor we deal with." - Conrad Trautman, SVP Engineering and Technology Westwood One, Inc.

Some projects in process at this writing are; Youth Radio in Oakland, Horizon Broadcastings Network Operations Center in Minot, ND and more rooms at EXA in San Diego. ***"... I wholeheartedly recommend Omnirax to everyone."*** *

*References available upon request.



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SOUND PURE AND PELUSO

At Sound Pure Pro Audio, our experts, always just a phone call away, are real working professional recording engineers and concert musicians. We extend the best pricing around, but more importantly, we help make your recordings the best they can be. We obsess about the sound of everything and have thoroughly tested all the lines we carry, and many others we have chosen not to carry, just to be sure! Sound Pure specializes in characteristic high-end manufacturers, but also many boutique brands that aren't available at "superstores." In our constant pursuit of the finest small manufacturers in the industry, we were very fortunate to find Peluso Microphones Labs.

Peluso's founder, John Peluso, is no stranger to microphones. Peluso has 28 years in the microphone repair and capsule restoration business, specializing in rebuilding vintage mics. He began his restoration business while chief engineer at various top Chicago recording facilities, including Sonart (DB), Streeterville and Paragon Studios. Over the years, he has collected the best-of-the-best vintage microphones, including five Telefunken 251s, 13 AKG C12s and four U47s, to name just a few—sorry, not for sale!—microphones that form the benchmarks for the Peluso mics built today.

In his restoration business, Peluso found himself replacing so many parts on these aging vintage microphones that sometimes little was left from an original. Over the years, he backward-engineered many vintage microphones so that one day, when the market for the originals dried up, he could replicate them perfectly. Working on a lifetime project, Peluso has developed from-the-ground-up microphone designs that perfectly capture the inner workings of many of these classic mics. While the vintage mic market has become outrageously pricey at the same time that mics are painfully aging, Peluso has been revealing, over the past several years, his impeccable line of amazing vintage recreations through dealers like Sound Pure.



Peluso not only has an ear for excellence, years of practice, and the finest microphones in the world as benchmarks, he also has a real cost-consciousness. He buys certain components such as flight cases and metalwork overseas in huge quantities to save his clients money, but the guts, making up the sonic signature of the mics, where he won't compromise, like Mylar, capacitors, and resistors, originate from Germany, Holland or the U.S. Peluso microphones are assembled and hand-tuned in Virginia, where Peluso puts them through stringent testing, and a true-scoping in one of his two anechoic chambers. What you get is an incredible value—no compromise taken at any part of the signal path, but substantial savings made where they can be, a savings that Peluso generously passes along to his customers.

The entire line of Peluso Microphone Labs is available through Sound Pure Pro Audio. We have them available for customer demo, and we'll soon have MP3 samples on our website, www.soundpure.com. Contact Sound Pure today toll free at 888-528-9703, or e-mail sales@soundpure.com for advice, to set up a Peluso demo, or for any other pro-audio need.

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The X73

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The Model 473

The 473 features four class A, all discrete microphone preamplifiers with "essential" high and low shelving eq adjustments on each channel. Other features include: balanced line level input, instrument D.I. and impedance switching.



The "X81 CLASS A"

The X81 is built with the same microphone preamplifier as the X73 but with a more comprehensive four band equalizer section. Users include Eddie Kramer, Chuck Ainlay and Gary Paczosa.



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The Model 273

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**Jim Gaines, Engineer for Carlos Santana
and Stevie Ray Vaughn**

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Toby Scott, Engineer for Bruce Springsteen

"I used the Vintech X73 exclusively on Rusty Anderson's electric guitar tracks for both the stereo and 5.1 mixes of Paul McCartney's "Back in the U.S. Live 2002" album and DVD."

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Chuck Ainlay (left) and Eddie Kramer at Vintech booth, AES.

to the proper tools. We also know how some vintage gear has become financially out of reach.

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Vintech users include: Chuck Ainlay (engineer: George Strait, Trisha Yearwood, Mark Knopfler, many more) • Eddie Kramer (producer: Jimi Hendrix; has worked with The Beatles, Led Zepplin, Peter Frampton, the Rolling Stones, David Bowie, etc.) • Jason Freese (Green Day) • Peter Frampton • Lee Roy Parnell • Levon Helm • Gary Paczosa (engineer: Dixie Chicks, Alison Krauss) • Kyle Lehning (producer: Randy Travis, Waylon Jennings, George Jones) • Bobby Bradley (Bradley's Barn Nashville) • Michael Brauer (has worked with Michael Jackson, the Rolling Stones) • Dan Shea (producer: Jennifer Lopez, Marc Anthony) • Toby Scott (engineer: Bruce Springsteen) • Roy Cicala (engineer: John Lennon, Frank Sinatra) • Paul Worley (Warner Bros.) • Jim Gaines (engineer: Carlos Santana, Stevie Ray Vaughn) • and many more.



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plug in and retrieve any needed sound.

The show's mixes deliberately avoid the all-scare-all-the-time approach. Instead, the mixers opting for a rhythm that helps throw the audience off at just the right time. "The audience can get calm and then suddenly get a real chill," explains Friedgen.

"It's one of the most fun things about doing this show," adds Doheny. "Each show has a unique cadence. Each show has a place in it that you feel a transformation where the ghost changes."

Late Tuesday each week, after the team has assembled the mix, executive producers Moses and Sander come for a playback session and offer notes that are applied in fixes the following morning. "With such a complex show, notes often involve not being able to hear something clearly, be it dialog, music or sound effects," Friedgen explains. "The tendency is to say, 'Just make everything louder,' but that's not a solution. A lot of times, the right thing is to take something out, *then* you get more clarity."

The show's scare tactics have evolved over time. "In the early part of last season," Friedgen comments, "everything was really, really scary. Now, as we've all put into practice, there's a little more give and take. We like the quiet times, too. It's the quiet times that give you more of an opportunity to scare people." ■

PBS Soundstage

—FROM PAGE 57

of stage microphones, Pappalardo also has a nice selection to capture the audience and room ambience. A pair of Shure SM89 shotgun microphones off the edge of the stage provides the main live audience track. It's crucial, he explains, because "a lot of things that I see on television that are live don't seem live to me," Pappalardo explains. "The whole audience sound is really important to us. If there are reactions, we make sure and grab them. If there is clapping, we make sure we get it. I hate when I see a concert on television and you see a zillion people clapping their hands and you don't hear any clapping." Pappalardo also has a Shure VP88 stereo mic at the front-of-house position and a pair of Shure SM91s over the audience that also enables him to capture room sounds.

At the end of a performance, the crew heads back to the HD Roadie headquarters in St. Charles, Ill., where the audio and video are prepped and finished for broadcast. Pappalardo first backs up the performances to Tascam DA-98s and another set of hard

drives, and then gets ready to mix in the box, using Pro Tools with ProControl and a handful of plug-ins. The first mix he finishes is a stereo mix.

"I start the process without looking at the video," he reports. "I start with EQ and compression to get things in the ballpark, and then either I'll look at the line cut that was done that night or, if the editor is ahead of me—which doesn't happen too often—I'll get the edited video and take a look at that. When I get it to about 80 percent, Joe [Thomas, director] comes in and helps me fine-tune and tweak the mixes. A lot of times, the tweaking has to do with audience. If there's a shot and there's bunch of screaming, you have to have it in there."

After that mix is finished and approved by Thomas and the band, Pappalardo sets up for the 5.1 mix. "I find 5.1 easier to do than stereo," he says. "If you've done great stereo, it's really fun to do a 5.1 [mix] because now you've got five different places to put things, and part of mixing music is finding a place for everything so that they don't step on each other, either frequency-wise or placing them in the stereo spectrum so you can hear them."

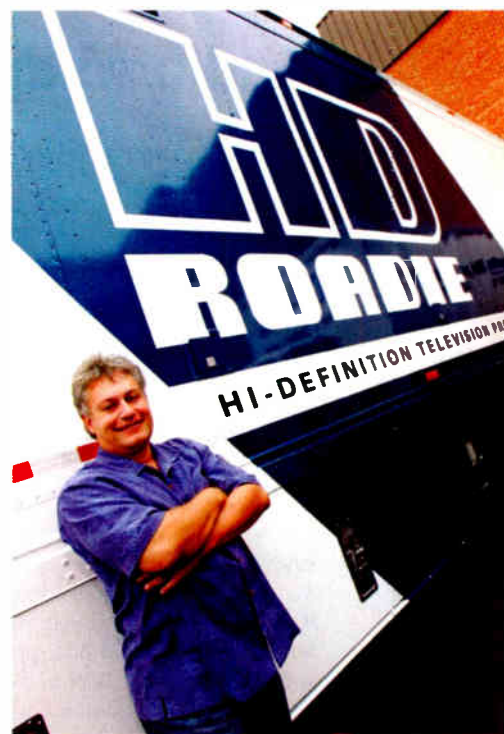
Pappalardo starts with the room mics to give listeners the sense of sitting in the performance space and then starts moving the lead vocal, kick drum and bass guitar into the center channel. "Those are the things I feel should be solidly grounded in the center," he reports. "One thing I don't do that I've heard other people do is put the lead vocal primarily in the center channel. I think that's a mistake because I don't think people always have their 5.1 systems set up right.

"Then I start pulling little things out to make it seem more dimensional," he continues. "I'll take my overheads out of the front and pull them back just a little tiny bit so you get the sense of the drum set coming out at you. Of course, the sub is a big deal and the kick drum and the bass guitar go in there."

He also takes this opportunity to warm up the sound again. "A lot of the plug-ins I use have algorithms to simulate analog," he says, including ones that mimic favorites such as the 1176 compressor/limiter and a Pultec EQ. He also uses the Sony Oxford EQ, ReVibe and D-Verb plug-ins, along with a Sony 777 outboard digital reverb unit.

Once the 5.1 mix is complete, Pappalardo uses a Dolby E encoder to create a metadata bitstream that is printed, usually, on tracks 3 and 4.

Although technology has made the process easier, it hasn't made it perfect.



Frank Pappalardo records every Soundstage show to Pro Tools.

In fact, Pappalardo recalls a time when he listened to a *Soundstage* performance at home on his surround system. "I was horrified. I heard things like transmitter compressors clamping down on things and then letting them go slowly. I heard a lot of weird things," he says.

To make it right, in Chicago at least, he investigated and found a Distressor on the signal path that was aggressively set. "That will drive you nuts because we work really hard to make it the best-sounding thing you ever heard, and when you start hearing compressors pumping because of the broadcast, it gets pretty depressing. All you can do is do what you can do to make it better."

Sitting in one of the HD-ready post rooms, Pappalardo finished up the mix on a *Soundstage* show that features Jewel. After playing a second of it, he pauses. "I've been a recording engineer for 26 years or something and I'm looking for an emotional response. If you get something really right and it's working hand-in-hand with the video, you can get to that point where the hair on your arms is standing up because it's that good. That's what I'm striving for. It's not about whether the kick drum is loud enough or if the vocal is right. I'm trying to get an emotional response. It's an *experience* rather than it just being another live show." ■

Audio Middleware, Part 2

More Contenders in This Emerging Field

In the March 2007 column, I began my report on middleware game audio engines: what this software is, how to get it and its value as an essential cog in the game production process. This second installment in a three-part series will look at two other middleware heavyweights: Audiokinetic's Wwise and Microsoft's XACT.

WWISE

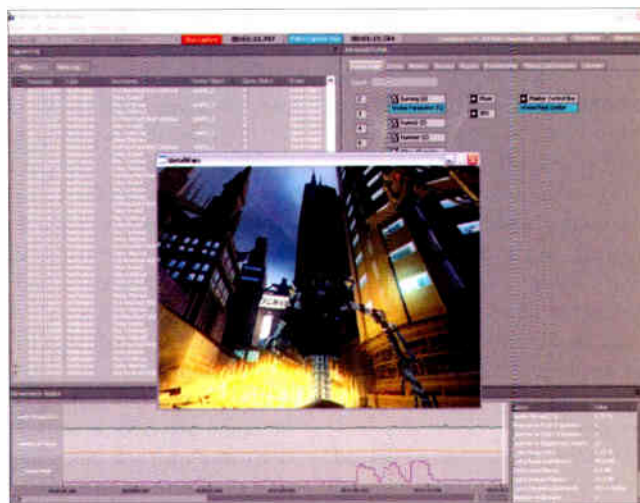
Audiokinetic (www.audiokinetic.com) offers Wwise for the PC, Xbox 360, PlayStation 3 and Wii platforms. The software supports Microsoft WAV and Broadcast WAV audio files, and its Conversion Settings dialog box can be set to support any surround configuration. In addition, sounds are automatically compressed to the selected console format within this box.

Although Creative Labs' ISACT (a competing product that was profiled in last month's column) has an open-ended and powerful GUI tool, Wwise is the most comprehensive GUI tool that combines a multitude of editing possibilities. Wwise requires that every sound be assigned an object, and that every object be assigned an "actor," which is an interesting and cool feature. An actor is an object representation within a game. It's an ingenious design, really—the missing link between pro audio and game audio concepts in tool design. You can't simply think of audio objects by themselves anymore. Imagine a "Pro Tools Movie Score" version in which every cue in a project must be linked to a visual or virtual event or object. That's advanced thinking.

Apart from that editing requirement, Wwise's GUI design and functionality are elegant and very user-friendly, just like the DAWs we all know and love. Work is divided into layouts: Designer, Profiler, SoundBank, Mixer and Schematic. Learning these layouts is easy with the provided tutorials. Plus, you get just about every bit of functionality you'd want from propagation, effects, specialization and playback behaviors, so you have everything you'd want with current-gen platforms. This is high tech.

Wwise's Soundcaster is a comprehensive method for achieving results in real time and for simulating an environment. It also has a complete setup for integrating directly into Perforce, the industry's leading version/revision control system. (Perforce allows multiple users to work on the same project using a file-checkout system.)

When loading a control bus into Wwise's Property Editor, you can access a marvelous set of auto-ducking parameters, from fade-in/out to curve and priority. This comes really close to my ideal formatting of ducking groups.



Wwise is poised to be the best audio engine for next-gen platforms, but it has a lot of ground to cover in the "proven products" arena before it can compete with such highly optimized engines as FMOD and Miles.

Like ISACT, Wwise has Real-Time Parameter Controls, although Wwise's acronym is RTPC instead of RPC. Going beyond ISACT's capabilities, Wwise lets you use graphic curves to edit these parameters based on user-defined events, states, switches or data objects.

In terms of game-event linking, Wwise uses states, switches and RTPCs to achieve the same goals as the other engines. You create an RTPC in the event that a state change is constant (such as a car engine's RPM during acceleration or deceleration). But for things such as switches, you can simply trigger a sound that is either a one-shot or a loop.

Wwise has a much more open-ended toolset than ISACT. True to form, you can specify preloading (called "prefetching") or streaming on sounds, and Wwise doesn't lend itself as quickly to adaptive soundtracks, but does provide you the tools to link sounds to game objects. However, Wwise does lack ISACT's tempo subdivision control.

Support with any program is always an issue, but Audiokinetic sales and service manager Genevieve Laberge has provided great help. (I always like to acknowledge the people on the front lines.) Also, Wwise offers documentation that is second to none, with comprehensive PDF user guides and APIs with video (!) tutorials. Certainly, this is a first for any game audio engine.

Wwise was created by experienced game audio engineers, programmers and savvy business folk. Wwise is poised to be the industry leader in game audio engines



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with its larger suite of pro GUI tools and multiplatform support. On the downside, the company doesn't actually publish its pricing, and Wwise, like any other new system, does have its kinks.

XACT (XBOX AUDIO CREATION TOOL)

The Xbox Audio Creation Tool (XACT, www.xbox.com) from Microsoft is provided free to registered Microsoft game developers as part of XDK, the Xbox Development Kit. XACT supports platforms including Xbox (Version 1), Xbox 360 (V. 2) and PC, with audio files in Microsoft WAV, AIF, AIFF, XMA and up to 5.1 surround for Xbox 360 games. Sounds must be encoded (compressed) using XMAEncode (a command line tool) or XMAEncoder.lib, which lets the developer automatically add XMA encoding to the build process.

XACT uses a fairly straightforward bank editing tool, which comprises a Project window indicating a number of objects such as Wave Banks (a Wave being equivalent to a cue or a sound that can contain one or more actual sound files), Sound Banks (Sounds being the sound files themselves: WAV, AIFF, etc.), Sound Cues (more complex Waves that can be assigned events and variables), Categories (a means of organizing sound groups into places such as ducking, fading, etc.), Variables (a way for programmers to access user-created runtime parameter controls), Compression Presets and DSP Effects.

You can create Events to add markers, set volume, set pitch and so on. Users can also string Events together in a "Track" (similar to the same way that ISACT handles such things), generating a multitrack environment that is controllable within the game.

Essentially, XACT acts like a patch-control center for your synth on steroids and adds a bit of multitrack editing. The layout is well done and user friendly. You can also instantly audition files on the Xbox 360 using the Audio Console tool, which brings up a set of level meters on your TV.

Unfortunately, XACT's middleware-agnostic design requires programmer interaction to achieve real-time control, but then again, all the engines do the same. Xact.lib is a library provided to the programmers that will enable access from any middleware to XACT's real-time parameters, which can be anything from pitch, volume, events, variables and so on. There is no sound matrix functionality in XACT, but similar functionality can be created with a little more effort using Tracks, Events and/or Variables.

Wave banks can be assigned as in-memory or streamed. And as we have learned before, you can't stream everything.

A DVD has only so much bandwidth, as does Blu-ray (but we'll get to the PS3 in the next column). In this case, you can specify zero-latency streaming, which, at a given point (specified by the programmer or an audio designer with some good tools within the game world editor), will load the first chunk or a few chunks of a large file. They will stay in memory without having to load the entire file, and when the file is needed, it can instantly begin. This avoids latency when timing is critical, such as in voice-over applications.

The game event sets up everything in XACT via Sound Cues, Transitions and Events, and the code's RTPC libraries do the rest.

The Xbox audio support team, headed by Scott Selfon, has a great history. They offered tutorials at the Game Developers Conference before anyone else, and they created the Audio Boot Camp, a place where developers receive hands-on training for using their tools. This Boot Camp has expanded to cover a number of other tools. Plus, their e-mail response time is 24 hours or less for Xbox developers.

Like Creative Labs' GameCODA and ISACT, XACT is for a single platform. If you then port to the PS3, you'll have to roll another solution. But XACT is the best audio tool for the Xbox 360 because it was written for it from the ground up, as was its predecessor for V. 1. Add to that a great support team and you have a tool that performs brilliantly, combined with some state-of-the-art control of audio through RTPC, actual manipulation of sounds in real time and Events. Want to change a music track while testing a build? You can do that in XACT, too.

XACT's Interactive Audio feature uses a bit of code combined with some of the XACT tool's functionality. When you've created one or more Sound Cues, you can set them to Interactive. At this point, it will read variables set in the sound cue and you can edit transitions based on those variables. The process may seem somewhat confusing, but that's what it takes to create a transparent layer of game behavior.

Everything needs to be pretty abstract to work in a puzzle game, an role-playing game or a sports title. After about three years, you get used to it and it becomes the most fun activity you've ever done with audio.

Next month, I'll round out this series with FMOD, the Miles Sound System and Unreal 3! Stay tuned. ■

Alexander Brandon is the audio director for Midway Home Entertainment in San Diego, Calif.

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- Rolling Stone Magazine

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World Radio History

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Robert "Obie" O'Brien, 1953-2007



Robert F. O'Brien, better known as "Obie," of Cocoa Beach, Fla., died unexpectedly February 6, 2007. O'Brien was a highly respected keyboard tech "with an encyclopedic knowledge that could fill books," says CJ Vanston, who worked with O'Brien on Joe Cocker and Tina Turner tours. Some of O'Brien's other clients included Boston, Meatloaf and many others. "His skills at solving virtually any problem, from replacing electronics to wrangling crews in Croatia, were something to behold," Vanston continues. "He had a heart of gold and an unmatched work ethic. He also had a very low tolerance to bullshit that was refreshing and real. He will be sorely missed by all of us."

"My heart goes out to the O'Brien family," says Cocker. "Obie and I worked together for 20 years. During that time, I can never remem-

ber us falling out. We shared a love of world history, geography and non-fiction literature. We compared thoughts all of the time about music, food, people and places. One of the things we both dug was going to new countries to play. Once in a while, we would get in over our heads in places like Tunisia, the Ukraine and Samara in Russia. I would always receive the 'O'Brien Report' letting me know if the equipment was working. The important thing to remember about Obie is what a great cat he was—really good at his job and always with a smile. Goodbye my friend, too soon."

NSCA Moves to Dallas

While many of you just came back from NSCA 2007 (March 15-17, 2007) in sunny Orlando, Fla., mark your calendars for next year's expo, which will be held in Dallas. According to NSCA executive director Chuck



Wilson, the need for the move was dictated by the Las Vegas Convention Center's decision to reduce meeting room space in the available hall. By moving to the Dallas Convention Center, the organization will be able to introduce several new events within a single-building technology conference co-located within its own aisles and meeting spaces.

Wilson also hinted at the prospect of revealing a major new alliance between the NSCA and an as-of-yet-unknown party at the conclusion of Expo 2007.

If you think that you'll be missing all of the excitement that Vegas offers, fear not: Expo 2009 will return to the Sin City. For additional information, visit www.nasca.org.

For a report on new products unveiled at NSCA 2007, check out next month's *Mix*.

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News



Currently running at Minneapolis' Hennepin Stages Theatre, Funny Business' cast has switched over to Sennheiser's HSP4 wireless head mics, which were spec'd by op manager/technical director Eric Shosted.

This year's Grammy Awards show featured audio gear from ATK Audioteck, manned by Ron Reeves and Mikael Stewart at FOH. Many of the performers chose Sennheiser microphones, and could be heard through a JBL VerTec system...Aviom's winner of the "Take It Personal...and Take It Home" contest, held during Winter NAMM, is Andy Jones, who has been a sound engineer for several churches during the past nine years. He has donated his Aviom system to Chorus Church, a three-year-old congregation based in French Valley, Calif....Dolby's Lake Processor can be found in numerous UK-based companies, including Adlib Audio (Scissor Sisters, Nine Inch Nails, Brand New), Britannia Row Productions (Kings of Leon, Amy Winehouse), Wigwam Acoustics (George Michaels) and Production House (Van Morrison)...Technomad's loudspeakers and turnkey P.A. systems are now available for purchase through the recently launched Web Order System, www.technomad.com...Monitor engineer Espen Andersen recently hauled out a Soundcraft Vi6 board for Norway-based Vamp, who was touring with the Norwegian Broadcasting Symphony Orchestra...BAi LLC recently designed an upgraded audio system at the WK Kellogg Auditorium (Battle Creek, MI), which is celebrating its 100th anniversary. The system features JBL VRX line arrays installed within a new stage eyebrow.



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DM2000





On the Road

A slew of benefit concerts have been popping up across the country, featuring top-name artists performing for one person: multitalented drummer/percussionist Wally Ingram. Ingram—who has toured with Sheryl Crow, Tracy Chapman, Jackson Browne, Bruce Hornsby, Crowded House and many, many others—has throat and neck cancer; all proceeds from the shows go to Ingram and his family—a wife and baby girl.

In 2004, Ingram joined forces with Dave Schools (Widespread Panic), singer/songwriter/guitarist Jerry Joseph, guitarist Eric McFadden (Parliament Funkadelic) and keyboardist Danny Dzuik to form Stockholm Syndrome. Recently, Stockholm Syndrome played to a jubilant crowd at San Francisco's The Independent, which saw the first time Ingram—who recently finished chemotherapy—has played in almost a year. For this two-night stand, Govt. Mule's Danny Louis manned the keyboards and Cake's Paulo Baldi waited in the wings in case Ingram needed a break.

Manning these shows were FOH engineers Chris Rabold (of Widespread Panic) and John Hardee; Chris Luden performed monitor duties. According to Rabold, "It's almost all club gear, which is actually really good at the Independent; I will carry only a few mics [Shure, Sennheiser and Electro-Voice models] and a rack of inserts." Choice pieces of gear on-hand include Empirical Labs Distressors, and Drawmer 1968 and DL241s. For the S.F. date, the venue-provided FOH board was a Midas Legend; another Legend was at monitor world. The performers were heard through The Independent's Electro-Voice X-Array; amps were E-V's P Series.

Select songs from these shows and live tracks from the band's 2004 tours are available at livedownloads.com; again, all proceeds benefit Ingram and his family.

Now Playing

Meat Loaf

Sound Company: Scorpio Sound Systems (Bridgewater, Mass.)

FOH Engineer/Board: George Wehrin/
Digidesign Profile

Monitor Engineer/Board: Tim Coakley/
Digidesign D-Show

P.A./Amps: JBL VerTec/Lab.gruppen, Dolby
Lake processing

Monitors: Sennheiser in-ears with Future
Sonics molds, d&b C4/C7 (sidefill)

Microphones: Shure, AKG, Sennheiser,
ATM, Beyer

Additional Crew: system techs Mark
McArthur and Nate Moore



Love Arcade

FOH Engineer/Board: Ben Wygonik/
Midas Heritage 3000

P.A./Amps: house-provided

P.A./Monitors: house-provided/EAW

Outboard Gear: Korg Micro, Roland, Digi 002,
MacBook, BSS 402/504, TC Electronic D2/M1

Microphones: AKG D112, Audio-Technica
4033, Shure SM57, RØDE NTK, Blue Dragon-
fly, Oktavia 0112, Neumann TLM 103



Dolby, BT Bring Surround to Stage

Bringing the sounds of his latest CD, *This Binary Universe*, which was recorded in 5.1, BT recently co-headlined a short tour with Thomas Dolby—all heard in surround via EAW NT Series loudspeakers. The stage was also supplied with 5.1 surround mixes, with the monitoring system again relying on NT Series loudspeakers positioned as wedges.

Veteran sound engineer Scott "Goody" Goodwine consulted on the design of both surround systems, as well as handling house mix duties (manning a Mackie TT24 digital board). The house sound systems at each venue were used for left and right



Scott "Goody" Goodwine at the Mackie TT24

main output, as well as bass, with the EAW loudspeakers providing the center channel (usually from the front of the stage), as well as up to two rows of L/R surround channels; these were accompanied by NTS22 subs for low end.

All stage inputs were routed to the TT24 on-stage that supplied two discrete surround monitor mixes, as well as an additional L/R monitor mix. This TT24 also sent a L/R submix to its partner console at FOH, which Goody then tailored into a 5.1 mix.



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The past year has seen numerous emo/punk/rock bands enter the limelight. The latest, Snow Patrol, is garnering critical acclaim for the album *Eyes Open*. Vocalist/chief songwriter Gary Lightbody lays down a smooth and melodic base from which his bandmates—drummer Jonny Quinn; guitarist/backing singer Nathan Connolly; bassist/backing vocalist Paul Wilson; and Tom Simpson (samples/keys)—ramp up the energy. And that energy abounded when the group hit the stage following openers OK Go and Silversun Pickups at San Francisco's Bill Graham Civic Auditorium in early March; go to mixonline.com to watch a video interview.



Vocalist Gary Lightbody is miked with a Shure Beta 58A and requires little processing: a Focusrite Liquid Channel and a Producer Pack.

Snow Patrol

By Sarah Benzuly Photos By Steve Jennings



◀ FRONT-OF-HOUSE ENGINEER SNAKE NEWTON

The last time Mix caught up with Snake Newton, he was handling FOH for The Sugababes; after that tour's last stop, Newton jumped over to Snow Patrol in October '06. Newton is manning a Yamaha PM1DV2, relying mostly on onboard effects while still carrying some outboard: two TC Electronic DBMax broadcast maximizers and a Focusrite Liquid Channel on Lightbody's vocals; the rest is all done through the desk.

"To be honest, I use very little reverb in this situation because the room does a lot of that for you," Newton explains. "I gradually phased out the outboard and would just get things that the desk can't do for me." Newton has been requesting this particular Yamaha board since it came out in 2001. As for his mixing technique, Newton notes the band is looking for a cross between a rock 'n' roll mix and that of a more melodic album—it's all about finding a happy medium. "The music balance tends to be taken care of through the automation onboard and then we refine it as the show goes on," he says. "A major part of my gig is balancing the vocals with the rest of the band. That's where my head's at: Keep the vocals on top while maintaining the power of the band."



The Eighth Day Sound P.A. combines V-DOSC mains and d&b B2 subs. The main array is 16-deep, and the subs are three-deep; the tour is not carrying sidefills.

MONITOR ENGINEER LEON DALTON ►

Monitor engineer Leon Dalton first met Snake Newton when the duo were working on a Duran Duran tour. For the Snow Patrol gigs, Dalton is also working a Yamaha board—a PM5D because “you can get them everywhere,” Dalton says with a laugh. Similar to Newton, Dalton is running most effects onboard, though he is carrying a Focusrite Producer Pack on Lightbody’s vocal because of its ability to quickly de-ess, EQ and compress. As the tour is flip-flopping each night with a new drummer, Dalton is relying heavily on the ability to save scenes for each drummer on the desk.

The stage is clean, save for a few guitar cabs onstage, “just to add ambient noise,” Dalton says. Other than that, all bandmembers are on in-ears. Dalton has about six or seven stereo mixes going on for the band.

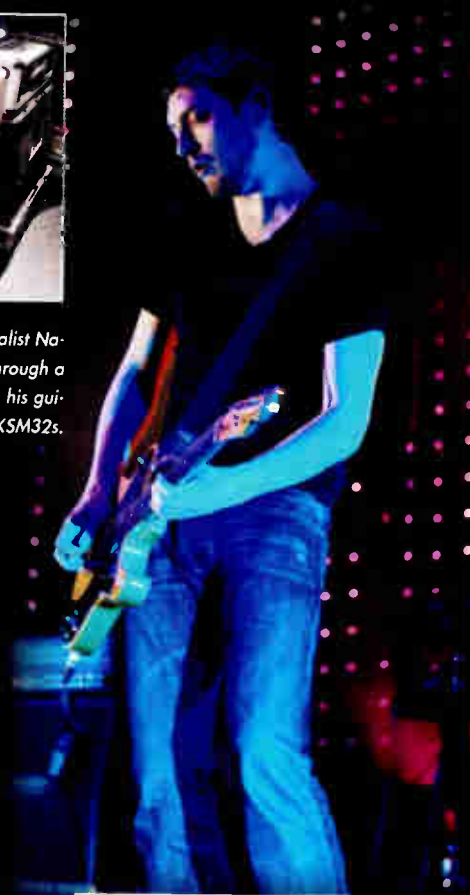


DCSHOECOUSA

Tom Simpson provides the show’s sequencing effects, which keeps monitor engineer Leon Dalton “moving the faders,” though Dalton says he plans to automate this later on in the tour.



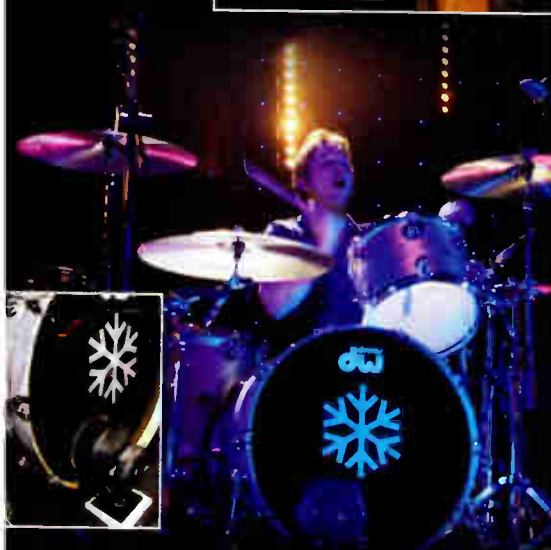
Guitarist/backing vocalist Nathan Connolly sings through a Shure Beta 58A, while his guitar is miked with KSM32s.



Just a few hours before show time, from left: Eighth Day Sound crew chief Michael Mordente (who mans the tour’s SIA Smaart system), FOH engineer Snake Newton and monitor engineer Leon Dalton



For the S.F. date, drummer Jonny Quinn’s kit is miked with Shure Beta 56 on snare with a 98 underneath; 98s on toms; KSM32s overhead; and 137s for ride/hi-hat. The very low content of the kick drum is captured by a small speaker, turned backward to catch the puff of air from the breather hole.



Bassist Paul Wilson sings through a Shure Beta 57A. His amp is turned backward and miked with a KSM32.



JOHN MAYER

Pop-Star-Turned-Bluesman Packs 'Em in at the Garden

By Gaby Alter

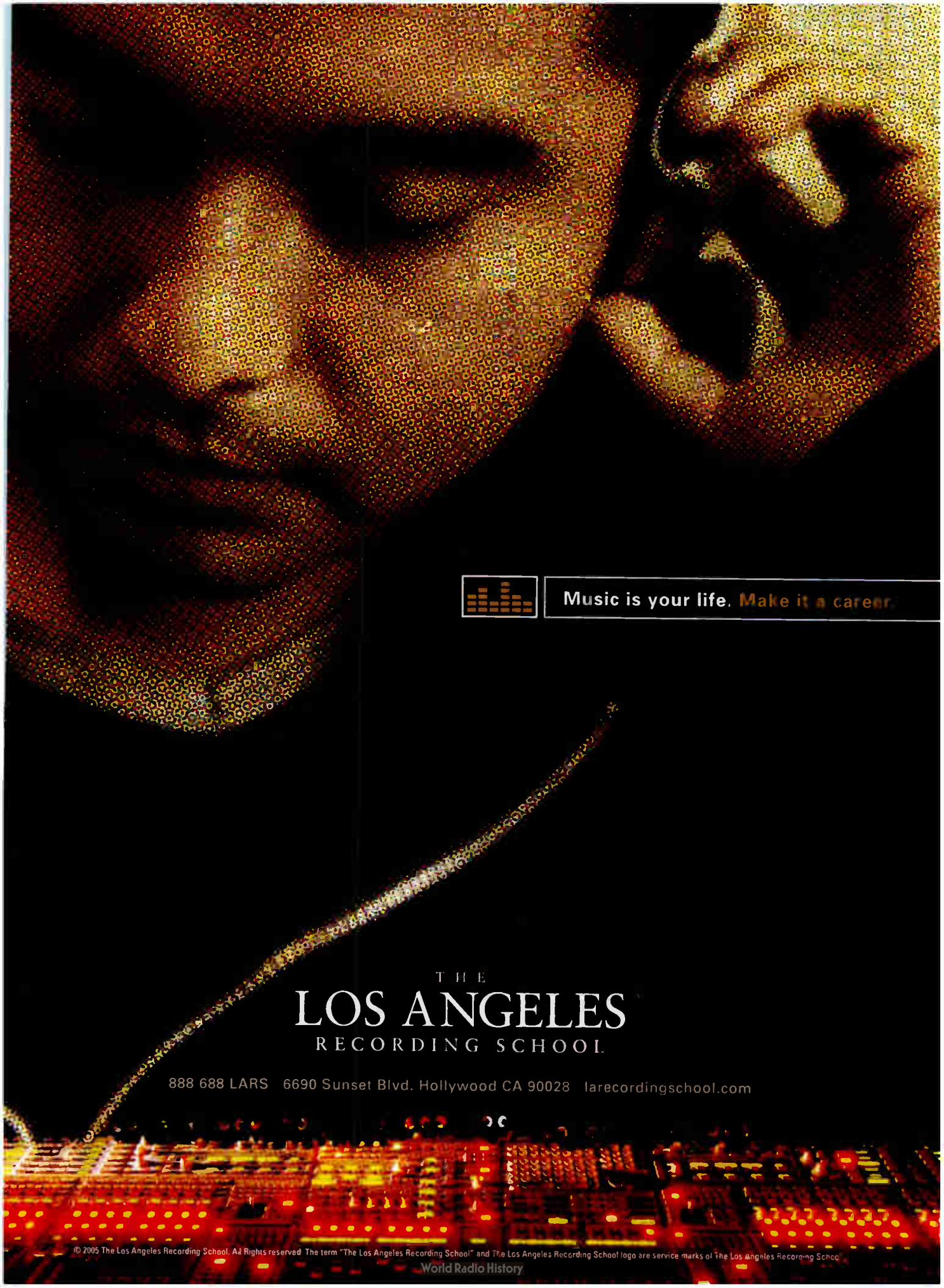
Few artists are both accomplished singer/songwriters and instrumental virtuosos, but John Mayer appears comfortable in both roles. Mayer's 2001 breakaway album, *Room for Squares*, showcased his thoughtful lyrics over a rocked-up version of his acoustic solo act. Now, the artist is showing his deep love of the blues and skill with an electric guitar—forming the John Mayer Trio with bassist David LaBruyere and drummer Stephen Chopek, with a bit of collaborative help from blues giants B.B. King, Buddy Guy and Eric Clapton. At the Madison Square Garden (New York City) stop on his current tour, Mayer represented his latest effort, the double Grammy-winning album *Continuum*, with an 8-piece band (drummer JJ Johnson, bassist David LaBruyere, keyboardist Tim Bradshaw, guitarists Robbie McIntosh and David Ryan Harris, saxophonist Bob Reynolds, and Brad Mason, trumpet/flugel horn) that ably shifts between soul-influenced pop, blues rock and the acoustic-based songs of Mayer's earlier days.

Chad Franscoviak, the tour's front-of-house engineer, has been with Mayer since the beginning. "I started out as a studio engineer in Atlanta," he says. "I met John through David LaBruyere at a club called Eddie's Attic. John had just moved to Atlanta and started playing around town. The three of us eventually ended up in the studio together. One night, John was in the booth and in between takes, he mentioned that at some point, once his career took off, he would need someone to come out and mix

PHOTO: PAULIE SAWANO



FOH engineer Chad Franscoviak (left) with systems engineer Scott Frey



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his live shows and wondered if I would be interested. I told him I'd love to, although I had no idea how I'd pull it off since I'd never mixed a live show before. It wasn't long after that conversation that he recorded *Room for Squares*, and before I knew it, I was on the road with him. Luckily, he had a lot of faith in me, which allowed for my tremendous learning curve.

"The trickiest part about a mix is always the layering," Franscoviak continues, sitting comfortably at the tour's Showco-provided Digidesign VENUE board. "Each instrument needs its own sonic space to



From left: Showco's ML Prociše III, FOH engineer Chad Franscoviak, monitor tech Andy Hill, systems engineer Scott Frey and monitor engineer Mike Adams; not pictured: audio tech Rudy Paniagua.

occupy, where it can exist without being stepped on by any other instrument. The more instruments being played simultaneously, the trickier it can get. For me, finding the space for everything always begins with the source, then EQ, then compression and effects. I like to use reverbs to place sounds behind other sounds to free up space on the left/right plane."

Franscoviak says that VENUE's sound and intuitive interface are attractive traits for a tour such as this. "The plug-ins are great, as well," he adds. "But above all, the virtual soundcheck feature is what I appreciate the most. When laying out my mix, I use a lot of subgroups. I make separate subgroups for my drums, bass, electric guitars, horns, et cetera. I use an API 2500 [stereo bus compressor] over my drum subgroup, Empirical Labs Distressors on my bass guitar and an Alan Smart C2 [compressor] on John's acoustic guitars." Onboard effects include TL Space reverbs for drums, keyboards, acoustic guitars and background vocals; and Princeton Digital 2016 reverbs for the horn section.

Mayer plays Fender Strats and Martin JM Acoustic guitars. He sends the electrics

through three "John Mayer Signature Series Two Rock" amp heads and a Dumble Overdrive Special amp head driving three Two Rock 2x12 guitar cabinets and a Leslie cabinet. "The combination of these sources account for his electric guitar tone," Franscoviak explains. "I assign all of these inputs to a stereo subgroup and strap a Universal Audio 2-1176 over it."

But what about Mayer's signature vocal? Franscoviak answers that Mayer's vocal chain is very simple: Shure Beta 58A into the desk with a Universal Audio 1176 inserted. Also in his bag of tricks for vocals is onboard de-essing and Eventide effects. "I tend to choose my live mics based on two criteria: whether it sounds natural and how tight its polar pattern and effective its rejection," Franscoviak adds. "For those reasons, I've ended up with a lot of Beyer M88s onstage. I use them for my bass drum, tom-toms, guitar amps and horns. I use SM57s on the snare drum and additional guitar amps. I use an AKG 451 with a -20dB pad on hi-hats and Neumann KM184s for overheads." Other mics of note include an Electro-Voice RE20 (with an Avalon U5 DI) on bass, and Royer 121s (top) and Sennheiser 421 (bottom) on the Hammond B3 Leslie cab. Mayer's acoustic guitars also run through Avalon U5 DIs.

ONE MAN, TWO BOARDS

Monitor engineer Mike Adams mixes on two Midas Heritage consoles: a 3000 and a 4000. All monitors are in-ears, with eight stereo mixes going to Sennheiser G2 units with Clair Bros. combiners and helical antennae, and four stereo mixes going to hard-wired Shure PSM bodypacks for stationary positions. For outboard effects, he uses 16 channels of the new Clair custom Dolby Lake Processors, two Lexicon PCM 90s, an Eventide H3000, four Avalon 737 compressors (for Mayer's vocal and acoustic guitars), four dbx 160x compressors on the band acoustics and bass channels, eight Aphex gates on the drums and a Midas XL88 on a submix for the internal talkback system.

Adams is particularly excited about the new Sensaphonics ProPhonic 2X-S ear

molds they have begun to implement on the tour. "I expect to see a lot of musicians going this route," he says. "You can actually 'hear' what's really going on due to the active transducers implanted in the ears; there's a data or recording output on the preamp pack itself, which is incredible for the testing we're doing and for recording possibilities. You can even control the level of ambience entering your head—from very soft to wide-open—and it's easy to use and understand."

"All in all, we have had great success with the tools that we have out here," Adams continues. "It's getting more volatile as each day passes, however, with multi-RF channels in the current consumer frequency range, so my advice is get with the experts and do your own research on what's happening to *our* airwaves, get the best tools available and keep your cool."

THE SHOWCO RIG

The tour uses a Showco Prism system, with four rows of eight columns per side for arena shows and 16 Prism sub-cabinets on the floor. Franscoviak has used the P.A. for years and works closely with system engineer Scott Frey. "Although there are a few line arrays out there that I really like the sound of, I find that whenever I mix on them, I miss the excitement of the Prism P.A.," the FOH engineer says. "In the end, for my taste, a rock show is successful only when it's exciting. It's exciting to me when I can physically feel what the band is doing onstage, as well as hear it. While line arrays allow me to hear the music, they don't allow me to feel the music in the same way."

The Madison Square Garden show closed out this leg of the *Continuum* tour, which continues this month with dates in Australia and Canada, and returns to the U.S. this summer. Franscoviak considers himself fortunate to be doing sound for Mayer. "He's such an amazing musician, as are all the players in his band, so it makes for a great night of music every night." And despite being a world-class engineer with one of today's most successful artists, he sometimes feels a little incredulous at the unexpected turn his career has taken. "It took awhile to get my head around live mixing," he says. "In fact, I still feel like at any minute, someone is going to tap me on the shoulder and tell me I'm busted: 'Nice try, buddy. You had us fooled for a minute, but now it's time to go get a real job!'" ■

Gaby Alter is a New York City-based writer.

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Event Tech

Complete System Packaging Made Easy

A recurring theme in this column concerns local SR companies providing clients with a total rental package: audio, lighting, staging, personnel, etc. But Event Tech (Hanover, Md.; www.eventtech.com) takes that business model one step further: equipment sales and its Custom Shop. "It was tough to get decent service from the big music stores, which is what we had to deal with," says founder Eric Maynard. "It was more of a necessity because we couldn't get the gear we wanted, when we wanted it. Also, we couldn't get answers when we had questions [about certain equipment] because we often had to challenge the performance and flexibility of some of the gear, so being able to communicate with the manufacturers as a dealer is very helpful."

Event Tech's core business is providing full production to its clients—most notably the ACLU, The March for Peace on the National Mall and, most recently, the Maryland Governor's inauguration. However, rather than renting a console for "x" amount of dollars, wouldn't selling the gear to that client cut into Event Tech's rental revenue? "It's a delicate balance," Maynard explains. "For example, one of our clients in Washington, D.C., is a large museum that has an A/V department. For a long time, we did everything for them, but they wanted to do more in-house. We don't want them to go elsewhere and we're all about customer service, even if it's not in our best interest. We were candid about what we thought they could handle and what was best for them, and they respected us for it."

Event Tech also sells audio gear to friendly audio competitors. "By recommending and selling gear we know and use, we are in a better position to do bidirectional cross-rentals. It makes a pretty friendly environment," Maynard says. "In our market, there's so much work, it works well for us having all of these areas that we can have some influence in. I'm the kind of guy who wants to be everyone's friend. To do that, you need to be consistent and maintain your integrity." Maynard recalls his work as a tech director at The University of Maryland's production/promotion group 25 years ago (about the same time he began Event Tech), which created an event called Art Attack that he's still doing today, but now as a vendor. "I'm doing all of the lighting, the sound, the staging, the power distro, the crush barricade and bike-rack barricade on the site. When I was a student at the University of Maryland [where he studied electrical engineering], I was hiring a sound company from Washington, D.C., to work for us to do hands, and I'm still friends with that company and we're competitors; we still cross-rent our gear. We've had to live together for a long time and I don't think it's worth



Prepping for an upcoming event, from left: Eric Maynard with company techs Jon Lee, Brian Linnemann, Dan Hoffman and Josh Sorg.

it to be brutal, cut-throat competitors because, eventually, it's going to come back to haunt you. I also didn't want to get uninvited to their annual Christmas party!"

But Event Tech has a leg-up on its competitors in packaging, which includes custom console cases and amp racks. "We've spent a great deal of time in making [the amp racks] universally flexible and relatively inexpensive to produce," Maynard says. As for the console cases, Event Tech found a way to include a spot for power supplies, so those critical, yet often forgotten, components are never left behind. From these custom cases to a full-on JBL line array (or any number of high-quality audio products in the company's warehouse), every client knows that when booking Event Tech, they'll get everything they need. "We're kind of the 'Home Depot' of event production," Maynard says with a laugh. "For example, we do the rallies on The Mall, and if you go to the job site and look 360 degrees, we've provided everything out there. And the clients see and appreciate our efficiency and the neatness that everything integrates together. And in our market, that's a nifty package because there aren't a lot of competitors doing that. When you're trying to be all things to all people, it's hard to be great at any one of them: Jack of all trades, master of none. We're getting to the point where we're becoming a master of quite a few of them."

So from its ability to integrate all facets of event production to solid personnel—19 full-timers and a huge freelance list (as opposed to labor companies)—what's next for Event Tech? "We'd love to find a market with an inverse peak schedule," Maynard answers. "Long term, we're interested in expanding our corporate client base and hopefully international corporate clients and an international location, but that's a little ways down the road. There's so much more right here in our market that it's worth it to stick around and do what we're doing." ■

Sarah Benzuly is Mix's managing editor.

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Mysteries of Vintage Mic Repair

Dead Caps, Dead Capsules and Schmitt Triggers—Oh My!

Back in February, I set out to compare two versions of the AKG C 414 microphone series, and that column evolved into a “history of” piece. I felt the historic trail was necessary to add depth and background to the comparison. I am still on that trail.

With this, I gained some insight into the AKG C 12 and its made-for-Telefunken Ela M 250/251, the heart of which is AKG's CK 12 capsule. The Euro versions have an AC-701/k miniature triode (with soldered leads) while the “E” (Export) version, such as the C 12, uses half of a 6072 (a standard 9-pin tube). The circuitry of the C 12 is nearly identical to that of the Ela Ms.

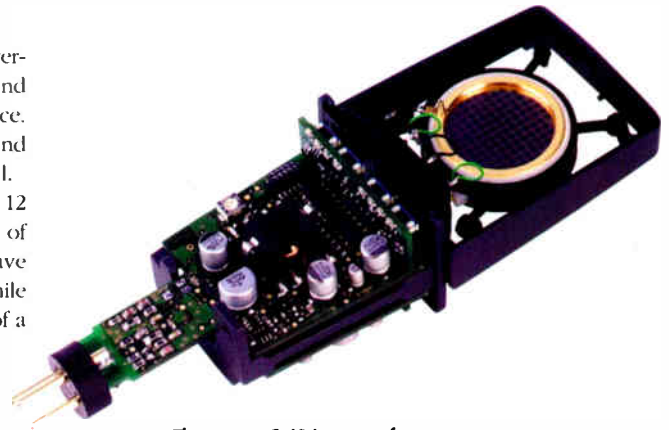
THE “NU” 47

The C 12A “detour” also took me into Nuvistor territory. Introduced by RCA in 1959 for its New Vista color TV tuners, this transistor-sized vacuum tube was quickly embraced wherever a high-performance miniature tube was required. And though it may not have been the best retrofit for the VF-14 (used in the Neumann U47/U48), it was during the research process that I found Neumann's conversion documentation. This solved a mystery that I had described in the May '06 issue—a U47 power supply with un-German amounts of extra juice.

After that column was published, I realized that the power supply in question had not been *mis-repaired*, but had been modified to drive a Nuvistor U47. The fact that it was driving a stock U47 meant that somewhere along the way, it had become separated from its mod-mate. This “discovery” finally gave closure to what was fortunately not a catastrophic failure. If you own a U47 with a VF-14, then make sure your power supply is delivering 105 volts (with the mic connected and warmed up). Full documentation of the U47 and its power supply is available at www.tangible-technology.com.

AKG

Most tube-based audio gear is fairly easy to repair. Vintage valve mics, in particular, are so simple that a



The current C-414 uses surface-mount components, but adds additional polar patterns and filter settings.

vacuum tube data manual—plus pencil and paper—will do in a pinch. There is typically only one gain stage, and the external power supply generates all of the required voltages. A solid-state mic must derive all needed “juices” from phantom power, a finite resource that must be efficiently managed.

Early solid-state circuit designs were nearly as simple. (See Fig. 1, the AKG C 414, circa 1970. For Figs. 1 and 2, the pad [C 414] and highpass filter [P48] have been removed for clarity. Between the capsule and the output transformer (aka, the head/output amplifier) are one FET and one transistor. In addition, the DC-to-DC converter comprises a single transistor oscillator, a transformer and three diodes configured as a voltage “trippler.” Now, a surface-mount Hex “Schmitt Trigger” IC is used to generate the capsule-polarizing voltages (the RØDE NT-1A), and for many modern mics, the count of active components—transistors and FETs—is well beyond a dozen.

The most versatile mics tolerate the widest range of available phantom power (9V to 52V), the C 414 EB (circa 1977) being one example, with the output amp consuming most of the available current. However, the C 414 EB-P48 (circa 1982) has no DC-to-DC converter, so it must have 48V phantom power (via R7 in Fig. 2) to deliver a usable polarizing voltage.

TROUBLE AT THE CONDENSER CORRAL

Having amassed several versions of the 414 (some for repair, others for parts), my quest for schematics began. The introduction of the C 412 in 1970 inspired evolutionary changes that were intended to solve known headroom issues (a pad), add features (low filter, more polar patterns) and take advantage

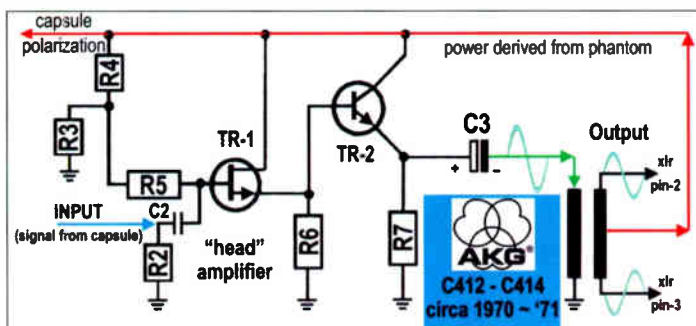


Figure 1: The C 414 head/output amplifier

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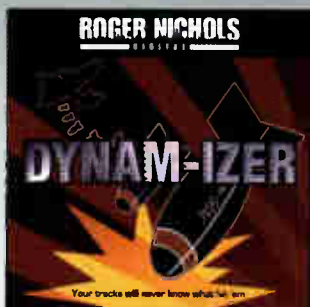
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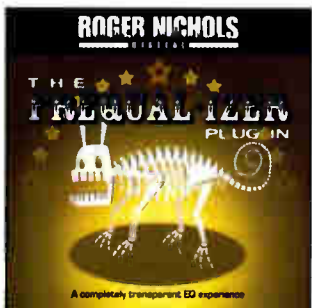
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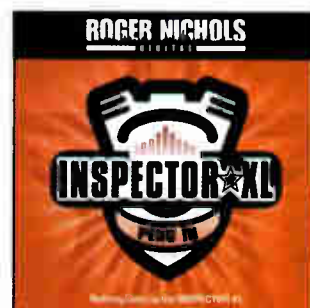
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of new technology. Remember that many of these features previously resided at the power supply and became more vital as the mic moved closer to the source and rock 'n' roll SPLs were on the rise.

The C 414 (circa 1971) looks like a C 12A. Of the pair in for restoration, one had poor low-frequency response. Capacitors degrade over time—interstage caps “lose” capacitance, the LF output suffers—so the C 414 problem (C3 in Fig. 1) was typical, obvious and quickly resolved.

A C 414 EB-P48 initially had no output because the output transformer (U54) was damaged. Once the output transformer was replaced, it was again possible to “hear the grille” when it was scratched. The P48 version has two PCBs on each side of the mic body: one for the head amp and polar patterns, the other for the output amp and highpass filter. Conveniently, the interconnecting wires between the two allow you to interrupt the head amp signal so a test signal can be injected. This initially gave the impression that the output amp was okay, leading me to suspect (and troubleshoot) the head amp (a dead end).

Electronic components can be drawn differently; check out the FET (TR-1 in Fig. 1 and T3 in Fig. 2). The P48 version had part values on the schematic, so scouring the Web for data sheets and available stock revealed that all but T3 was available. The C 414 “documentation” comprised only a schematic—it had become separated from its parts list. Fortunately, no critical parts were required.

In the product literature, the P48 consumes a mere 1 mA of current, but this broken P48 had a 20V drop across R7—almost 10 times the specified current draw! I pulled the output amp (T4), put the 'scope on the head amp PCB and—voilà—signal! All of the noises in my shop were now clear. I was at once overjoyed with progress and determined to bring this journey to a happy conclusion.

Comparing the C 414 with the P48, the output-transistor TR-2 is an emitter follower, meaning it does not make the signal “bigger” (as would be the case with voltage gain) but does make it more powerful (current gain). The load (emitter) resistor is R7, C3 blocks the DC voltage but passes the audio signal on to the output transformer.

By contrast, the P48 output transistor is T4, and its load/source resistor is T3, a FET configured as a current source (a dynamic impedance that optimizes the load on T4). After replacing T4 and T3, I *finally* checked the output cap (C11) and it was shorted. (Boy,

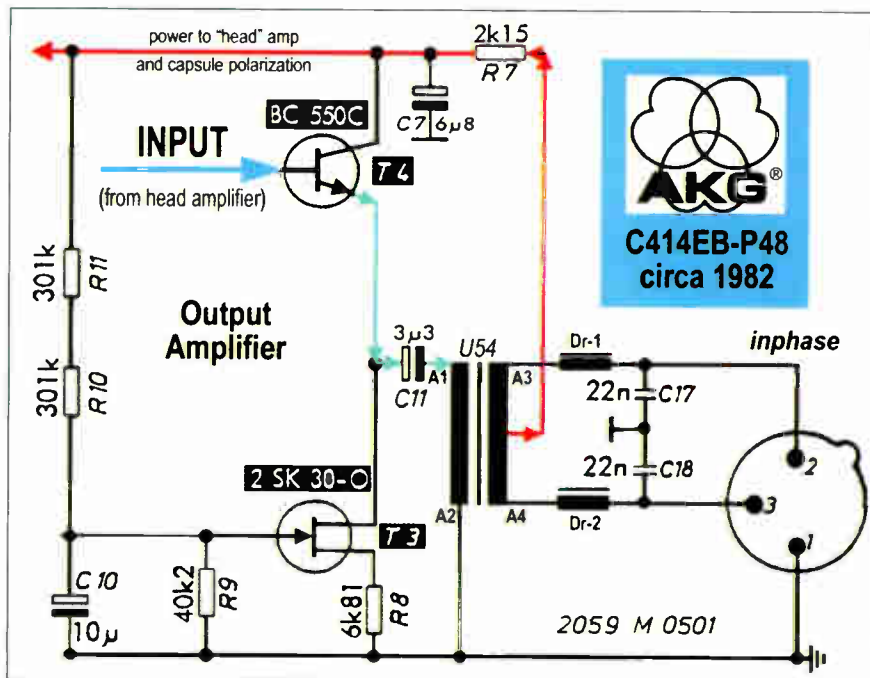


Figure 2: The C 414 EB-P48 output amplifier

did I feel stupid!) This caused the current to flow from T4's emitter straight through the primary of U54, the output transformer—hence the additional current consumption.

With the cap replaced, everything returned to normal. Then I cleaned all the flux off the

PCB because over time, flux absorbs moisture and begins to conduct—something that high-impedance circuits in mics (and 1176 limiters) do not like. After listening for noise and sorting through a few components, the amplifiers were suitably quiet.

END CAP

Perhaps the saddest of my AKG experiences is that none of these mics had their original "brass" CK-12 capsules. All had the "nylon" version, part number 2072-Z-0005 (or 0009), including one sold on eBay claiming an original CK-12 capsule but arriving with a nylon capsule with the diaphragm hanging loose. To my surprise, after cleaning the debris from the backplate and the backside of the diaphragm, I popped all the pieces together and got sound, including the figure-8 null.

Despite my bone-headedness, this journey taught me a lot. Had I found the bad cap straight away, I might not have scrutinized any of the schematics as closely. Now I have greater appreciation for how these mics work and for the technical evolution from version to version. I can't tell you which one sounds better, but the older styles definitely have a softer overload characteristic. ■

Eddie would like to thank Pat Burns at AKG and all of the Web's techno-history buffs, including Ashley C. Styles at www.saturn-sound.com, S.O. Coutant at www.coutant.com and Nick Eipers at www.nickeipers.com.

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The Zaxcom (www.zaxcom.com) ZFR100 (\$995) can record up to eight track-hours of audio on a removable 2GB Flash memory card. The unit can be used as a backup or transcription recorder, and produces timecode-stamped BWF (Broadcast Wave Format) or ZTF (Zaxcom Transcription Format) files. It comes with a full-featured timecode reader/generator, weighs 4 ounces and can be powered for up to 20 hours with two AA batteries; an optional 8 to 16-volt DC power input is also available. Other extras include the TCR100 (\$100) internal timecode receiver and the STA100 (\$295) stereo adaptor.

BENCHMARK PRE420 PREAMP

Immunity from RF is a major feature of Benchmark's (www.benchmarkmedia.com) new 4-channel mic pre, which features XLR outs, a stereo mix bus and isolated stereo/mono solo bus. The PRE420 (\$3,747) also boasts a THD+N spec of 0.00024% and the company's proprietary MirrorPan circuitry, which eliminates nonlinear distortion caused by potentiometer wiper current. Additional features include independently

switchable phantom power, 40Hz switchable highpass filter, -20dB pad, four direct XLR outputs, two control room XLR outputs and two stereo XLR outputs. The unit offers Benchmark's signature high-current IHPA2 headphone amp with switchable "mute control room" output option upon headphone insertion. An adjustable peak-warning indicator and variable intensity meter on each channel and mix bus facilitate level setting. Ribbon users will love that the unit offers up to 70 dB of gain.

AUDIENT CENTRO CONTROLLER

This sleek-looking control room monitor controller from Audient (dist. by Vintage King, www.VintageKing.com) lets you listen to any of six digital and six analog



stereo sources while controlling three sets of speakers, a subwoofer and headphones. The system, which features a remote that keeps the desktop clear of cable clutter, has a built-in talkback; mute, channel mute, mono, polarity and dim controls; and the ability to route any digital source to the dedicated digital output, minimizing patching for the DAW user. Centro (\$2,200) also offers zero-latency monitoring for use with two stereo cue outs fed from dedicated record and foldback sources, or from the control room selection.

LYNX LT-FW FIREWIRE INTERFACE

A handy addition to Lynx's (www.lynxstudio.com) Aurora 8 and Aurora 16 A/D/DA converters, the LSlot FireWire



interface allows the units to be interfaced and controlled via FireWire (Mac and PC). Offering up to 32 channels of I/O at 96 kHz or 16 channels at 192 kHz, the LT-FW (\$595) supports ASIO and WDM for Windows and Core Audio for Mac OS X. When used with a host computer, parameters such as sample rate selection, sync-source selection, channel routing, latency and buffer size are enabled and controlled via the Lynx Aurora Remote-Control software. Multiple channel support

of 5.1 and 7.1 surround playback formats is also possible, and daisy-chaining of multiple



units is in the works for a firmware update.

EUPHONIX FUSION HD SYSTEM

Building on the framework of the Euphonix (www.euphonix.com) System 5 Series, the new Fusion HD mixing system features DSP processing channels and DAW control. The included EuCon Hybrid function allows the console surface to control its own DSP channels, as well as channels from multiple external DAWs at the same time. The console works with EuCon-compatible



workstations such as Nuendo, Logic Pro and Pyramix, or systems that adhere to the HUI or Mackie Control Protocol (such as Pro Tools, Final Cut Pro and Digital Performer). The Fusion HD offers extensive surround mixing capability, a router, machine control and monitor control. The base unit, starting at \$150,000, comes with 80 channels and a 512x512 router, and can be maxed out to 200 channels with a 1,344x1,344 router. Options include Euphonix converters and preamps.

RND PORTICO 5014 FIELD EDITOR

The Neve (www.rupertnevedesigns.com) Portico 5014 stereo field editor (\$1,795) goes beyond traditional dedicated stereo



analog processors with its Width circuit, which splits the stereo signal into a sum-and-difference network, allowing the width, depth, insert and EQ controls to be used, while the Depth control adjusts the spatial positioning of elements in the soundfield. When the width is set to "wide," the level of difference material is boosted, altering the signal affected by the depth, insert and EQ. When rotated to "mono," the stereo field is reduced, bringing up coherent mono info in the mix. Other features include a difference channel insert and a difference channel semi-parametric EQ with frequencies ranging from 120 Hz to 2.4 kHz, and two selectable Qs that affect only material panned out of center.

WAVES L316 MULTIMAXIMIZER

This new 16-band peak-limiter plug-in is powered by Waves' (www.waves.com) patented PLMixer Peak-Limiting Mixer technology and offers the Paragrophic interface with the familiar Threshold, Output Ceiling and Release controls. In addition, it offers frequency, Q and filter-type controls; a built-in linear-phase



equalizer; linear-phase filtering; Automatic Release Control (ARC) across the band-split spectrum and Increased Digital Resolution (IDR) with double-precision bit re-quantization; and ninth-order noise shaping. The plug-in is available only as part of Waves' new Mercury bundle. Prices: \$12,500, TDM; and \$7,500, native.

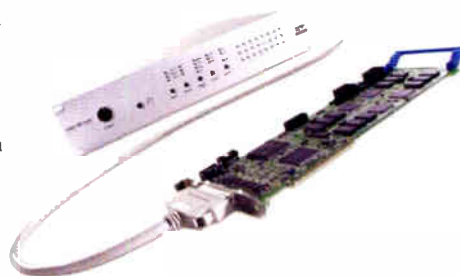
plug-in pack, featuring a 4-band parametric EQ, filter, dynamics, chorus/flange, M/S decoder and dither. It can also work with special-release versions of plug-ins from Acuma Labs, Aphex, Arxoretum, CEDAR Audio, Dolby Laboratories, Drawmer, Solid State Logic, Sonic Timeworks, Algorithmix, Synchro Arts, Spinaudio, TC Electronic and Wave Mechanics.

ROLAND MV-8800

Made for the desktop producer/engineer, the new MV-8800 from Roland (www.rolandus.com, \$2,699) offers synthesis, bass modeling, sampling, recording, mixing and mastering. It can be operated with/without a VGA monitor and mouse, and offers a 24-channel stereo mixer, effects processor, parametric EQ, enhancer, expander, multiband compressor, mastering limiter and soft-clip algorithm with output dithering. A pre-installed sound library loads up to 128 instruments or drum kits at once, and features a special collection of 16 vintage

SSL MIXPANDER PCI INTERFACE

Designed to be used with the recently launched XLogic Alpha-Link audio converter, SSL's (www.solid-state-logic.com) Mixpander



(\$1,595) is a 64-channel PCI audio interface for PCs that ships with a stand-alone software-based mixer. Each Mixpander PCI card provides 64 channels of I/O with up to four cards possible in a single computer. Each Alpha-Link rack I/O unit offers 24 channels of analog A/D input and D/A output, and up to 64 channels of digital I/O. Up to two Alpha Link I/Os can be connected to a single Mixpander. The onboard PCI card offers DSP for the included Audio Toolbox





drum machines; also included are acoustic and electric pianos, strings, guitars, horns, synth basses and other instruments. The unit also boasts pitch and time control, an array of Roland SRV reverbs, Boss pedals and the RE-201 Space Echo.

REALTRAPS PORTABLE VOCAL BOOTH

This "vocal booth in a box" from RealTraps (www.realtraps.com, \$299.99) creates a controlled environment for recording voice in acoustically nasty spaces. A hinged pair of 2x2-foot absorbing panels is fully adjustable in a V shape and mounts directly to a boom mic stand, or can be placed directly on a table or other flat surface. In addition to handling vocal duties, the "booth" is big enough to act as a small gobo to isolate a guitar amp, kick drum or other small instrument while tracking.

MONSTER CABLE PRO POWER 900

The Monster (www.monstercable.com, \$129.95) rackmount PowerCenter promises clean power and protection for studio gear. The 900 offers Monster Clean Power Stage 1 filtering, Dual-Mode Plus protection and an audible alarm when power exceeds safe levels. The unit features eight switched outlets; two switched front panel outlets; surge protection rated at 1,850 joules; and heavy-duty and extra-long, high-current, 8-foot Monster PowerLine 100 cable—all in a single-rackspace unit that weighs only 3.9 pounds.

PRISM MMA-4XR PREAMP

Prism's (www.prismsound.com) MMA-4XR (\$4,275) is a 2-channel mic preamp developed by engineer/producer Leif Mases, whose client roster includes ABBA, Led Zeppelin, Jeff Beck and Black Sabbath, and

who developed the Maselec 9001 retrofit EQ for SSL 4000 consoles. The unit offers stepped gain control from 9 dB to +69 dB in 3dB steps, switchable phantom power, polarity-reverse switch, mute, PPM bar graph meter on each channel and balanced XLR I/Os. Living up to the Master Series legacy, the unit's phantom-power circuit provides an unusually high level of current output, while the frequency response extends to more than 200 kHz and output headroom extends up to +28 dBu.

AAS BANKS SERIES

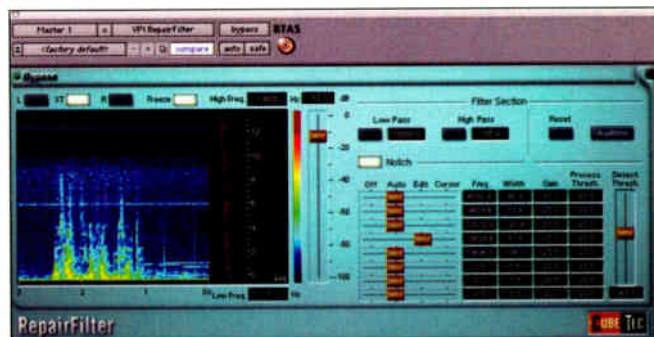
Expanding the sonic possibilities of its software instrument plugs, Applied Acoustics Systems' (www.applied-acoustics.com) Sound Bank Series is a set of add-on presets and sounds covering various genres and themes. First out is Analog Essentials (\$39) for the Ultra Analog VA-1 synthesizer. This collection of 148 presets is a companion set of sounds designed to complement the Ultra Analog factory library. Offering a great selection of high-quality sounds and a large selection of arpeggios, basses, pads, percussion, sound effects and various synth sounds, the bank is meant to provide inspiration for composers, home recordists and closet producers.

PEAVEY MSDI GUITAR AMP INTERFACE

The Peavey (www.peavey.com) MSDI (Microphone Simulated Direct Interface, \$149) is targeted for studio or live use. It connects to an amplifier rig between the amp head, feeding the output thru to the cabinet, as well as providing a balanced XLR output that can be recorded or sent to front of house. The unit features passive amp modeling, a Tone switch, high cut, high boost and output level control. The box can also work at line-level with no speaker connected for use at a preamp's output or effect send.

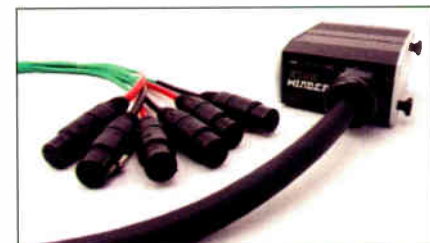
CUBE-TEC REPAIRFILTER PLUG-IN

Adding to its list of plug-ins ported to Pro Tools, RepairFilter from Cube-Tec (www.cube-tec.com, \$1,950; volume discounts available) promises to surgically remove steady-state tones and other disturbances while minimizing the effect on the unrelated audio program. The interface features eight tracking notch filters with three operating modes: Auto, Edit and Cursor. In Auto mode, each notch filter searches for a steady-state tone and automatically sets its center frequencies and bandwidth. In Cursor mode, the operator can click on the spectrogram frequency axis to set the filters' center frequency; in Edit mode, exact center frequencies can be manually entered using numeric entry.



HOLOPHONE SIDE WINDER-6

Making its debut at NAB, the Side Winder-6 (\$750) terminated mic snake/encoder from Holophone (www.holophone.com) connects to any Holophone mics, allowing



the user to record surround audio to any 2-track recorder. Using the same encoder in the company's H4 SuperMINI camera-mountable surround microphone, the Side Winder-6 includes 3-foot Monster cable that terminates in six Neutrik 6-pin XLR connectors and a virtual surround headphone output with gain control for on-location monitoring of surround sound. The matrix-encoded surround output created by the module can be transmitted, shared and processed via any surround infrastructure. ■



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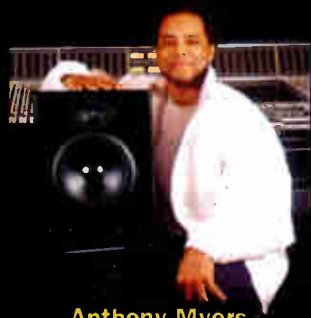
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Cakewalk SONAR 6 Producer Edition Upgrade

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Every year, there are a few things that I can anticipate: taxes, sweltering summers in the Arizona desert and—on a positive note—a new release of SONAR. Last year, Cakewalk turbo-charged SONAR 5 as the first complete 64-bit DAW bundled with Roland V-Vocal VariPhrase and Perfect Space Convolution Reverb, just to name a few enhancements. (See the September 2006 review.)

Cakewalk's latest release, SONAR 6 Producer Edition, further develops the DAW with features that include a dynamic means of remapping MIDI controls called ACT (Active Controller Technology), AudioSnap audio quantizing, Session Drummer 2 virtual instrument and VC-64 Vintage Channel, a robust new plug-in. Everything I loved about SONAR 5—including its impressive 64-bit architecture—is included in Version 6, so this review will concentrate on the new features.

All of this fun happened on a PC with two dual-core 2.41GHz AMD Opteron Processor 280s with 4 GB of RAM running Windows XP Pro. I used V. 6.2, the most current SONAR update available at the time of this review. (Updates are available for download to registered users.)

OH, SNAP!

AudioSnap, one of SONAR 6's more sophisticated features, is a collection of tools that lets users correct (or just tighten up) the timing of audio and MIDI tracks on a per-clip basis, plus a lot more. Once it determines where the beats are in an audio clip (whether recorded or imported), it provides quantizing options and then extracts the tempo for other tracks to follow. As a user of Pro Tools Beat Detective, I thought I could dive right into AudioSnap, but that wasn't the case. I must admit that it isn't the easiest tool to grasp. Fortunately, the install DVD provided an excellent video tutorial to get me started.

After watching the video, I recorded a bass part into SONAR with its metronome set at 100 bpm. After the recording, I noticed my timing was slightly off. I right-clicked on the clip and selected AudioSnap Enable. All of the transients were marked



SONAR 6 work environment (clockwise from top-left): Track view, Console view, VC-64 and Session Drummer 2

and the AudioSnap Palette was launched. Next, I used the Align Time Ruler feature and defined specific transients as particular beats or measures by clicking on the time line and selecting Set Measure/Beat at Now. Using this info, AudioSnap tightened up my recording and created a tempo map. To test how well other tracks could follow the map, I imported a few of the sample MIDI groove clips into the new Session Drummer 2 virtual instrument. AudioSnap aligned the imported tracks perfectly with my fixed bass part.

AudioSnap also offers a selection of time-stretching algorithms. You can turn on Auto-Stretch and audition your session at different tempos, or you can stretch a clip to fit a specific length of time, which is a great tool for a commercial spot that's a bit long or short. Of all the features in AudioSnap, the time stretching is what required the most finesse; you must be careful in choosing the algorithms. In my experience, the online or real-time algorithms acquired many artifacts and phasing after stretching. I had much better results with offline rendering and using one of the bundled iZotope algorithms, which took about two minutes to render a one-minute clip.

AudioSnap can get pretty deep and overwhelming, especially to the first-time user. I suggest watching the video and experimenting with all of its options. Once understood, it proved to be quite powerful.

ACTIVE CONTROLLER TECHNOLOGY

Another fresh new feature of SONAR 6 is ACT (Active Controller Technology), which allows automatic or custom mapping of MIDI controllers or control surfaces to any plug-in, instrument or even a channel strip that's active on the screen. ACT comes loaded with presets for some popular devices already, although the MIDI controller I used, the M-Audio Ozonic, did not have a preset. ACT has a preset for the M-Audio Ozone, which I tried loading, but wasn't successful in making it work. My other option was to load a generic MIDI controller preset and map out all the controls manually. As the Ozonic has a generous 40 controllers, my test was to map out volume and pan controls for the Console view and parameter controls for the new VC-64 Vintage Channel plug-in.

In attempting to work with ACT, I ran into a few problems. I mapped out the controls for my MIDI controller (MIDI Learn) and continue with an ACT Learn function for a plug-in. ACT Learn is the process of assigning plug-in parameters to the ACT Property page. In some instances, I couldn't map the threshold setting for the VC-64's compressor; on another occasion, I couldn't map the release time. I also experienced loss of MIDI mappings for my controller, even after saving my own preset. I spent a considerable amount of time and effort with ACT, but it wasn't until a complete re-install of SONAR 6.2 and few correspondences with Cakewalk's technical support staff until ACT made sense and worked as described.

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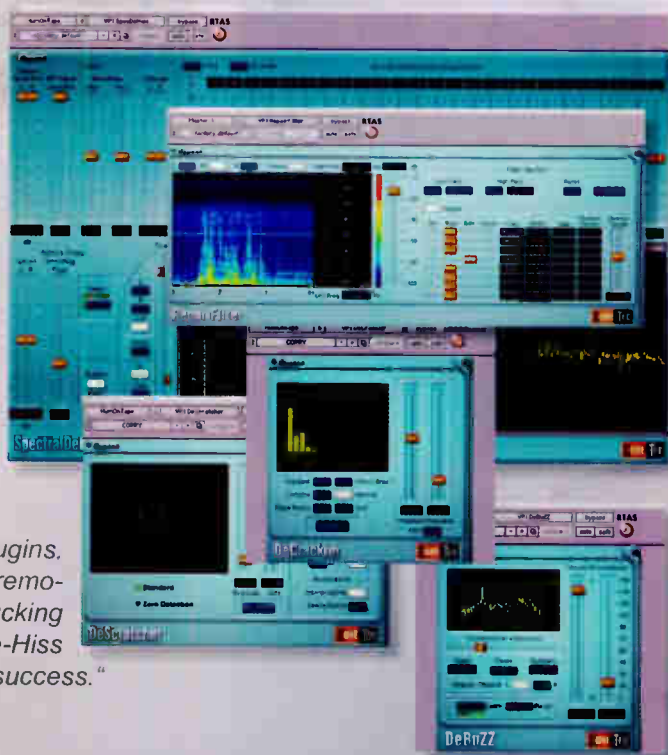
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- **SPECTRALDEHISS EXPERT**

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"After trying everything in our extensive arsenal of Pro Tools plugins, we turned to Cube-Tec's DeBZZ, which not only completely removed the RF noise - it did so without artifacts, and without sucking the life out of the track. We then utilized Cube-Tec's SpectralDe-Hiss tool to remove ambient noise from outdoor scenes with equal success."

Rich Macar - Buttons Sound - New York, NY

"Cube-Tec VPI's for Pro Tools are the best thing to happen to noise reduction since the CAT 43"

Richard Spence-Thomas - Spence Thomas Audio Post - Toronto, ON

"As engineer for the Grateful Dead, I use several noise reduction plug-ins to deal with the problems of older analog masters. With Cube-Tec's SpectralDeHiss I am able to remove more hiss and leave more ambiance than I could with any of my other noise removal systems."

Jeffrey Norman - Garage Audio - Petaluma, CA

"Cube-Tec's SpectralDeHiss completely saved a section of unusable production dialog in a recent feature film done here at Chace. The track contained some complex high-frequency ringing that moved up and down the frequency spectrum at random. By taking a few sections of the program in between dialog and having the De-Hiss learn them I was able to create a very accurate noise analysis. I adjusted the "Frequency Smoothing" parameter in the noise floor section to 0 so that it would use the most detailed noise profile and adjusted the multi-band Noise Reduction Equalizer to really focus in on the frequency ranges that I needed to address. The result: a ring-free dialog track that maintained the vibrant quality of the dialog without any audible artifacts."

Chris Reynolds - Chace Audio For DVD, Film & Broadcast



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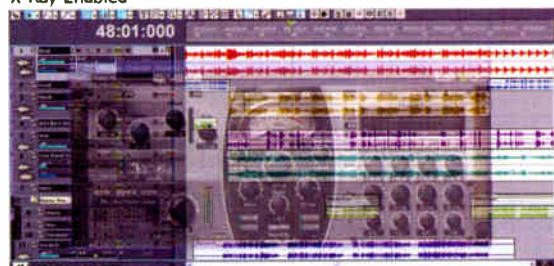
NEW SOUNDS ABOUND

The new VC-64 Vintage Channel is basically the Kjaerhus Golden Channel but re-skinned and optimized to take advantage of SONAR's 64-bit processing engine. The VC-64 includes a gate, dual stages of compression

Without X-Ray



X-Ray Enabled



The SONAR update 6.2 now offers the X-Ray feature.

and EQ, and a de-esser. An impressive 10 routing scenarios can be selected from filtered and parallel compression to mid-side setups, sidechaining and more. The VC-64's presets are wonderful starting points that yield great-sounding sonic results. I quickly found a use for it on almost every track of the song I was mixing, and it became my go-to plug-in in SONAR, especially for EQ and compression.

Session Drummer 2's UI includes a Program Browser, which allows you to easily pick the style and kit. Once a kit is selected, MIDI patterns are loaded into the browser, where you can audition eight different grooves via the transport in Session Drummer 2. If you're not content with one of the drum components, a right-click on the drum icon lets you load in a separate drum from other kits. I could mix-and-match different drums to my liking. A separate volume, width, pan and tune control is available on each velocity-sensitive drum component, along with eight separate outputs for mixing. The only option I craved was the ability to balance room mics into the mix. Once I had a good kit for my tune and decided on a groove, I just clicked and dragged the groove into a MIDI track for editing. Session Drummer 2 is not only easy to navigate and comprehend, but it also sounds great.

RAISING THE BAR

Cakewalk packed some potent new features into SONAR 6 Producer Edition. AudioSnap is a must-have tool for quantizing audio and extracting grooves. The VC-64 Vintage Channel is an excellent-sounding plug-in with versatile routing, making it a heavy justification for upgrading. Session Drummer 2 is intuitive, sounds good and works.

My only gripe is SONAR didn't have a preset for my controller and I had inconsistent performance with manual mapping; a re-install of 6.2 fixed the issues. Fair warning, ACT took a bit of time to set up and users should definitely read up before diving in. Once set up, ACT can really enhance workflow.

I also enjoyed other more modest upgrades. The Console view has been redesigned and is now much easier on the eyes, and the mouse-wheel functions have been enhanced for

zooming in and out on tracks. Also, in the Track view the mouse wheel can control all knobs and faders. One V. 6.2 update that I absolutely love is the X-ray Window, which eliminates the need to move, close or minimize windows so that you can see other windows. Simply hovering over a window and striking Shift + x fades the top window enough to see the underlying window for control. Priceless!

If you crave a more stripped-down version that's lighter on the checkbook, check out SONAR Studio Edition. Some of the bigger omissions are AudioSnap, Roland V-Vocal and surround mixing. Plug-ins and instruments are also scaled back—VC-64 Vintage Channel, Session Drummer 2, Perfect Space Reverb, Lexicon Pantheon Reverb, Pentagon I and PSYN II are missing.

There is much to love about SONAR 6. Even the price (Producer Edition, \$619; Studio Edition, \$369) has dropped in comparison with previous releases. And with the scalability of Studio Edition, Cakewalk's flagship product has much to offer the producer/engineer at any level.

Cakewalk, 617/423-9004, www.cakewalk.com. ■

Tony Nunes is an audio engineer, teacher and new daddy to Luc.



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Dolby Media Producer Software Suite

Mac-Based Codec, Tools for Content Creation

If you've stepped into an A/V retailer recently, you can't help but notice an abundance of destination platforms on the shelves, most sporting a variety of complex options. With new video and audio formats coming on strong, as well as all existing mono, stereo and multichannel formats in use, how is a media producer to keep up? Dolby's new software-based platform, Media Producer Suite, hopes to be your everything, offering support for stereo, LCRS matrixed stereo, 5.1 channels, 7.1 channels, Blu-ray and HD-DVD. This Macintosh (OS 10.4) software suite offers an encoder, decoder and many useful tools to create audio content.

If you've already invested in Dolby hardware encoders, fear not—you will still be able to provide standard AC3 (Dolby Digital) bitstreams; this format will continue to be supported by all target platforms. However, to take advantage of the extra channels and lossless encoding provided by Dolby Digital plus and Dolby True HD, the Producer Media Suite is the only game in town.

STRAIGHTFORWARD OPERATION

The initial install of the Suite on a 2GHz G5 server was effortless. This platform is designed for multi-user interface with the key encoder functions running on a common server. Source and destination paths are fully implemented to any available asset on a net-



The Decoder screen shows all possible downmix and upmix options supported.

work. The encoder has an input cue, which allows all users to see where their project is standing in the cue, when it's done, and a supported hierarchy of low, medium and high priorities, allowing time-sensitive projects to bump to the front.

The software's encoder screen shows that the setup is very straightforward. The formats are Dolby Digital, traditional AC3, Dolby Digital Plus, MLP for DVD-A and Dolby True HD. All formats support 1 through 5.1 channels, with Plus and True HD supporting up to eight channels. Dolby is supporting SMPTE standard 428, which contains the latest channel indications and abbreviations. The current encoder supports no less than 20 abbreviations for channel indication. For my use, this was perfect as Pro Tools supports the same abbreviations. I found that as one "grabs" the source PCM files (in my case, they were bounces from Pro Tools) or clicks the "L" channel in a folder containing all six of a 5.1 mix, the Dolby encoder knows what you

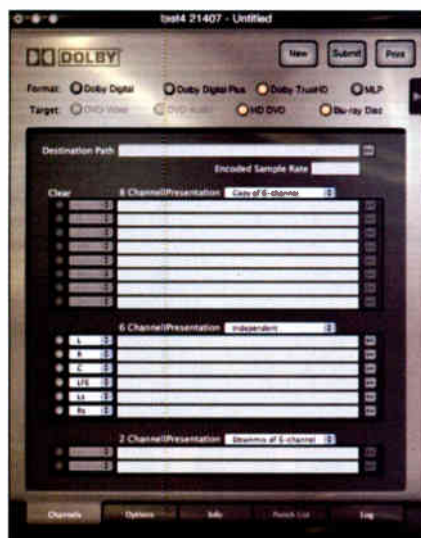
want and takes the other five, placing them where it thinks they should go. [For detailed elucidation on channel and loudspeaker setups, visit [Dolby's Website](#).—Eds.]

A standard AC3, 5.1-channel encode ran in near real time on a 2GHz G5 server. That's the same 5.1-channel encode with DD Plus for HD-DVD; the encode ran in the same amount of time, even though I selected the 768kbps default speed for the HD-DVD target. Bit rates are supported all the way up to 3,024 kbps. Yes, that's about 3 MB/s! I was working with 48kHz/24-bit source files, and the 24 bits were not a problem. An interesting accident occurred when some 96kHz/24-bit files I used to check out the True HD functions were inadvertently sent to the AC3 and Dolby Plus formats, which do not support anything higher than 48kHz sample rate. They played back fine at 48 kHz, meaning that Dolby will sample rate-convert to match up with the target platform's limitations.

TRUTH ABOUT TRUE HD

In my experiments, there were some trade-offs when encoding in the underused True HD format but trade-ups in economy of file size. Many content providers are authoring 6-channel 48kHz/16-bit PCM without any codec on HD-DVD and Blu-ray titles. That's 4,500 kbps for a 6-channel mix, or about 4GB total space on the disk for a 2-hour title.

Although the "lossless" encoding for True HD depends on complexity of the actual audio content (generating a variable bit rate-encoded file), I encountered a 45-percent size reduction on the most complex source (a heavy-metal music mix), down to a 65-percent reduction for a more typical feature content with dialog. So a good rule of thumb would be to expect True HD to create a half-size or smaller file from the uncompressed PCM source. This was true at any sample rate I tried. Dolby's encoder even creates a



Dolby True HD encoder features 8-channel, 6-channel and downmix options for both HD-DVD and Blu-ray.



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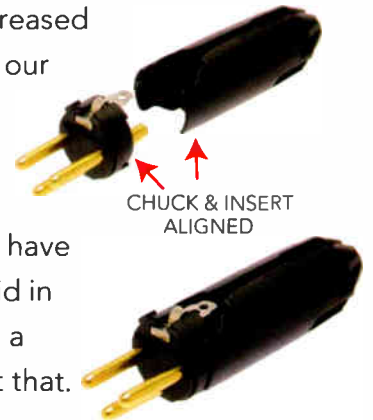
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special text/data file just in case you might be using the Toshiba authoring platform for HD-DVD. Good attention to detail. The only drawback to creating this audio content is the True HD encode time on my 2GHz Mac G5 took two to three times that of real time. The newer, faster Macs should be able to get this down closer to real-time encoding.

PUTTING THE DEC IN CODEC

Not much needs to be said about the Suite's decoder other than it works perfectly for any encoded file type of any Dolby format. If your video platform is external (vs.

QuickTime, etc.), it will accept external timecode and lock up perfectly. However, this is Dolby's decoder and it follows metadata and downmix functions as specified. In my experience with consumer audio playback, many platforms are out of spec in this regard. So the decoder can be accurately used as a benchmark of downmix, dial norm and dynamic range functions to see that the chosen options result in the desired effect. A Bypass button helps A/B these features.

TOOLING UP

The Dolby Media Tools are designed for any

existing (or newly) encoded Dolby Digital standard AC3 bitstream. This portion will interest most content providers, and may become a necessity to the downstream authoring facilities that could pay back the cost of this software on one job.

There are many useful timesaving and fundamental functions; for instance, encoded AC3 files can be timecode re-stripped or files without timecode can be striped (and re-stripped) with TC in any format or frame rate. If edits are required, the append and concatenate functions can be applied anywhere in the bitstream. I know that authoring houses will want to have some digital black (silence) ".ac3" files of various lengths and then use the append tool to match file lengths to video assets. These tools have many possible good uses including appending a trailer to existing content.

The tools also allow changing metadata. Now before you think, "What use is that?" I've experienced stereo tracks on music-centric content that get inadvertently flagged as Lt-Rt because this is the encoder default for feature-film and TV titles. However, these "stereo" mixes for music-centric features were mixed left and right only, and when the metadata tells the player to play back in Pro Logic or matrixed LCRS, this makes a lot of music mixes sound awful. With the metadata function, an existing AC3 file can be corrected, even at the last minute during authoring. Striping or re-striping timecode was very quick; editing metadata took distinct measurable time. However, if an Lt-Rt needs to be re-flagged to L/R, it would be worth the run time. Any downmix, dial norm or other metadata setting can be re-stripped, so to speak. On my 2GHz G5 Mac, it was about a third of real time or feature playback time.

IN THE SUITE SPOT

Dolby has covered all of the bases in its Dolby Media Tools with remarkable attention to detail. The entire Suite is 100-percent reliable. The beauty of a software-based toolset of this kind is that it can be upgraded as fast as the industry evolves. If you're looking to stay abreast of the crazy world of competing formats as it comes at us at seeming light speed, the Dolby Producer Media Suite may be your solution. Prices: Dolby Media Producer Suite, \$11,000 for bundle; Media Encoder, \$8,000; Media Decoder, \$1,900; Media Tools, \$1,800; and Media Encoder Client, \$500. Also offered is Dolby Media Encoder SE (\$2,900), a single-computer solution for smaller facilities.

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World Radio History

AEA TRP Ribbon Mic Preamp

Phantom Protection and 84 dB of Clean Gain

With the popularity of ribbon microphones in today's recording world, it's surprising that few manufacturers have stepped up to the plate with a ribbon-specific preamp. The Audio Engineering Associates (AEA) TRP from Wes Dooley and company is a deceptively simple yet powerful little box that will answer most, if not all, ribbon (and other) mic needs.

Some major concerns when using these highly prized thoroughbreds include having enough clean gain to get their signals onto your chosen recording medium, the need to provide a high-impedance load and the danger of damaging the mic by accidentally applying phantom power. The TRP takes care of all these issues in an elegant manner.

CAPITAL GAINS

Everything necessary for a full-featured, 2-channel ribbon pre is included in this half-width, single-rack-height box. For starters, it offers balanced XLR I/Os, an additional unbalanced ¼-inch output, level-indicator LEDs, polarity-reverse switch and a 12dB/octave low-cut/highpass switch at 100 Hz.

The input gain switch allows for precise, stepped increments of 4.5 dB (+6 through +63), and the buffered output fader delivers another 15 dB of gain. A differential output op amp delivers an additional +6dB gain at the balanced XLR outs. Input impedance is a deliberately high 18k ohms, with maximum total gain of 83 or 84 dB at the XLR outs and 77.5 dB at the unbalanced ¼-inch jack. The unbalanced output is +22 dBu (into an unbalanced load), while +28 dBu can be achieved into a balanced load.

Three overload LEDs help you properly set gain: A green LED lights up at -5, while the yellow one glows from 0 to +20. If you're really pushing things, the red LED is your final warning, popping on at +20.

WATT, ME WORRY?

Concerns over phantom power damaging precious ribbon microphones are now a thing of the past. If phantom power is applied on the DC-coupled input side, then internal circuitry shorts out. On the output



side, capacitors protect the balanced outputs from being accidentally back-fed destructive voltages from the next piece of gear.

The Fred Forssell-designed circuit is pristine and quiet. The only noise I was able to detect or generate was on the input side while over-cranking various ribbon and condenser mics. It will, however, reveal bad cables and any stray AC hum, so you'll want to keep your cable connections from mic to preamp as short as possible. The preamp also functions especially well for a wide range of condenser (powered separately, of course) and moving-coil (dynamic) microphones. With its high input impedance, there's virtually no loading on the microphone's output, either.

Popping the top of the prototype sent for review (PN #4), it was easy to see the care and attention to detail in the TRP. The 2-channel JFET preamp design is all surface-mounted technology, with precision resistors coupled to the Grayhill-stepped, input-trim switches for repeatable, accurate settings.

RIBBON-WORTHY PERFORMANCE

For this test, I used an AEA R84 along with several other manufacturers' ribbons, including a Royer SF-12. On male voice-over work for a local radio broadcast, I easily re-created the full-bodied sounds of an almost-lost era when ribbons were more commonly used. With Irish balladeer Danny O'Flaherty singing into the R84 and TRP, the vocals came across as lush and smooth, with plenty of level no matter how soft and warm—or booming loud—he sang. I can't recall ever hearing such a wide dynamic range of vocals and acoustic instruments (including bodhran and pennywhistle, among others) captured this evenly, with no processing whatsoever.

Several shoot-outs and tests against other preamps went about as expected: None had the flexibility for reliable, stable settings, nor had the kind of overall gain structure or repeatable results found in the TRP. The TRP held its own against a variety of other fine preamps, including an API Legacy's stock console pre's, the Grace Design m802's ribbon-selected +10dB boost inputs and a Mackie Onyx 1220 input set at maximum gain. After I made sure their phantom power was safely turned off, they all worked just fine with the same ribbons used, but none did the job or inspired confidence quite like the TRP.

RIBBON IN MY SKY

In my tests, the TRP provided a smooth, effortless quality of sound and all the gain anyone would ever need, without phantom power worries. With such a smart blend of technology, it's difficult to tell where the beauty of the ribbon microphone experience ended and the preamp began, but the unit's lack of coloration and built-in features more than kept up with—and perhaps exceeded—the quality of the microphones I used.

The TRP is a must-have for any ribbon mic you already own, let alone the expensive ones still on your wish list, especially at its reasonable \$868.50 price. Add to that the surprisingly great sound it delivered on many of my other condenser and dynamic mics, and it prompts me to say I wouldn't purchase or use an expensive ribbon microphone without having a TRP directly in-circuit with it.

Audio Engineering Associates, 626/798-9128, www.wesdooley.com. ■

Joe Hannigan runs Weston Sound & Video in Philadelphia.

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World Radio History

Cube-Tec Audio Restoration Plug-Ins

Four AudioCube 5 Processors Now for Pro Tools

Cube-Tec has released Pro Tools versions of four of its 16 high-end audio restoration plug-ins, or Virtual Precision Instruments (VPIs). These new plug-ins use the same algorithms as the original VPIs that ran exclusively on Cube-Tec's AudioCube 5 system and cost up to \$5,000 each. The turnkey AudioCube 5 systems use 64-bit, floating-point processing in a 64-bit fp/384kHz integrated audio workstation for analysis, restoration, editing, archival, CD/DSD/SACD mastering and DVD-A authoring applications.

Designed to tackle numerous problems encountered with old vinyl, wax cylinder, acetate and tape recordings, as well as many forensic applications, these automatable RTAS plugs run on PowerPCs and Universal Binary Macs hosting Pro Tools Version 7.2 (or higher) on HD systems, as well as LE and M-Powered rigs. They are iLok-authorized, work at up to 192kHz sample rates and use 32/64-bit, floating-point precision.

THE PROBLEM-SOLVERS

DeBuZZ removes hums and buzzes that are related to a fundamental frequency such as AC line problems, rumble and optical soundtrack hum. You can manually set this plug-in or, in Learn mode, it will build a set of up to 150 notch filters that will remove noise in the subsequent harmonic series predicated by their individual level and not necessarily their sequential order.

The DeScratcher and DeCrackler removal/interpolation tools are often used together in multiple processing steps to peel away lay-

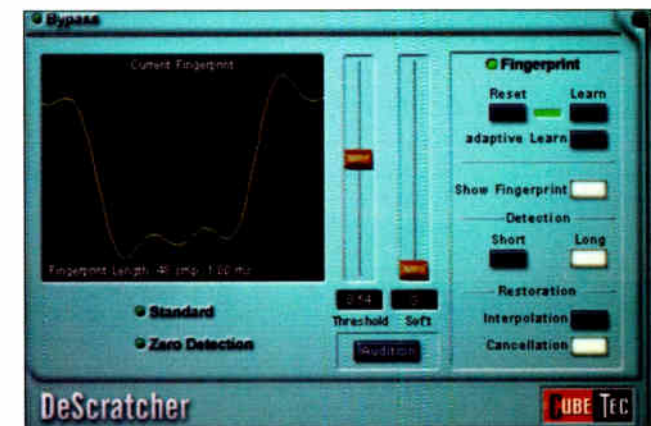
ers of different noise disturbances, starting with the loudest and most intrusive. To fill the gap left in a file where the noise was removed, an interpolation tool synthesizes or reconstructs audio based on the original program's content just before and after the region of removed audio.

SpectralDeHiss

Expert removes broadband noise without pre-sampling the noise in isolation. It uses 1,000-plus variable-width notch filters that track the noise floor shape, which allows you to easily remove air-conditioning sounds, film camera noise and outdoor ambience. The many adjustable parameters provide a nice balance between max noise reduction and minimal artifacts, such as filter swishing and quacking.

RESTORATION VS. DSP

The plugs cleverly use the company's signal processing and psychoacoustics know-how and employ masking thresholds to determine the optimized attenuation of disturbances. This advanced operation does come at a cost: host DSP resources. In general, all these plug-ins require substantial horsepower; for instance, DeScratcher reports more than 15,000 samples of latency—way beyond Pro Tools' ADC capability.



DeScratcher interpolation tool is often used with DeCrackler.

These plug-ins are very CPU-intensive. With my Mac quad-core system with 4.5 GB of RAM and Pro Tools 7.3.1, I had no problem running all four plug-ins (mono instantiations) simultaneously. For single-core systems, you might want to change the H/W buffer size to the max value of 2,048, set the RTAS engine

to "ignore errors during playback" and allow maximum CPU usage for RTAS processing (85 percent).

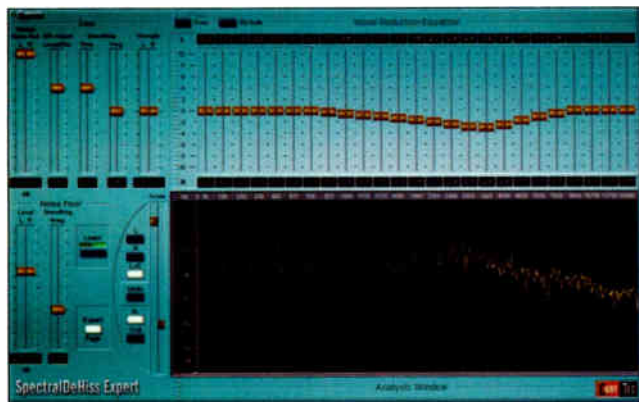
Certainly, running them virtually in real time allows you to tweak each plug for maximum total efficacy, but I found the best restoration method was to use them as AudioSuite processors—fixing problems in one or more steps. I renamed each successive processed file in the playlist so that if I had to revisit a step later, I could simply step through the restoration process history.

LET THE HEALING BEGIN

For this test, I chose a very rough forensic file—a worst-case scenario where the conversation on a tape recording of a 9-1-1 emergency phone call was recovered to resolve an insurance claim. Unlike restoring a priceless, old vinyl record, this procedure differs mainly because any collateral damage to the audio due to digital processor artifacts is of secondary importance to the quest for high voice intelligibility—good enough to distinguish the exact wording and identity of the voices on the phone.

After looping the 44.1kHz mono WAV file to allow time for the plug-in's Learn function (which takes no more than about 10 seconds), I found the audio to have a considerable hum-and-buzz component and a very loud static square wave superimposed on it. Caused by a nearby digital cellular phone, this square wave was the predominant problem I removed first with DeScratcher.

With DeScratcher inserted in a Pro Tools session, on the Edit page I selected one period of the square wave noise waveform and



Spectral DeHiss Expert used to remove broadband noise from a 9-1-1 phone call

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played it while in DeScratcher's Fingerprint mode. The Fingerprint mode programs the software to correct audio from recurring noises such as repeating thumps or pops that do not have a sharp transient attack. Both Fingerprint and Zero Detection modes are for correcting disturbances that don't fall into the standard click or scratch profile. Noises do not have to be similar in nature or have periodicity to be removed using these DeScratcher modes. When the noise is removed, the gap left is automatically filled. The result was miraculous. I could now tell there were people talking on the phone.

To remove the LF hum noise, I used DeBuZZ, which quickly learned the fundamental frequency of the noise shown on a 20 to 130Hz graph. As shown by the Complexity slider, 60 notch filters were automatically created. Adjusting the Threshold lever upward increases noise reduction by setting the psychoacoustic masking level; lifting the Complexity slider adds more notch filters to increase the number of harmonics removed. With the hum and buzz removed, the 9-1-1 call was clearer yet—I could tell both people had English accents and were under duress.

But there were still a lot of extra pops, clicks and a huge hiss noise floor.

NO MORE SNAP, CRACKLE OR POP

Next up, I used DeCrackler to smooth out the background and diminish some of the pops. I arrived at a threshold setting of 0.13 and the reduction at 0.10 using the Audition button. I used the default Smooth mode for the least amount of artifacts. My sample was still submerged in broadband high-frequency noise, but the 9-1-1 call was clear enough to make out all the words from both the operator and the caller.

With its dynamic tracking filters that operate in both the time and frequency domains, I used Spectral DeHiss Expert last. This plug-in is the most sophisticated and complex of the four, with many parameters to adjust—experience and a lot of trial and error are required. The onscreen GUI has a frequency spectrum graph with 25 bands based on the Bark scale that's optimized for the psychoacoustics of human hearing measured in phons. Dropping specific frequency-band faders lessens noise reduction; raising them increases reduction. Also provided is a useful noise floor editor for selecting specific frequency bands for further attention.

The remaining noise in the sample was a combination of room tone and telephone system grunge (microphone, CODEC transmission and recording medium, probably a low-speed analog logging system). After the plug-in learned the noise floor's contour, I used the Audition button to fine-tune the threshold to remove most of the high-frequency whistling and hiss. There are many smoothing function parameters that alter the filter set created to be less intrusive; the equalizer can also be used as a post-restoration enhancement tool.

IMPRESSIVE POWER

These plug-ins reminded me of a Hollywood spy movie where a government technician easily washes a noisy and completely garbled audio track to perfect clarity. Of course, this process doesn't happen as quickly in the real world, but the results are *that* good.

I tried it on lots of typical noise problems and they were soon ancient history. This is a must-owned restoration/noise-reduction collection. Prices: DeBuzz, \$1,950; DeCrackler, \$1,850; DeScratcher, \$1,850; and Spectral DeHiss Expert, \$1,950; quantity discounts are available.

Cube-Tec, dist. by Sascom, 905/469-8080, www.sascom.com. ■

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

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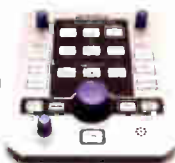
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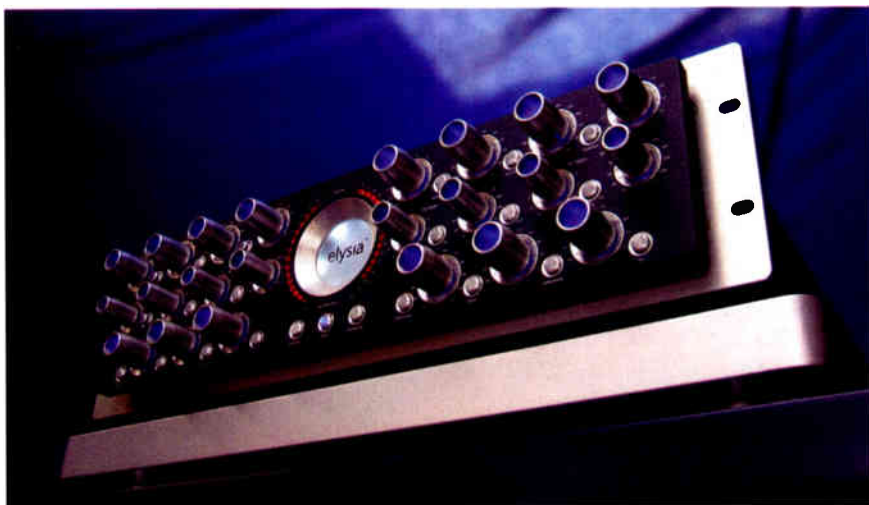
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elysia alpha Compressor

Stereo Dynamics Controller for Tracking, Mixing and Mastering

To treat the wide variety of material thrown at them, many mastering engineers have multiple compressors and limiters at their disposal. German manufacturer elysia has a better solution: Make a box that covers (almost) all the bases. The company's 2-channel alpha compressor offers switchable feedback and feed-forward gain-control circuit paths, adjustable low- and highpass side-chain filters, parallel processing, stereo and M/S (Mid/Side) operational modes, channel linking, defeatable transformer-based coloration, a soft-clipper and audio path filter, and more. Billed as a mastering compressor, the alpha can, of course, also be used as a dual-mono or stereo dynamics processor for tracking or mixing applications.



IF LOOKS COULD KILL

A colleague of mine once jokingly declared that the most important feature of any studio is its "lights." The alpha won't disappoint here. When the unit is powered up, each rotary control's indicator mark and center post are constantly lit up like a Christmas tree with neon-blue LEDs.

Each push-button switch, with one exception, lights an inset white LED when activated. (The Active button, which serves both channels, lights a blue LED.) Mirror-image, half-moon-shaped LED ladders for each channel (sporting 16 segments each) light red to show gain-reduction amounts. Soft-clipper action is indicated by gold-colored LEDs. Global LED dimmers are also provided for the visually timid. The unit's overall visual effect is absolutely stunning.

CONTROL FREAKS REJOICE

Immediately below alpha's LED ladders are buttons that bypass processing (for both channels at once), switch between stereo and M/S modes, and link or unlink channels (left and right in stereo mode, or mid- and side in M/S mode).

All other controls are identical for each channel and are logically arranged in three rows. Each rotary control offers 21 detented settings to allow repeatability. The top row of controls includes those for

adjusting threshold, attack, release and ratio, with the last three giving the lower values the most attention. Also in this top row are three push-button switches. One button toggles between feed-forward (harder-sounding) and feedback (more transparent) compression schemes. An Auto-Fast attack button speeds up attack time to reduce transients when engaged. Activating an Auto-Fast release button speeds up recovery from deep compression at the onset of the two-stage release curve it initiates.

The alpha's second row of controls activates and shapes separate filters for the audio path and internal sidechain. The sidechain filter for each channel (left and right, or mid and side) can be bypassed or adjusted to provide either a highpass filter or a lowpass one with a corner frequency between 30 and 3,300 Hz. (Only the sidechain control for the mid-channel is active in linked M/S mode.) The defeatable audio path filter for each channel fashions an inverse-action, shelving-type curve when activated, either boosting above a user-selected corner frequency while simultaneously cutting below it, or boosting below and cutting above according to control settings. An EQ gain control simultaneously adjusts the amount of boost and cut to a maximum of 3 dB of boost and 5 dB of cut. A choice of 42 different corner frequencies from 20 to 20k Hz are

available for the audio filter thanks to a defeatable "x10" frequency multiplier.

The alpha's third row of controls facilitates parallel compression, makeup gain, soft-clipping and transformer-based coloration. You can combine unprocessed and compressed program material in any proportion simply by activating direct and compressed push-buttons and dialing in the balance between the two signals using a rotary mix control. Another rotary control provides up to 12 dB of makeup gain after the compressor circuitry.

You can also switch an additional transformer into the audio path independently on each channel (including in M/S mode) to add subtle coloration. A soft-clip limiter—which provides gentler action than a brickwall type—can also be switched in-circuit directly before alpha's output stage for each channel. These clipper always serve left and right channels, as they're situated after alpha's M/S decoder. A separate rotary control for each channel adjusts the threshold for its respective clipper.

LET ME COUNT THE WAYS

To test the unit, I used its different features to master a hard rock mix in as many ways as possible. Feed-forward compression (in stereo mode) squashed and dulled the overall sound—too much so on the lead vocals for my taste. Activating both



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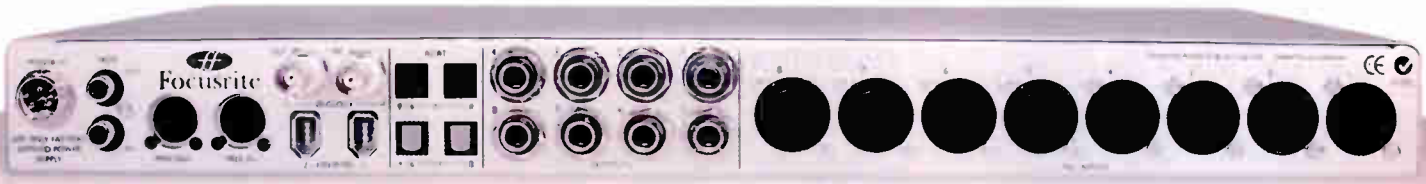


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channels' Direct buttons and adding some of the unprocessed signals to alpha's outputs via mix controls restored some depth, clarity, presence and snap.

I achieved much better results by de-activating the direct feeds and using Feedback mode with the unit's soft-clipper. A 1.7:1 ratio, moderately high threshold, 150ms attack and 60ms release for the compressor section delivered about 1.5 dB of transparent gain reduction, preserving the mix's depth and nuance. Cranking makeup gain by 4 dB and dialing in a high (+21dBu) clipper threshold produced the added average level I wanted while taming peaks. The result was an assault of electric guitars that was loud and aggressive, yet clear, while lead vocals and drums remained present, big and crisp. The channel-link button kept the imaging consistent. Kicking in alpha's transformer buttons lent subtle yet extremely pleasing coloration that made the track sound a tad richer and bigger still.

Switching to alpha's M/S mode, I could now adjust the proportion of mid- and side components of the mix simply by tweaking the left-hand (mid) and

right-hand (side) makeup gain controls, respectively. Raising the mid- makeup gain control made kick, snare, bass, vocals and other center-panned elements louder while shrinking the mix's stereo width and decreasing stereo ambience to create a drier mix with a focused center. Conversely, raising the side makeup gain control made hard-panned electric guitars louder, lead vocals and bass lower, and the mix less punchy, while receding the drums further back into the mix in a warehouse-like wash of reverb. Because the channels were still linked, mid- and side components were compressed by the same amount.

Turning off channel linking while in M/S mode allowed me to compress the mid-component of the mix differently from the side. For example, I could make the drums punchier by dialing in a slow attack time on alpha's left-hand attack control while squashing the electric guitars by setting the right-hand attack control to a moderately fast value. But what was *way* cool was that I could listen to, for example, the mid-channel alone with the side muted by switching out the Compressed button on the side channel

(with both Direct buttons switched out), making it easier to tweak compressor settings for one M/S component at a time.

TAKE THIS ALPHA BET

There's not much to complain about with this box. I would have preferred having a unilateral shelving filter as opposed to alpha's inverse-action audio filters. The bottom end is most often what needs to be fixed in mastering, and doing so while simultaneously and arbitrarily tweaking the high end to opposite effect was typically not as useful to me.

On the other hand, the amount of control alpha provides in shaping a mix's dynamics and overall balance is mind-boggling, and the audio quality is excellent. If you're itching for a world-class mastering compressor and can come up with the scratch for such an expensive box (\$11,999), alpha is a sure bet.

Elysia, dist. by Waves Distribution, 973/728-2425, www.wavedistribution.com. ■

Mix contributing editor Michael Cooper is the owner of Michael Cooper Recording in Sisters, Ore. Visit him at www.myspace.com/michaelcooperrecording.

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Snapshot Product Reviews

Six Sample Libraries for Pro Scoring

Like many of you, I realize much of my orchestral writing by using sample libraries and the tools with which they ship. On a piece that I scored for strings, woodwinds, brass and percussion called *Walking Central Park*, I fleshed out the parts by mixing and matching from various sample libraries. Just as musicians bring their own sound and sensibility to a recording session, sample libraries also carry the personality of the producer and recordist; judiciously mixing libraries together can help you create a sound with a personality that is greater than the sum of its parts.

Walking Central Park comprises 16 stereo tracks—a small number by today's standards—including three string parts (first violins, cello/double-bass/ensemble pizzicato), winds, brass and percussion. Most parts comprise an original Vienna Instruments performance (with controller data overdubbed on a second track to increase the number of articulations), along with samples from Sonic Implants and EastWest/Quantum Leap's Symphonic Orchestra blended in. I ran Steinberg Cubase SX on a workstation with dual AMD Opteron processors (built for me by ADK Pro Audio) and a single-processor PC that I use as a Tascam GigaStudio 3 machine.

Some of the libraries I employed on the piece are reviewed here. You can hear the complete work at www.mixonline.com.



VIR2 INSTRUMENTS Acoustic Legends HD

Vir2 Instruments is a new division of Big Fish Audio that showcases high-quality plug-ins that may cost more than some of the company's other releases. All of the instruments in Acoustic Legends HD (\$250) were sampled at 24-bit/96kHz, and their sound quality is excellent.

This is a large library—about 19 GB—and it seems the developers concentrated on recording as many instruments as possible (including ukelele, banjo and mandolin—the mandolin tremolo should find its way onto pasta commercials in short order) while

leaving the innovative stuff for later releases. Instruments and multisamples are laid out in standard fashion, with key-switching handling chord-type changes, alternate down- and upstroke variations, and a variety of mutes and percussive body effects. There's also a wide variety of steel- and nylon-string guitars that are not assigned to chords. Fret noise has been sampled and randomly blended into performances. It's a nice touch that adds realism.

A bonus folder of effects is included, but given the standard set by MusicLabs' Real-Guitar2 plug-in set, in which MIDI files are built into the player to help the user create stunningly realistic performances, I hoped the Acoustic Legends HD would take a more innovative approach. Fortunately, the developers say they are in the planning stages of Version 2, which will take advantage of the scripting potential built into Kontakt Player 2 and incorporate MIDI files. As things stand, Acoustic Legends HD offers a wide variety of instruments that were beautifully sampled and well-organized.

Vir2 Instruments, 800/717-3474, www.vir2.com.



VIENNA SYMPHONIC LIBRARY Appassionata Strings

Prized for the depth of articulations offered and—with last year's introduction of the Vienna Instruments interface—the ease with which they can be accessed, VSL libraries have become the gold standard against which competing products are measured. However, one lingering criticism, particularly with the strings, is that they are less "emotional" than others. The newly released Appassionata Strings is the company's answer to this perception.

Large sections (20 violins, 14 violas, 12 celli and 10 basses) were tracked and some dramatic effects were recorded in addition to the normal bag of samples, the legato articulations that VSL is well-known for. When you assume your Bernard Herrmann alter ego, you'll be sure to take advantage of the "out-of-tune" samples, which are just that: samples of sections hitting a pitch

while taking a few seconds to center on it. Using the A/B switch, you can also access the somewhat exaggerated portamento samples that can be extremely effective. A word of caution: Use these effects sparingly and in good taste!

The sections' clusters and random pizzicato patches will convince your clients you are a true musical genius who understands the value of aleatory music. The grace-note samples are another nice touch; they rise and fall at a distance of a minor third and can be struck on their own or combined with other articulations. Of course, the more you get the more you want, including a bank of grace note samples in intervals from a semitone to a tritone.

The Appassionata Strings collection is smart, well-designed and a natural complement to VSL's other string libraries. Prices: \$595, Standard Library; and \$1,130, Extended Library

Vienna Symphonic Library, dist. by ILIO Entertainment, 800/747-4546, www.ilio.com.



EASTWEST/ QUANTUM LEAP Symphonic Orchestra

EastWest has a history of applying creative thinking

to the sampling game. As far back as the early '90s, the company worked with Dave Frangioni to integrate MIDI files and sample sets. Symphonic Choirs, which includes a word builder that lets the user apply text to a chorale performance, is a standard-bearer.

Symphonic Orchestra was recorded by Dr. Keith Johnson and comes in three packages. This is an excellent all-purpose library for film composers, thanks to its large ensembles (18 violins, for example) coupled with Johnson's well-documented ambient recording technique.

Presented in Kompakt player form, up to eight Instruments can be loaded into a rack. It's not a CPU-hog, so you'll be able to load lots of sounds, providing you have at least one reasonably fast processor in your rig. For quick sketching, grab one sound—a violin section playing with vibrato, for example.



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DXF (dynamic crossfading) Instruments include multiple velocity layers (although I couldn't tell exactly how many), which are accessible via the mod wheel. You can move through these layers while sustaining a note to create convincing crescendos and decrescendos.

The Kompakt player's Instrument section offers plenty of tweaking capabilities, most of which you'll never use. But check out the multiple micro-tunings available in this area. Using a sforzando attack on the largest violin ensemble, I played a closed-position A major chord, adding the B-flat above the root; then, using the Glide function added a bit of scoop into the pitches and called up a microtuning. Instant *Frenzy*, à la Bernard Herrmann!

Street prices: Platinum bundle, \$2,695; Gold bundle, \$895; and Silver bundle, \$265. EastWest, www.sounds online.com.



GARRITAN LIBRARIES Stradivari Solo Violin Version 2

The trend in orchestral sample libraries is to give the user an ever-expanding number of articulations and interfaces to help navigate through them. Gary Garritan has taken a different approach. The Stradivari Solo Violin library (\$199), which uses Native Instruments' Kontakt 2 player as a shell, includes the original sample set and a newer, more lyrical instrument.

Garritan's idea was to create a relatively slender volume of samples (less than 1 gigabyte) and an easy-to-learn shed of controller tools that provide you with unprecedented sound-shaping capabilities. At the center of the concept—which Garritan has ported to his soon-to-be-released solo cello plug-in—is a technique called Harmonic Alignment, developed by Giorgio Tommasini.

Rather than crossfading between discrete samples to create dynamics, as is traditionally done (which results in a temporary doubling of samples), the Stradivari Solo Violin samples morph into one another without introducing phase or doubling issues. At least that's what the literature says. But what's it like to play the Strad? In short, extremely satisfying. The sound is beautiful, and using a combination of controllers (CC 11 to modulate volume, mod wheel for vibrato volume

and after-touch for vibrato rate), the Strad becomes a warm and highly expressive instrument. Take a listen to the demos on Garritan's Website.

There's lots more to be said about the Strad, which also incorporates traditional key-switching, but space doesn't permit a full review. Some clever touches were well-appreciated, including the tremolo keyswitch, which plays a sample twice: when a key is struck and again when it's released. Instead of having to choose tremolo samples at selected pitches and tempos, you can easily create convincing tremolos and maintain full control over pitch and speed.

Garritan Libraries, 360/376-5766, www.garritan.com.

BIG FISH AUDIO LA Drum Sessions 2

Most products are difficult to review in 250 words. Not this one. The success of LA Drum Sessions encouraged Big Fish Audio to head into the studio for round two. The result is a no-frills set of grooves that is a must-have for many loop-based producers.

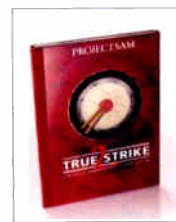
Being a Stylus RMX user, I used that app's SAGE converter to strip the REX file loops off the DVD. As usual, the content is also offered in AIFF, WAV and Apple Loops form. Whatever form you choose, you'll need just more than 3 GB of hard drive space for this collection of loops and hits. If you're short on space, then you can choose not to import all of the files. Big Fish has included dry, wet and room versions, and while it's true that there's no substitute for a set of room mics, in this age of affordable reverbs, you can easily go with the dry samples only and tailor them for your productions at a later time.

Loops were sampled at 15 different tempos, and all of the grooves in a particular tempo folder can be easily mixed and matched. LA Drum Sessions 2 offers high-caliber performances, and the fills in particular are a great bonus, especially if you use them as starting points and dissect them in an editor. Price: \$99.95.

Big Fish Audio, 800-717-3474, www.bigfishaudio.com.

PROJECTSAM True Strike, True Strike 2

In 2002, composers Martin Spuijt, Vincent Beijer and Marco Deegenars joined forces



to develop ProjectSAM, a sample library production company. Their goal was simple: to offer well-recorded discs packed with great emotional wallop, with film composers as their

primary target.

The company's first library, Horns, was released in 2002. Soon after, it brought several other brass libraries to market, and in 2004, ProjectSAM released True Strike, billed as a "Cinematic Orchestral Percussion" library. Last year, True Strike 2 ("Cinematic World & Effects Percussion") hit the streets.

With so many well-sampled orchestral and ethnic percussion libraries already on the shelves, developing new sample sets offering something significant was a tall order, but ProjectSAM delivers. Limited space precludes a discussion of all of the libraries' contents, which can be loaded as Kontakt, GS3, HALion, EXS24 mkII or MachFive presets. Individual waveforms can also be sucked into Stylus RMX as REX files. Individual hits, which comprise the bulk of these libraries, won't require it, but you might want to import some fills into RMX and match them to your sequencer's tempo.

Recordings are provided in Close, Stage and Far variations. On True Strike, the same content is offered in these three mic placement settings, whereas True Strike 2 offers different material. If you have unlimited storage space, you may want to load all of True Strike's three sets of mic placements. However, if space is a consideration, then load the Stage mic placements. Rarely will you use the dry sounds; adding reverb will let you place the Stage sounds in a room of your choosing.

Everything about these libraries—such as the timp glissandos and tom-tom phrases—speaks to a film sensibility. For example, consider Dystopian Effects on True Strike 2. Who knew that dystopia is defined as "a society characterized by human misery"? This clever description aptly describes its content. The prepared piano on True Strike 2 is superb.

These libraries are highly recommended, and the company even offers some 300 MB of free samples on its Website to get you hooked. Street price: \$399 each.

ProjectSAM, dist. by House of Samples, 877/687-4270, www.houseofsamples.com or www.projectsam.com. ■

Gary Eskow is contributing writer to Mix.

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Friends and collaborators Bruce Hornsby (left) and Ricky Skaggs

RICKY SKAGGS AND BRUCE HORNSBY

A MEETING OF TWO WORLDS

By David John Farinella

The recently released collection of songs from Ricky Skaggs and Bruce Hornsby has its genesis at a rinky-dink show that took place in the small northern New York town of Horseheads in the mid-'80s. "We played an outdoor music festival together, and the promoter had done such a poor job promoting the show that there was probably more band and crew at the gig than there were people," Skaggs recalls with a laugh.

"I did my show and went back to my little dressing room and Bruce came and knocked on the door."

After expressing his affection for Skaggs' music, Hornsby invited the bluegrass multi-instrumentalist to join him during his set. The two played together on that show and have crossed paths a handful of times since, including an appearance on Skaggs' show at the legendary Ryman Auditorium in Nashville and recording a track together

for the Bill Monroe tribute album *Sing the Songs of Bill Monroe*.

"We recorded 'Darling Corey,' which [Monroe and his brother] did back in '36 or '37," Skaggs reports. "Bruce had been doing that song in his show a little bit, so we did a bluegrass treatment and it was so much fun. It had this wonderful mixture of Bill Evans' chord structure and bluegrass Bill Monroe. It had what we call 'stank' about it. It came together so quick, we looked at each other, and I said, 'Man, we gotta do more of this, maybe do a whole album. Would you be up for that?'"

Hornsby was, and after a label shuffle the duo got back together. "We really had a heart to try to be creative and do something from start to finish, try to bring new material to it but also try to find some old things that we could rearrange in a way where it would fit both of our personalities and both of our backgrounds," Skaggs says.

With that in mind, Hornsby, Skaggs and Skaggs' band Kentucky Thunder—fiddler Andy Leftwich, tenor vocalist and rhythm guitarist Paul Brewster, bassist Mark Fain, banjo ace Jim Mills, lead guitarist Cody Kilby, and baritone vocalist and rhythm guitarist Darrin Vincent—convened at Skaggs Place Studio (formerly known as Superior Studios and Acorn Studios) in Hendersonville, Tenn., to get to work. Hornsby did some editing and vocal overdubs at his studio in Williamsburg, Va., but most of the record was tracked at Skaggs Place. The entire

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FOUNTAINS OF WAYNE

GUITAR-POP BAND STAYS THE COURSE IN 'TRAFFIC AND WEATHER'

By Heather Johnson

When Fountains of Wayne started making plans to record their new album, *Traffic and Weather* (out April 3 on Virgin Records), co-founder/bassist Adam Schlesinger thought a change in scenery and work mode would rekindle their creative fire after a four-year break from recording together. Their 2003 release, *Welcome Interstate Managers*, yielded such cleverly written gems as "Stacy's Mom," "Bright Future in Sales" and 14 other exceedingly catchy, hard-to-follow numbers. The album also earned the New York-based band two Grammy nominations, including "Best New Artist"—never mind that the band formed more than a decade ago. After releasing a collection of B-sides, *Out-of-State Plates* in 2005, the Fountains turned themselves back on.

They booked a week at Bearsville Studio (they were one of the last groups to work in the Turtle Creek Barn before the studio closed) near Woodstock, N.Y., with



the intention of writing, arranging and recording as a unit. After a week of noodling, however, they realized that their usual routine worked pretty well after all, and off they went to their usual studio—Stratosphere Sound in New York City's artsy West Chelsea neighborhood—and their usual process of writing on their own and then bringing those songs to the studio for the band to arrange and record together.

Although it didn't work for a full album,



Fountains of Wayne, from left: Brian Young, Jody Porter, Chris Collingwood and Adam Schlesinger

the band's week in the country wasn't a total waste; they emerged with one keeper track ("Strapped for Cash"), a whole hard drive full of songs-in-the-making and a stronger realization that after delivering jubilant, guitar-fueled power pop for more than a decade, each member intuitively knows how and what to contribute. "After playing as a foursome for so long, everybody really has a role to making it sound like it sounds," says Schlesinger, who produced the album and owns Stratosphere Sound with Smashing Pumpkin James Iha and Andy Chase, Schlesinger's bandmate in Ivy.

After taking some time out to write, principal songwriters Schlesinger and co-founder/guitarist Chris Collingwood joined lead guitarist Jody Porter and drummer Brian Young to get the songs nailed down and then record basic tracks with Stratosphere's chief engineer, Geoff Sanoff. Aside from coordinating four hectic schedules, there's not much pre-planning before they get there; the band works better by simply reacting to the songs as they're brought to the table. "We'll bring a song in, then Brian will come up with a feel for it, cut a basic track, then we'll spend a lot of time with Jody experimenting with different guitar parts," says Schlesinger. "On this album more than any, you can really hear Jody's playing and the incredibly wide range that he's capable of."

Porter's versatility came through more abundantly this time due to one slight

change in recording technique: trading the Studer 827 2-inch analog machine for the studio's Pro Tools HD workstation for tracking. The move from tape to disk enabled them to experiment more and ultimately layer guitars, vocals, keyboards and even horns more liberally and efficiently. "We had always at least recorded the basics [to analog] and then dumped it into Pro Tools," says Schlesinger, "but it's gotten to the point now where I don't even know if you're gaining anything from that."

Sanoff and band worked in Stratosphere's Studio A, home to a classic Neve 8068 console with GML Automation, Genelec monitors, a solid inventory of outboard gear and microphones, and a musician's dream of classic guitar amps, a Baldwin baby grand piano and dozens of vintage keyboards. "In general, our philosophy is to start out with rich, warm sounds, and then you can always dicker 'em up in the computer and play with them later," says Schlesinger. "But you want the original signal to be as nice-sounding as you can—even if in the end you make it sound like it was run over by a truck."

Sanoff recorded the drums first, with either Collingwood or Schlesinger (depending on who wrote the song) laying down a scratch vocal and rhythm guitar track at the same time. Aiming to capture a combination of close-miked and room sounds, Sanoff used Coles 4038 ribbon mics on the

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BOOKER T. & THE MG'S "TIME IS TIGHT"

By Gary Eskow

The idea seems so anachronistic—a record label with its own house band. Back in the '60s, though, the majors weren't simply offices populated by executives. Some of the best—Motown, Atlantic, Stax-Volt—were thriving music communities, with distinct personalities forged in large part by the stable of outstanding musicians who helped create the distinctive arrangements and rhythm tracks that defined the sides they released.

At Stax-Volt, the house band was Booker T. & The MG's, named, of course, after keyboardist Booker T. Jones and...“The British car company,” guitarist Steve Cropper says with a laugh. “Duck [Dunn, bassist] has a different theory, though: He says it stands for Musical Geniuses! Seriously, back then groups were often named after cars; there were The Cadillacs, the El Dorados, Stax had The Triumphs. We were just following in that tradition.” It has also been widely speculated that it really stood for Memphis Group. Let the controversy rage!

Memphis-based Booker T. & The MG's spent some time behind the scenes before taking center stage in 1962 to record their first hit, the immortal instrumental “Green Onions.” Hammond B-3 master and pianist Jones, Cropper, Dunn and drummer Al Jackson contributed their skills to many of the label's early hits, including Rufus Thomas' “Walking the Dog,” which was covered shortly after its release by a young British band called the Rolling Stones. They also backed Sam & Dave on both “Hold On, I'm Comin'” and “Soul Man.” Along the way, Booker T. & The MG's managed to follow up on the success of “Green Onions” with several other major hits, including “Hip Hug-Her,” “Soul Limbo” and in 1968, this month's classic track, “Time Is Tight.”

The group would often get together, hash out a few ideas, and develop the best ones. This is the process that led them to write the instrumental “Time Is Tight,” which initially had a different name. Cropper says, “By the time the track made it to its second film [more on that later], we called it ‘Uptight,’ but a young artist named Little Stevie Wonder had taken that title!”

Originally written for the 1968 film *Duffy*, which starred James Mason, James Coburn and James Fox, rights to “Time Is Tight” reverted back to the group when a business arrangement acceptable to all parties couldn't be reached. “James Fox told Stax that Booker T. & The MG's was James Coburn's favorite band, and that he wanted us to write a song for his new film,” Cropper says. “The next day, we went into the studio to try and come up with something.”

“The track started out with Duck and I putting that little rhythm figure together,” he continues. “We're just swimming around on top of the beat. If you listen carefully, you can hear that it's similar to the guitar line on Otis [Redding's] ‘I Can't Turn You Loose.’ Booker put a melody on it and the tune



L to R: Donald “Duck” Dunn, Booker T., Steve Cropper, Al Jackson, Jr.

came together quickly. We cut ‘Time Is Tight’ in the main room at Stax. It was just us and the engineer, Ron Capone. Ron passed away several years ago. We worked out a lot of tunes in that room, and as soon as we had an idea where it needed to be, we'd drop it to the 4-track tape machine. We did very little overdubbing. Ron was able to get a good balance, and all we needed him to do was press Record.”

At the time, Studio A at Stax's McLemore Avenue facility was equipped with a custom Auditronics board, a Scully 4-track, various pieces of outboard gear—LA-2As, 1176s and much more—and a nice collection of mics. When I interviewed Capone nearly 10 years ago for a “Classic Track” article on Redding's “(Sittin' on) The Dock of the Bay” (July 1997), he revealed that he usually used a single Shure SM57 on Cropper's guitar amp and Dunn's bass amp, a pair of RCA 77s on Booker T.'s Leslie cabinet and three mics on the drums, which included one overhead. Reverb was usually a combination of one of the studio's live chambers and an old AKG model.

Cropper continues with the song's saga: “The film people liked the track and wanted to use ‘Time Is Tight’ in their picture, but they also wanted publishing rights—they told us that's how things were done in the movie business. ‘Not with our music,’ we replied! There were no hard feelings though, and we hung on to the track.”

Though “Time Is Tight” never showed up in *Duffy*, it did find its way onto the soundtrack of another film released in 1968, Jules Dassin's politically charged *Up Tight!* “Time Is Tight” made it all the way to Number 6 on the pop charts in the spring of 1969, becoming the group's second biggest hit ever (after “Green Onions”).

After the group disbanded in 1972, Cropper went on a

creative spree that may slow down at some point—but hasn't yet. He co-wrote "Knock on Wood" with Eddie Floyd, "In the Midnight Hour" with Wilson Pickett and his signature song, "(Sittin' on) The Dock of the Bay," with Redding. He has played guitar on dozens of albums, and he still tours occasionally with the Blues Brothers band (of which he and Dunn were charter members). He also produces out of his home in Nashville. In fact, the day we spoke, Cropper was getting ready to mix a song his friend T. Graham Brown had written for the Tennessee Titans NFL football team.

Today, Cropper has no reservations about revealing the MG's' inspiration for writing all those infectious instrumental tunes: "We wanted to make hit records, and we were greatly influenced by whatever was going up the charts. For me, this went all the way back to the first successful band I was in, The Mar-Keys. If you didn't play the hits, people wouldn't dance. The MG's knew that if we didn't make records that made people dance, they wouldn't be hits.

"In the '60s, every college had their own dance going on, and we played a lot of college dates," he continues. "We'd also watch *American Bandstand* and pick up on the dances that were popular with different audiences. It wasn't like today, when 5 million kids pick up on a record at the same time. Things were much more regional back then. Al Jackson had a real talent for working out the beats behind dances, like the camel walk and the stroll, and when we got back into rehearsal on Monday following a weekend of dates, the first topic of discussion would be the beats. Al would watch the steps and bring the most popular beats to our attention. Remember the jerk? Wilson Pickett's 'Midnight Hour' was given a jerk beat."

Although Cropper now owns a Pro Tools rig and has no problem sliding parts around to improve the track's feel, he has strong opinions about the state of today's music production methods. "You can take an old song, clean it up on a computer and make it sound great," he says. "But when the computer itself is the source of the pulse, I think the basic soul, the energy, is gone. That's the problem with loops and drum machines. I still play the same way I did 30 or 40 years ago: bouncing off the music and the singer. By the time they quantize my part and run it through Pro Tools, it ain't really exactly the way I played it. Sometimes people want to throw a fresh coat of paint on when it's not needed.

"I grew up fishing with my dad, and there's something to be said about the energy that goes from the guy holding the pole

all the way down to the fish. The way you handle the pole defines who you are as a fisherman. In the old days, we were making records that had that same pulse between living things. People heard it and felt it, and couldn't wait to go out and buy a record. Same as the fish who, for some reason, can't wait to hook himself on the pole of the fisherman who has the right energy."

Certainly, "Time Is Tight" remains a living, breathing part of music history—the product of a four-piece ensemble at its creative peak. A simple, four-chord tune laid to tape with no overdubs, it is a consummate work of soul minimalism. Using no unnecessary gestures and the fewest notes possible, Booker T. & The MG's produced textures that reflect quiet spaces and party places, reeling in audiences toward their unique sonic canvas, and in the process helping define the sound of the '60s. In recognition for their contribution to so much of that era's music, the Stax-Volt house band was elected to the Rock and Roll Hall of Fame in 1992, and they received a Lifetime Achievement Award at the Grammys this past February. ■

SHAGGS AND HORNSBY

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process took around a year, including the time each artist toured with his own act.

The first step, Skaggs says, was "making sure we didn't cut something, and say, 'Man, radio is really going to go after this.' We let that be exorcised from our thinking. That was the great part of cutting this [album]. We didn't have any of that ever come up. Bruce is a master of pushing that envelope of going a little bit farther, a little bit farther and making you love it on the way."

Skaggs' job as co-producer was to bring the sound back to center, just as Hornsby's was to push it. The key, though, was to make sure the songs were strong. "Then when it came time to have fun and play, it was like 'take off the handcuffs,'" Skaggs says. "We just played, going as far out as we want to go, but yet keep the integrity of the music. That was really the first line of business."

Skaggs gives considerable credit to Kentucky Thunder. "They can push the envelope and play traditional bluegrass music. They're always ready to take off and play stuff that you have never heard Bill Monroe play or Flatt & Scruggs," he says. "Their virtuosity is so great that they can play really out-there kind of stuff when they really want to, so I don't think we were working with musicians who really could only do bluegrass."



Hornsby says of the album, "It's bluegrass-tinged, no doubt, but it's also pushing it in certain ways. Like I wrote a new tune called 'Gulf of Mexico Fishing Boat Blues' that is a bluegrass tune in 5/4. We also recorded two Roscoe Holcomb songs that Ricky sang. He was one of the great old-time traditional banjo players/singers. And that's not your basic bouncy bluegrass. It's very hard music in the sense there's nothing pretty about it: 'Across the Rocky Mountains' is one chord throughout the whole song, but it's a real highlight."

For engineer Brent King, "The challenge was being ready to record anything that moved," he says with a laugh. "If it moved, you'd better be rolling. The spontaneity of what we got was just amazing." In fact, a couple of the songs that ended up on the album were first-take performances. "So the hardest part was just having your act together enough and having things kind of corralled a little bit so you could get your first take down," he adds. "A lot of Bruce's vocals are just right there at the piano. Unless he didn't know the song, he sang it right there on the spot."

An assortment of top vintage and modern gear was used to track these songs, King reports. That includes a wide range of tube outboard gear from Neve, Mercury and Manley, and microphones from Neumann and RCA. And while the studio is stocked with a number of analog tape recorders, this project was recorded using iZ Technology's digital multitrack, RADAR. The reason was more practical than anything else, King says. "At one time, you couldn't get tape and by the time we could get it, we were already into RADAR-land," he explains. "A

lot of times, since we were going for vibe and feel, we would go for multiple takes and the tape bill would have been higher than the recording budget.”

Songs were tracked live with Hornsby in one corner, bassist Fain in the other and the rest of the band scattered around. Fiddler Leftwich was put in an iso booth. “Sometimes it’s a little hard to isolate the fiddle because it’s a high-pitched instrument,” King notes. “If he digs in, it’s kind of like having Van Halen playing fiddle and getting cool things from him. You want to be able to control that a little bit.”

King is a great believer in double-miking many acoustic instruments; again, it’s all about options and control. “Different guys will argue with you about that,” he says, “but to me it’s kind of hard to capture the whole body of the bass with just one microphone. It’s nice to back the microphones off a little bit and hear a little bit of the room going on. When you stand in front of a guitar or a mandolin, or whatever you’re listening to, in most studio situations it’s closed-miked, six or seven inches away and, depending on who is doing it, it’s one or two mics. It’s kind of nice to back the mics off a little bit and put them in different places.” To accomplish this, King will put on a set of headphones and stand in front of the player while moving microphones around.

Hornsby’s piano was recorded through a stereo mic placed where the high strings and low strings cross over. He sang into a vintage Neumann 269, which went through either a Universal Audio or Neve mic pre with slight compression via either a Tube-Tech CL-1A or an LA-2A.

Skaggs’ vocal chain for this record typically started with an old Telefunken U47 and then included a Fearn VT-2 mic pre, an LA-2A and a Neve limiter. “Everything is pretty much flat to tape,” King says, “and then I’ll EQ it a little bit when I mix it.” On Skaggs’ mandolin, King used an old Sony C37A, and on his acoustic guitar a range of microphones that included small-diaphragm Neumann KM66s, Gefell M-582s, Schoeps 221s and Neumann M250s.

The isolation and attention to recorded detail gives the album a weighty sound, and finding the right balance was another challenge for King. “You’re dealing with [Kentucky Thunder], which is a world-class bluegrass band, and then you throw a piano and another vocal into the mix, so everything is kind of in the midrange,” he says. “You’ve got acoustic guitars, mandolin and a real percussive piano. Then there’s Andy playing fiddle, Mark on bass and Bruce and Ricky singing.

“The challenge, other than doing Ricky’s normal stuff, is you’ve got a big piano that you’ve gotta sit in there,” he continues. “The great thing about Hornsby is that his sensibility is to play in a track and he knew when to bring it up and when to bring it down.”

Hornsby notes, “Ricky and others have said through the years that the way I play piano reminds them of the banjo in bluegrass, so sometimes when I play, the piano takes on some of that role, I guess. It really wasn’t too difficult to fit in. You just have to be careful to not play too much left hand or be too busy. It’s real easy for a piano in my music to take over and obliterate everything else and sound terrible,” he laughs. “It’s the big midrange force. In fact, we always used to joke that my band should have been called Bruce Hornsby & the Midrange, with all that piano and guitar—it was sonic hell for an engineer.”

Of the record’s 11 songs, King points out

We just played, going as far out as we want to go, but yet keep the integrity of the music. That was really the first line of business.

—Ricky Skaggs

that most of them naturally fell into place, with the most challenging being the bluegrass version of Rick James’ “Super Freak.” “But it was a fun challenge,” he says. “Bruce came in one week, and he goes, ‘Guys, we gotta cut this. I’ve had it in my mind.’ He had done a demo of it up at his place and we looked around, and said, ‘Let’s work with it and put the band on top.’ For the most part, though, it was just kinda playing around.

“I’ve been in this town and have been doing this long enough to know when you get some really creative guys in a room, if you give them enough time and just let them mess around with it long enough, stuff just starts to happen,” King adds. “Any great session band, or any great band like Ricky’s and Bruce’s, they just start finding their places. So if anything took any amount of time at all, it would be just finding the groove, finding the place, and then after that, it was just picking the best take.” ■

FOUNTAINS OF WAYNE

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overheads, Shure SM57s and AKG 441s on the snare, Sennheiser 421s and AKG 414s on the toms, either a Shure Beta 52 or AKG D-112 on the inside of the kick drum, and a Neumann FET 47 on the outside. For room mics, he used Neumann 87s through a Summit Audio DCL-200 compressor; for color, a Beyer M88 through a UREI 1176. “To me, the overhead mics and the room mics are the most important mics on the kit because they allow you to adjust the ambience of the drums from small to big,” says Sanoff. “The song ‘92 Subaru,’ for example, is sort of Doobie Brothers-esque, so it’s supposed to have that tight, ‘70s sound. You get a lot of air with the Coles mics, but if you set them up right, you can still have a reasonably close-sounding drum kit and still get a lot of nice detail.”

Collingwood and Porter had free rein of the studio’s guitar amp collection, deciding on an assortment of Matchless, Vox and Marshall amps. Sanoff usually miked these with Royer 121 and Sennheiser 421s, and then blended them together in various configurations to create a full rhythm guitar sound. Most of the guitar tracks also ran through an Empirical Labs Distressor or a UREI 1176. Porter played through Vox amps for most of his leads, at times choosing one of Iha’s 12-string guitars. “We have a lot of James’ guitars, and he has a lot of beautiful ones,” Sanoff says. “He’s got this awesome old Fender 12-string; as soon as you plug it in, it sounds like The Byrds. It’s just amazing.”

Schlesinger filled out the low end with either a Gibson Thunderbird or Fender Jazz bass paired with an Ampeg B15 bass/guitar amp, which Sanoff miked with a Neumann U47 through a Tube-Tech MP 1A 2-channel mic preamp.

Collingwood and Schlesinger share songwriting credits and vocal duties, although their vocal mic requirements vary. Schlesinger says he’ll sing into whatever’s put in front of him. Collingwood takes a similar laid-back approach, with one caveat: No U47! Apparently, the classic mic sounds great on almost anything—except Collingwood’s vocals. For *Traffic and Weather*, Sanoff used his own Blue Baby Bottle. “It’s got a bright, brash sound, and for Chris’ vocals, it’s perfect. We used it on pretty much every song.” Meanwhile, Schlesinger sang through either the Baby Bottle, a Neumann U87 or the U47, with either a UREI LA-2A or Distressor powered up for compression.

Between the vintage Neve console,

excellent microphones and, most importantly, the musical proficiency of all four bandmembers, Sanoff's role didn't entail a lot of tweaking. They used plug-ins only to add in the random odd effect, such as the Line 6 Echo Farm-generated effects on "Strapped for Cash." They did spend some extra time after tracking the basics to add in horns, keyboards and additional background vocals, which are layered more abundantly than on the Fountains' previous three studio albums. Schlesinger handled much of the editing, then passed on the tracks to John Holbrook, who mixed 12 of the album's 14 tracks, and Michael Brauer, who mixed the remaining two.

Holbrook, who has worked on several of Schlesinger's outside productions (Verve Pipe, David Meade, Ivy), as well as Fountains of Wayne's *Welcome Interstate Managers* (which earned them two Grammy nominations in 2004), noted that Schlesinger's rough mixes already sounded pretty darn good to begin with, some requiring only minimal EQ to bring them to master quality. After splitting out the tracks on Stratosphere Sound's Neve, Holbrook went to work on creating a mix that would keep the guitars at the forefront

without overpowering the band's pristine vocals and harmonies. He brought back the UREI 1176 and Distressor to polish the guitars and lead vocals, a Universal Audio 175 tube limiter on acoustic guitar, and a Tube-Tech LCA 2B stereo compressor and a pair of dbx 160s on other elements to fine-tune the mix. On the stereo bus, he employed the Smart Research C2 compressor. For the drums, Holbrook broke out his secret weapon: FMR Audio's Really Nice Compressor. Really. "It's almost like having a stereo Distressor, but it doesn't have all the bells and whistles," he says. "I recommend that everyone should have at least one *really nice* compressor!"

Brauer, meanwhile, mixed the first two singles, "Someone to Love" and "92 Subaru," at his room at Quad Studios in New York on their SSL 9000 J, while his sound towers—four tall racks comprising an exhaustive assortment of limiters, compressors, reverbs and other effects—worked their magic behind him. He agrees with Holbrook that the rough mixes didn't require much effort. "It's not often that someone brings in roughs that feel complete," says Brauer. "If they did, I'd be on the bread line!" Both engineers mixed to

half-inch at 30 ips, then printed digitally to Pro Tools.

Loyal Fountains of Wayne fans will be pleased to discover a new cast of oddball characters on this record, such as "Michael and Heather at the Baggage Claim," "Yolanda Hayes" (their special new friend at the Department of Motor Vehicles) and the hot-and-heavy news team on the title track. Musically, the album jumps with the jangly guitar-pop one would expect from the band, with occasional detours into classic '70s pop.

"We like really eclectic records. We like records that skip all over the place, and I think our records have gotten progressively more like that," says Schlesinger. "For us, that's what keeps it fun, instead of saying, 'This is going to be an all-loud or all-soft record,' we just take it song by song. When we mastered our last record, [engineer] George Marino said, 'Nobody really makes records like this anymore.' On most of the records he gets, all of the songs kind of sound the same. If you like the single, then you'll get a bunch of other songs that sound kind of like the single but maybe not as catchy. Our records are just getting more schizophrenic." ■

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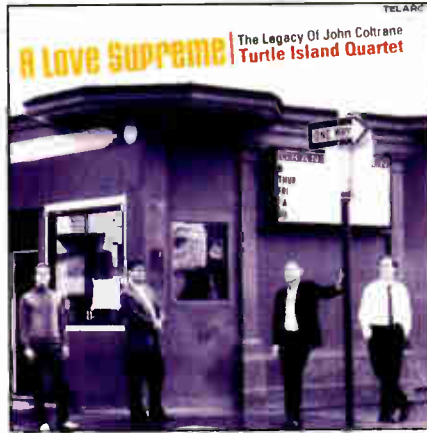
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Turtle Island Quartet

A Love Supreme—The Legacy of John Coltrane (Telarc)

Covering adventurous jazz is nothing new for the Turtle Island Quartet, but even by their lofty standards, their latest excursion in the genre, recorded live in the studio, is quite an achievement. Mixing superbly crafted arrangements with flashes of inspired improvisation, the foursome—David Balakrishnan and Evan Price on violins, Mads Tolling on viola and Mark Summer on cello—put an entirely new spin on the music of John Coltrane as they hit a number of high points of the sax great's canon, including the multipart title track, "Naima," "Countdown," the ubiquitous (but always great!) "My Favorite Things," and a couple of Trane's best-known outings with Miles Davis, "Round Midnight" and "So What." The arrangements are fascinating: They unpredictably combine some of the melodic and harmonic components of the originals, along with portions of Coltrane's transcribed solos, a lot of new harmonic ideas, and improvisations as the connective tissue between the written-out elements. There are passages that sound like they could've been written by Bartok, followed by speedy improvs that clearly come down the line from Joe Venuti and Stephane Grappelli (and, of course, Coltrane himself). But all the sophisticated arrangement ideas wouldn't amount to much if the music didn't *swing*; and this does. Part of it is the musicians' innate understanding of the actual and implied rhythmic undercurrents in Coltrane's writing and playing, and a lot, quite frankly, is Mark Summer's insistent plucked and bowed cello work, which can bring a loose jazz authority to even the most formal and intricate passages.

Producer: Thomas C. Moore. Engineer: Michael Bishop. Sonoma (DSD) engineer: Gus Skinas. Studio: Skywalker Sound. —Blair Jackson



Bebel Gilberto

Momento (Six Degrees)

Some are drawn to Bebel Gilberto's "new Brazilian sound," that cosmopolitan blend of smooth electronica and bossa nova. Me, I'm in love with that sultry voice; she could sing the McDonald's menu in her sweet, breathy Portuguese and I'd swoon. But there's something for all of us on her third album, *Momento*, which demonstrates Gilberto's real maturity as a songwriter, and a fresh production style—courtesy of Guy Sigsworth (Bjork, Seal, et al)—that still pays homage to her legendary lineage. Gilberto wrote or co-wrote most of the tracks herself. (My favorite exception is Cole Porter's "Night and Day.") And though I'm partial to the more traditional acoustic stylings of Gilberto's self-titled second album, I'm warming up to these lush electronica mixes—maybe because those easy vocal melodies still shine right through.

Producers: Guy Sigsworth, Bebel Gilberto, Didi Gutman, Sabina Sciubba, Beco Dranoff, Berna Ceppas, Kassin. Engineers: Sean McGhee, Jason Corsaro, Gutman, Brian Montgomery, Antoine Midani, Edu Costa, Ceppas. More at www.mixonline.com —Sarah Jones



Charlie Louvin

Charlie Louvin (Tompkins Square)

The duets-with-a-legend format has become commonplace, but such collections are not all cut from the same cloth. *Still Standing* (2006) by Jerry Lee Lewis and friends is a playground for The Killer. The "guests" Lewis covers are only subtle influences over the headliner's piano acrobatics and raging voice. Conversely, Charlie Louvin's vocals are bolstered by other singers and songwriters on *Charlie Louvin*, a celebration of Louvin's devotion to traditional country and gospel. George Jones, Jeff Tweedy, Elvis Costello and others trade verses with Louvin on heartfelt versions of Louvin Brothers songs ("Great Atomic Power," "When I Stop Dreaming"), as well as others Louvin hand-picked (A.P. Carter's "Worried Man Blues," Jimmie Rodgers' "Waiting for a Train"). At age 79, Louvin's voice has thinned, but conveys undiminished sweetness and feeling. He owns these songs, and so should you.

Producers: Mark Nevers and Charlie Louvin. Engineer/mixer: Nevers. Studio: The Beech House (Nashville). Mastering: Jim Demain/Yes Master (Nashville). —Barbara Schultz



The Cinematics

A Strange Education (TVT)

You gotta feel for these guys: Review after review compares The Cinematics to Franz Ferdinand because both bands are from Glasgow, Scotland. But that's really about the only similarity: Franz Ferdinand digs deep into their emo/new wave bag of tricks, while The Cinematics draw heavily on pop/rock influences like The Cure and Echo & The Bunnymen. The album starts out with the guitar-infused "Race to the City," providing a wonderful base for the frenzy to follow. The album then mostly fluctuates between hard-hitting tunes ("Ready Now") and more melodic vocal-powered ditties ("A Strange Education," "Chase"), with an occasional guitar-heavy anthem ("Rise & Fall") thrown in. A strong debut, to be sure. Take note: The enhanced CD includes four videos and live versions of certain tracks.

Producers: Stephen Hague, Simon "Barny" Barnicott. Engineer: David Wrench. Mixers: Hague, Bob Kraushaar. Studio: Real World Studios, Bryn Derwen (Wales), Sahara Sound (London). —Sarah Benzuly



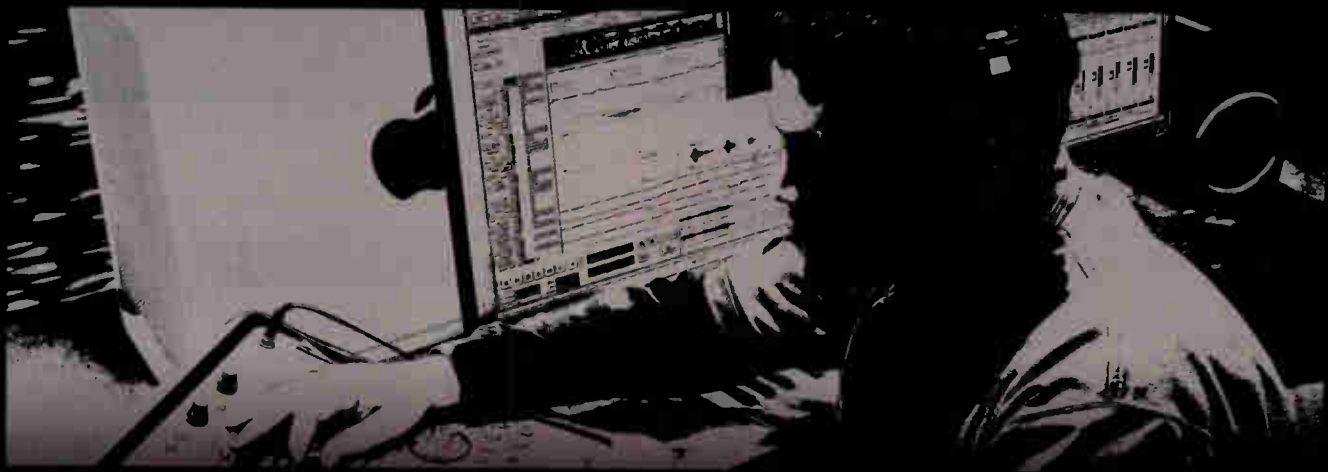
The Bird and The Bee

The Bird and The Bee (Metro Blue)

What's in a name? Frankly, the reason this disc caught my eye is one-half of this duo is Inara George, daughter of the late Little Feat mastermind Lowell George. Stylistically, this music couldn't be further from Lowell's, but like his, it's quirky and far from the mainstream. Inara's partner in the group, Greg Kurstin, plays (nearly) all the instruments and handled the production and engineering; a talented dude. Most of the tracks are marked by a modern minimalism—rudimentary electronic percussion, some keys, multiple stacked vocals; plenty of air. A couple of tracks also show that Kurstin has clearly studied at the altar of Brian Wilson—that's a good thing. All in all, it's a pretty strange brew, but Inara's got such a sweet voice and an appealingly odd persona, it's quite a compelling listen.

Producer/engineer: Greg Kurstin. Studio: Echo Studios. Mastering: Gavin Lurssen/The Mastering Lab. —Blair Jackson





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L.A. GRAPEVINE

by Bud Scoppa

I'm sitting in the lobby of Hollywood post house SonicPool (www.sonicpool.com) with co-owners and supervising mixers Patrick Bird and John Frost. The big rear-projection TV is tuned to TNT, which is airing another in its seemingly endless supply of *Law & Order* episodes; the sound is muted, of course. Under the blue-felt mini-pool table are various baby toys for the days when Frost's one-year-old daughter visits daddy's place of work. A constant flow of people goes in and out,



Co-owners/mixers Patrick Bird (left) and John Frost

and nobody's wearing a suit—not even close. On this 85-degree midwinter day, the preferred wardrobe is cargo shorts and T-shirts, with the requisite sampling of backward baseball caps. Here, every day is casual Friday. This joint isn't overly fancy, but it has a vibe.

"You'll notice there's no fresh fruit on the coffee table," Frost points out with a laugh. "There is candy, though."

Also absent are mixing consoles. In the summer of 2001, when Bird and Frost started the company—renting one room in the then-empty building—they decided to take the computer route instead. The stripped-down approach to hardware "speeds up our workflow," says Bird. "There are so many things you can do, and do quickly, with just Pro Tools and a computer. I feel like I get a better, tighter mix if I'm just going in and doing pinpoint marking rather than going back and forth and sliding the

fader around. Also, it definitely helped us consolidate our rooms and create sort of a mini-dub stage where we can do 5.1 and still have plenty of space to have clients sitting in there with you and have a nice, comfortable room. The only downside is you don't have that 'wow' factor when clients walk into the room. But once they sit down and listen to the mix, they realize this is good—this works."

"Nobody comes into our studios and goes, 'This is an audio room? Where's the board?' The only people who do that are from a music background, and that's a very small part of our clientele," adds Frost. "Do we have \$10,000 microphones? Not at all. Do we have expensive mic pre's? Not at all. What's interesting is we've never had a problem matching any sounds or issues with any audio that goes out."

Presently, they run Pro Tools 192 HD systems on Mac G5 Quads, with Martinsound MultiMAX monitor controllers and Joemeek and PreSonus preamps; the workspaces also boast a mixture of JBL and Genelec monitors. In their most recent upgrade, the partners added a Facilis Terrablock shared-storage system, which "does more than most systems currently in use at a better price," according to Bird.

"When we started," Bird continues, "we didn't have a whole bunch of money to invest; we'd scraped enough dough together for a Pro Tools system and some outboard gear. Basically, the work is what's generated the finances to grow the business; consequently, we always had to be very conscious of how much we were spending and take every step in technological terms as finances would allow."

Another thing that sets SonicPool apart from other L.A. post houses is its diversity of clients, none of which represents more than 5 percent of the company's business. "A lot of post places specialize in certain areas—film, promos, whatever," Bird

—CONTINUED ON PAGE 124

NASHVILLE SKYLINE

by Rick Clark

It was during a John Lennon tribute gig at the Ace of Clubs that I heard Tommy Womack throw down with an utterly committed version of "Well Well Well," from the *Plastic Ono Band* album. It didn't feel like a "tribute" at all: It felt like Womack was doing his own primal therapy in front of the whole crowd. I was completely mesmerized.

Originally from Kentucky, Womack was drawn to Nashville during the '80s rock scene that produced bands such as Walk the West and Jason & The Scorchers. He and his wife moved here in 1992, and for a time he played in regional bands The Bis-Quits and Government Cheese.

During the years, Womack has put out a handful of uniformly strong albums. I've always loved his shambling, reckless, talk-sung observations. But somehow his work never seemed to get into the hands of more than just a small local cult following. To me, it was one of those "life's not fair" situations, when a guy as smart and lyrically insightful and funny as Womack kept falling through the cracks. When we spoke, Womack was just wrapping up a new album—this time cutting a little deeper to the bone with the realization that a young man's rock dreams were going to be nothing more than that.

I caught up with Womack at a John Dee Graham/Peter Case gig. It only took a couple of minutes before he launched into a harrowing, pull-no-punches account of his past few years: "I had a nervous breakdown in March of '03 where everything fell apart. I had to bag a lot of gigs, lost my booking agent, lost my career. I was 40 years old and toast; rode hard and put away wet. I knew—*knew*—I'd never make another record again."

However, Womack found that "the songs kept coming to me—only this time they weren't my usual stock-in-trade, Ray Davies-type observer songs about fictitious characters in amusing situations. These new songs were from a personal, confessional place I'd never visited before. I was a mess—a pothead alcoholic with no future—so that's what all the songs were about. I'd never written about

NEW YORK METRO

by David Weiss

myself before. Ever. Didn't think anybody'd be interested. But here I was writing them, and since I figured nobody would ever hear them, I might as well be totally honest. I wrote the lines 'I'm never gonna be a rock star/There, I said it!' which was a real cathartic thing to admit. In track 9, 'Alpha Male & The Canine Mystery Blood,' I question the Resurrection and whether it really happened, which is a very risky thing when you're a preacher's son like I am. In 'Nice Day,' I wrote about how I was scared I'd be working in a convenience store when I was 64. The whole record is full of lyrics that people don't ordinarily confess. But I did, and I wasn't going to take any of it back."

Among the other highlights on the album are the crash-and-burn saga "Too Much Month at the End of the Xanax" and "A Cockroach After the Bomb."

When Womack finally decided to record this creative outburst, he headed over to multi-instrumentalist/producer/engineer John Deadrick's home studio and began impulsively throwing down tracks.

"We recorded every song to a click track/drum loop with Tommy putting down live vocal and guitar, sometimes acoustic and sometimes electric," says Deadrick. "I used a Shure SM57 Beta exclusively for

—CONTINUED ON PAGE 125

Is it time for A&R people to step aside? Some would say that music supervisors have become the gatekeepers of this industry, exerting tremendous influence over music's cultural impact, credibility and cash flow, as they pick and choose audio for media. Obtaining placements in TV shows, commercials, films and videogames is fast becoming the most direct route for audio professionals to be heard and stay solvent, so it's not surprising that the pursuit of licensing is at the heart of many a facility in media-savvy New York City.

Founded in 2000 in Brooklyn, N.Y., ishlab (www.ishlab.com) may have a fuzzy-sounding name, but founder Jamin Gilbert has always been sharply focused on making his extra-laid-back studio a business winner. Located in an industrial arts building in Brooklyn's boho DUMBO (Down Under Manhattan Bridge Overpass) district, ishlab has quiet charisma and technical firepower, centered around a well-credentialed, vintage MCI console and goodies like John Hardy MPC 600 and Vintech mic pre's, plus a spacious (for Manhattan) live room complete with plants and \$2 lamps.

Gilbert may look like the DJ he is, but he thinks more like an M.B.A. "We maintain a competitive advantage because we are right in the middle between home studios and million-dollar studios," he says.

"Our equipment is much better than what people have in their home studios, and our rates are much more affordable than what the large studios charge. I think the equipment and size determine the market, but the most important things a studio owner in 2007 needs to think about are the same things all business people need to think about: market, organization, strategy, cohesiveness, pricing and expertise."

One business sector that ishlab found worth focusing on was licensing, developing



Jamin Gilbert of ishlab—a laid-back winner

an in-house division geared specifically for building a catalog of music for direct marketing to film, TV and new-media music supervisors. Successful placements for ishlab include deals with such entities as ESPN, *Cirque du Soleil* and *Vogue*. "Music licensing entered into our business model in 2004," explains Gilbert. "It appealed to me because of the fact that there was so much talent around me and nobody was making enough money. The studio could only generate so much money, so we needed to create more income. It felt like a natural and logical progression to expand into music licensing and management so we could help sell the art of our friends and provide the industry and public with authentic and unique music."

According to Gilbert, the studio and licensing activities have proven to be a positive match on multiple levels. "These two things most definitely feed each other," he points out. "We're very efficient because we can do the business and create the product under one roof. We're also constantly exposed to new artists, ideas and material to expand our music catalog and our team. The music we provide is the music the artists make because it's coming from them, not because it fits into a corporation's marketing campaign; it's our job to match the artist's or producer's music with the concept of a commercial,

—CONTINUED ON PAGE 125

PHOTO: RICK CLARK



Singer/songwriter Tommy Womack (left) and engineer John Deadrick recorded in Deadrick's home studio.

STUDIO D RECORDING

NEW PROJECTS INCLUDE ECLECTIC COLLABORATIONS

A couple of years ago, veteran engineer/producer/studio owner Joel Jaffe replaced the Amek board in Studio D Recording (www.studiorecording.com, Sausalito, Calif.) with a Digidesign ProControl and Pro Tools HD3, and he hasn't looked back. Jaffe and business partners Dan Godfrey, Jeff Shea and Robert Hatchett also had the facility completely rewired at that time and created a new patchbay to tie in their collection of analog outboard gear. The last major project Jaffe engineered on the Amek console was a Ringo Starr concert DVD; the first one to come out of the new Pro Tools system was the DVD documenting Henry Rollins' Shock and Awe tour. It's the latest phase in the evolution of a studio that Jaffe has operated for a quarter-century.

Today, Jaffe's work is divided pretty evenly between music DVDs and CDs. Recent album projects have included engineering, producing and mixing Maria Muldaur's Number One-charting blues album of Dylan

covers, *Heart of Mine* (Telarc, 2006); tracking four re-recorded Bonnie Raitt songs for iTunes; the debut by singer/songwriter Liz Kennedy; and a forthcoming release from Roy Rogers and Ray Manzarek.

"That one is very eclectic," Jaffe says. "Roy and Ray had the idea to do an instrumental, acoustic-type project, though there is some electric guitar on it because Roy likes to blend in different sounds."

The two musicians played live in the studio, with Manzarek at the grand piano in the main recording

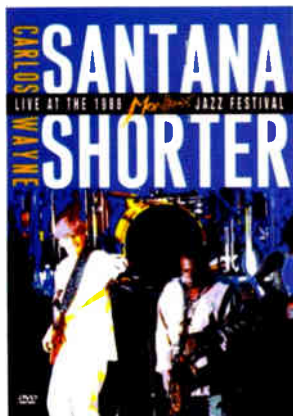


Roy Manzarek, seated next to Roy Rogers, holds Studio D's mascot, Cowboy. Standing: Joel Jaffe and assistant engineer Ashley Lewis.

room and Rogers in a smaller room. With the keyboardist isolated, Jaffe used a close-miking configuration (two AKG 414s inside the instrument) blended with a couple of Neumann U67 room mics. He combined a selection of ribbons and condensers to capture Rogers' various instruments and vintage amps.

Jaffe is also excited about the March release of his 5.1 mix/post-production of a Carlos Santana/Wayne Shorter concert captured at the Montreux Jazz Festival. "It's a blend of rock, fusion and jazz," Jaffe says. "I had to take the NTSC digital file that was a composite of the show and sync all the audio to it. What they had for the audio was the original multitracks that Jim Gaines had recorded in Montreux and it was all done in PAL, so all the frame rates were different. It was a challenge, but it was a blessing because it was so great to work with Carlos."

—Barbara Schultz



PERSONAL STUDIOS

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TRACKING HOLLOW SOUNDS



Engineer Steven Miller at Haunted Hollow

The Dave Matthews band has been working in Matthews' personal studio, Haunted Hollow, on a followup to their successful 2005 release, *Stand Up*. Engineer Steven Miller has been working with the band and reports that mic choices for the release include a pair of Telefunken M16 Mk II tube mics.

A PERFECT WORLD

CONNERS TRACKS HAAS



Jack Conners' Perfect World Studios offers editing, mixing, mastering and short-run duplication, as well as recording services in a private studio in the hills of Northwest Michigan. Most recently, Conners tracked the latest release by jazz pianist/composer Jeff Haas, *Your Peace Counts*.

Owner/engineer Jack Conners (left) and Jeff Haas

BEHIND THE GLASS

HELLISH PROJECT STEPHENSON'S PORCH-PLAYING



Dueling guitars: Martin Stephenson (left) on the porch with Jim Hornsby

English guitarist Martin Stephenson named his new album *Hell's Half Acre*, the nickname of the area around Midland North Carolina where he recorded. Contrary to the reputation this region gained in the 1930s for the rough crowd attracted there by moonshine producers, Stephenson found the atmosphere idyllic enough to play on the porch and in the kitchen at Ramseur Records owner Dolph Ramseur's home. Here, Stephenson and fellow guitarist Jim Hornsby are captured with a SoundField MKV mic.

BROKEN WAVE NEWS STUDIO C UPGRADED



Mix engineer Warren Riker (left) and producer Solvi Blondal in Studio B

In the Neve 88R- and Pro Tools HD3-equipped Studio B at Broken Wave Music (Glendale, Calif.), engineer Warren Riker mixed a new release for Sylvi Knight with producer Solvi Blondal. In addition to the B room and the SSL 9080J-centered Studio A, Broken Wave's Studio C is currently being renovated to serve as a production/editing/overdub room built around an SSL AWS900 board and Pro Tools HD.

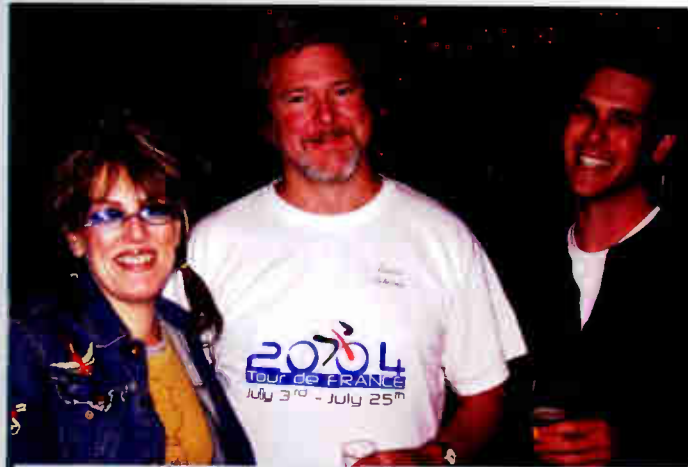
SOUTHEAST

Grammy-winning producer/engineer/mixer Eric Schilling broke in his new Digidesign ICON console recording acts such as Latin artist Olga Tanon and rock band Alter Bridge (formed by members of Creed) at his Norfolk Music (Orlando) studio... Young Buck was in Doppler Studios (Atlanta) finishing a single with producer Polow Da Don, engineer Dru Castro and assistant Trent Privet. Polow Da Don also produced a number of songs for Rich Boy, working with engineer Aaron Holton and assistant Alex Lafer. Additional Rich Boy tracks were recorded by Alec Newell and assistant Rick de Varona...Npall Audio (Nashville) hosted sessions for O'Reilly Auto Parts and the National Rod Association's new TV

campaigns. Engineer Nick Palladino worked on both projects; Phil Gazell and Brian Straka worked on the O'Reilly sessions...At Studio B Mastering (Charlotte, NC), recent projects include John Vanderstice's *Pixil Revolt Remixes*, Marc Lee Shannon's *Azy Ordinary Man*, Snagglepuss' *Sound Report* and Charles Johnson's *Will You Be Among the Missing*. Engineer Dave Harris mastered all of the releases.

NORTHEAST

Remote Recording's (NYC) Polar Express truck was on hand to provide location recording for the 40th annual Country Music Association Awards, broadcast live from the Gaylord Entertainment Center (Nashville). Elliot Scheiner served as audio producer for the event...Big Mo Recording (College Park, MD) provided location recording for film producer Bob Mudge on the Legendary Rhythm and Blues Cruise throughout the Caribbean. Engineers Greg Hartman, Dean West and Mark Williams captured concerts featuring artists such as the Fabulous Thunderbirds and Buckwheat Zydeco... At audio post facility Mixopolix (NYC), mixer/sound designer James Twomey completed work on a spot for Prudential Insurance. Also, mixer/sound designer Mitch Raboy worked with Nobel Prize-winning author Elie Wiesel to record excerpts from Wiesel's book, *Night*, to be included in a segment on *Oprah* in which Oprah Winfrey and Wiesel travel to Auschwitz...Counting Crows were in Avatar (NYC) Studio A tracking songs for an upcoming album. Gil Norton produced; engineer James Brown was assisted by Justin Gerrish. Also in Studio A, Manuel Valera was working on a self-produced album with engineer Joe Ferla and assistant Bryan Pugh; and



Lucinda Williams with engineer Eric Liljestrand (center) and assistant Jason Wormer

WILLNER PRODUCES WILLIAMS

Singer/songwriter Lucinda Williams recorded much of her gorgeous new album, *West*, during the course of several months in Studio D at The Village (West L.A.) with co-producer Hal Willner and one of Willner's longtime favorite engineers, Eric Liljestrand. Second engineers Vanessa Parr and Jason Wormer assisted on sessions that included guitarist Bill Frisell, drummer Jim Keltner and Williams' guitarist, Doug Petibone. For a review of *West*, go to www.mixonline.com.

producer Delfeayo Marsalis worked on music for a film about Buddy Bolden with his brother, Wynton Marsalis, engineer Ed Cherney and assistant Pugh.

MIDWEST

The Burst Collective (Milwaukee, WI) hosted sessions for a Farewell Circuit EP produced by Daniel Holter and Kristian Riley. Also in: Eric Benet tracking vocals and drums with producer Demonte Posey...Chicago rock band Chevelle recorded and mixed bonus tracks at Clean Cut Recording Studio (Palatine, IL). Jef Moll engineered and Tony Doppke assisted.

SOUTHWEST

At Maximedia Studios (Dallas), producers Play-N-Skillz mixed a variety of projects with chief engineer Hal Fitzgerald. Epic Records artist Cheyenne Kimball was also in, rehearsing for an upcoming tour on Maximedia's soundstage.

SOUTHERN CALIFORNIA

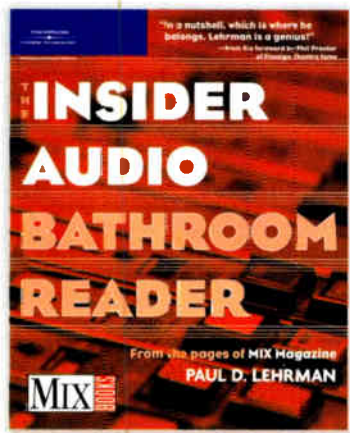
The staff of Sunset Sound (Hollywood) want to extend congratulations to the Dixie Chicks, who spent 65 days at the facility recording basic rhythm tracks and some instrumental overdubs for their Grammy-winning smash *Taking the Long Way*. Sunset staffer Kevin Dean assisted engineers Jim Scott and Chris Testa, and Producer of the Year Rick Rubin. As previously reported, vocals were overdubbed at The Village (L.A.), where Sunset provided the U67 mic used for Natalie Maines' lead vocal. ■

Please send "Track Sheet" news to bschultz@mixonline.com.

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explains. "One of the reasons we started this company is that we were working in places where you're dealing with the same type of media every day and we wanted to be able to work on a film one day, the following week work on a couple of trailers, the week after that do commercials, squeeze in a little gaming work here and there."

Work comes in from all over the entertainment landscape—film, TV, radio, videogames, the Internet. In recent months, SonicPool has done sound packages for the *Scream*, GLAAD and People's Choice awards shows; sweetening for concert DVDs from John Fogerty, Sheryl Crow and Seal; gaming trailers for *Spiderman 3*, *Resistance: Fall of Man* and *Call of Duty 4*; radio promos for Comedy Central series *Halfway Home*; trailers and promos for ABC Family Channel and ABC Daytime TV; trailers and TV spots for a dozen indie films; and radio promos for such major-studio features as *Babel*, *An Inconvenient Truth*, *Blacksnake Moan* and *Smokin' Aces*. On the day I stop by, the company is mixing trailers and TV spots and a behind-the-scenes Internet piece for horror film *Abandoned* (which is also posting in-house), as well as doing sound design and 5.1 mixes of promos for recently launched on-demand service and horror TV network FEARnet.

Trailers and promos for horror flicks provide the partners with particular gratification in that "we get the opportunity to build the wall of sound," says Frost. "By that I mean you've got everything going on—dialog, voice-over, music, sound effects—and when it's a horror film, we want everything including the kitchen sink in there."

Bird adds, "One of the things we pride ourselves on is the creative aspect of what we do—the sound design, getting the mix together, being able to push a mix with so much stuff going on and yet you can hear everything, and every time you listen to it, you hear different things. We mix a little more musically. It's really like mixing a little action sequence, but with voice-overs. When you're doing movies, there's a much wider dynamic range. With trailers and promos, they need to be loud, but you still need to hear everything and we mix toward that."

"A promo or a trailer is a piece of advertising space and everything is being thrown at the viewer now," Frost says. "That's the challenge: to get that dynamic range without actually utilizing dynamic range. Promos are the tightest because you have 30 seconds as opposed to a two-minute trailer."

Along with hands-on work, the partners

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oversee every project that goes through their facility, as well as manage the building. "We have some really long days—or days that string together," says Bird. "Last night at 11:30," adds Frost, "I walked out with two clients, and there were people out on the corner talking, somebody was coming into the foyer from the parking lot, the Current TV people were walking in from around the corner. It's open late."

"We didn't even get around to putting a sign on the building until about three months ago," says Bird. It's worth noting that the sign is on the back wall, facing the parking lot—subtle. These guys have their own way of doing things, but it appears to be working. ■

Send L.A. news to bs7777@aol.com.

NASHVILLE SKYLINE FROM PAGE 121

Tommy's vocal, through a Universal Audio 6176. When he played electric guitar, his Blues Junior was miked with a 57 through another 6176. When he played acoustic guitar, I used AKG 451s, which were put through FMR Audio RNP and RNC with slight compression and vocals through the 6176 with zero compression. I recorded to

MOTU's Digital Performer through their HD192. MOTU stuff is really easy to use and really reliable.

"I mixed in the box and relied pretty heavily on a couple of UAD-1 cards for plugs, although I love MOTU's plate reverb and I used it a ton on guitars and vocals," Deadrick continues. "The drums were done with 57s on top and bottom snare and Sennheiser stuff on kick drum and toms. The overheads were MXL 2001s and the hi-hat with a 451. I used two different types of room mics only because that is all I had: an ADK Vienna and the 4060. For kick and snare, I used a Hamptone HJFP2. And the hi-hat went through an ART Tube Pac; I love that thing. I also used the Focusrite Octopre for toms and room mics. The overheads went through a pair of 6176s."

To flesh out the tracks, Womack brought in Fenner Caster on drums, Paul Slivka on bass and Lisa Gray on harmony vocals for the bulk of the work. Will Kimbrough and Audley Freed provided some of the lead guitar work, and John Gardner drummed on a couple of tracks. Smith Curry laid down some great pedal steel and dobro and Tom Littlefield added harmony vocals. Deadrick provided keyboards.

At the end of "Too Much Month at

the End of the Xanax," Womack wanted "three quick bursts from three screaming guitars doing an aural version of a panic attack," which featured a trade-off between Kimbrough, Womack and Womack's 8-year-old boy, Nathan, in his commercial debut.

"I tuned a guitar in open C7, gave it to him and told him to bash the heck out of it and hit some high frets, too," says Womack. "He was a one-take master, made some noise that would make Captain Beefheart proud." ■

Send Nashville news to mrblurge@mac.com.

NEW YORK METRO FROM PAGE 121
film or artist's album."

For ishlab and other studios adept enough to learn the intricacies of music licensing, it's a business component offering equal parts fascination and earnings potential. "I've learned how important it is to understand an idea or concept and be able to find and create it sonically," Gilbert says. "Producing, engineering, writing and mixing at ishlab studio with other artists, musicians and producers has helped me learn how to translate ideas into sound."

A little north of New York City, in the bu-



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colic Nyack area, you'll find that Brian Tarquin of Bohemian Productions (www.bohemianproductions.net) is optimized for music supervisor-driven projects. Lurking in a 750-square-foot area in the lower level of his country house is Jungle Room Studios, a digital/analog hybrid room that serves as the nerve center for his prolific output.

Working alongside producer Chris Ingram, Tarquin made sure that the L-shaped Jungle Room would be the ideal home for the pair's Emmy Award-winning composing talents (multiple TV credits include *All My Children*, *Grey's Anatomy* and *South Park*), rock/electronic project Asphalt Jungle, artist-run BHP label and other diverse efforts such as the upcoming *Guitar Masters Vol. 1* and *Bob Marley Remixed*. A man with a need for speed, Tarquin saw the design phase of Jungle Room, undertaken in 2003, as a chance to advance his efficiency.

"I really wanted to expand on having a nice studio where Chris and I could work, mixing the old analog world with digital media," the upbeat Tarquin explains. "First off, I wanted a room accessible to everything: I had to be able to get to the keyboards and guitar amps without any breaking down or setting up. I also like a room to mix in that's pretty flat and dead, without a lot of reflections besides from the floor."

The soul of the Jungle Room is pure analog and outboard: a Trident Trimix 32-channel 16-bus console, Universal Audio 2-610 preamp, UREI LA-4 compressor, Eventide 949 Harmonizer and GTR 4000 Ultra-Harmonizer, an array of classic analog synths, oft-used Ampex MM1200 analog 2-inch 24-track tape machine and a good ol' patchbay that keeps everything connected. "I was raised a little old school, and when I studied audio engineering, we had workstations but we had to learn outboard gear and mix certain things with it," he says. "Everything is patched, so you can go anywhere on the desk, anywhere in the racks and combine them. An important part of the function, naturally, is to have a digital audio platform, which, in our case, is Pro Tools to edit and work really fast. But now is actually an excellent time to buy analog gear, stuff with real personality, because everyone is

PHOTO: DAVID WEISS



Chris Ingram (left) and Brian Tarquin of Bohemian Productions

unloading their hardware to go inside their DAWs."

"It's okay for the effect to be an important part of the sound," Ingram adds. "With outboard gear and tape, you have to make some decisions and commit to them. Especially in the world of TV, the premium thing is time: They want it right away. As time goes on, this is a setup that is allowing us to deliver things quicker and quicker, but we also don't want to compromise anything along the way—fast, crummy music is just crummy music at the end of the day."

One of Tarquin's silver bullets is his Ampex System Selector, a now out-of-production router that allows him to instantly tap the power of his impressive collection of guitar heads and amps, the former of which are arrayed in orderly fashion on one wall and the latter of which lay in wait, fully miked, in a soundproof iso booth a few feet from the Trident. "I didn't want to have to go through a lengthy setup time to get the right guitar tone," says Tarquin. "I can just plug and go."

The most successful music-for-media element in the Jungle Room, of course, is the human one. "Brian and I have something that we need from each other, and we respect the other's skills," Ingram notes. "It's as much about personality as it is creative. You can have your best friend in the world and not want to write a song with them, or you can just meet somebody and get along with them musically. So try it out and see if you benefit." ■

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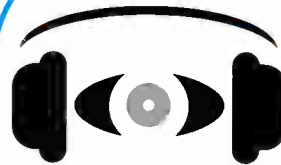


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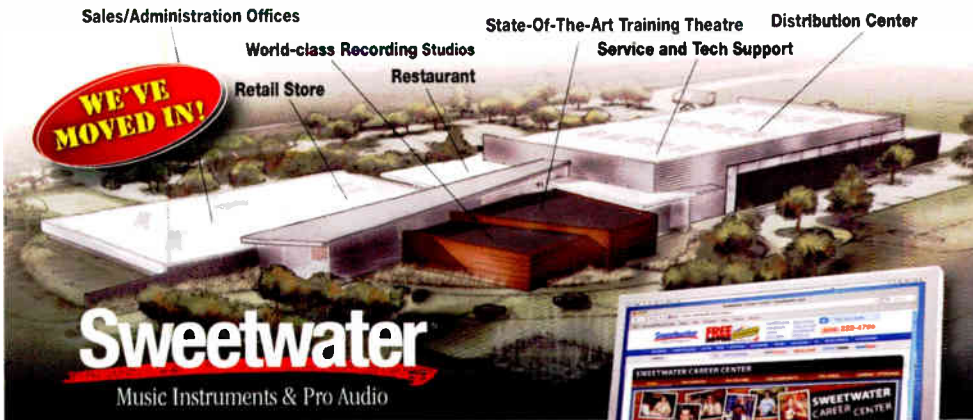
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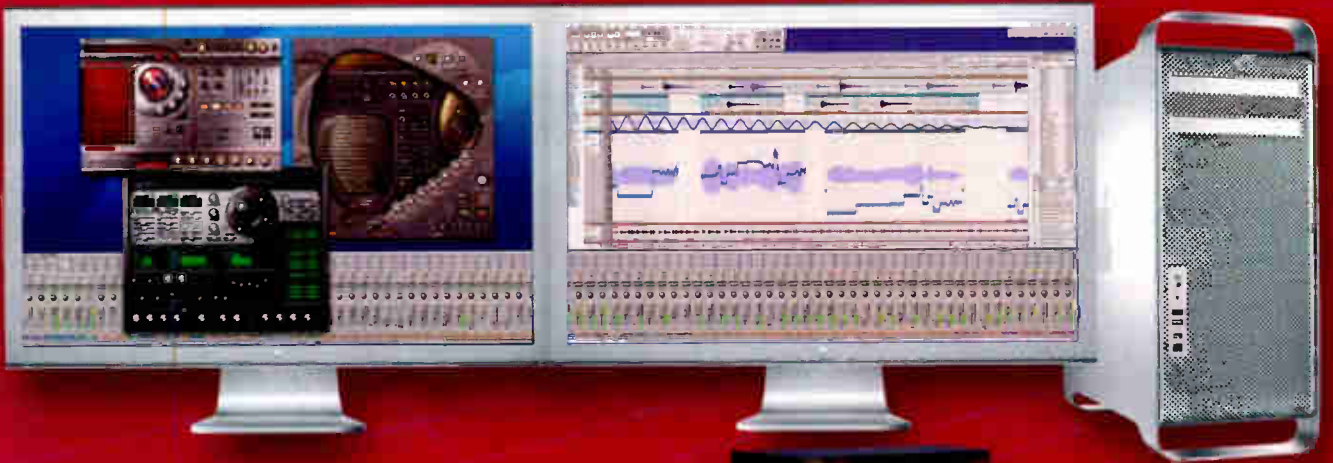
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The MOTU Studio: 1,000 plug-ins and counting

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Intel-Xeon Quad Core Processing

Running on an Apple Mac Pro tower, Digital Performer 5 can play 1,000 real-time plug-ins—an incredible benchmark that demonstrates just how much native processing power the MOTU desktop studio now delivers. Equip yourself with all the virtual instruments and powerful plug-ins you'll need to sculpt your own, unique sound, such as the unique Ethno Instrument.



96-channel PCI Express Audio

The MOTU PCI-424 core system lets you connect up to four interfaces to a single card for up to 48 channels of 192kHz recording and playback (shown) or 96 channels 96kHz recording and playback. Mix and match any combination of three interface models to suite your I/O needs. The two-rack HD192 interface provides 12 XLR in/out with AES/EBU digital I/O (with sample rate conversion), 19-segment front panel metering and an incredible measured signal to noise ratio of 120dB. The 24io offers an astonishing 24 TRS analog inputs and outputs in a single rack space, all at 96kHz. And the 2408mk3 provides 24 channels of ADAT optical (3 banks), 24 channels of TDIF (3 banks), 8 channels of TRS analog, S/PDIF and seamless mixing across all connected interfaces.

On-demand processing

Want to run even more instruments and plug-ins? The Muse Receptor is a dedicated hardware-based plug-in player for your favorite VST software. With 16 channels to run virtual instruments or effects, a built-in MIDI interface and a versatile complement of digital and analog I/O, Receptor is the ideal way to run plug-ins while keeping your host computer running smoothly. Control everything from the front panel, or simply connect a monitor to the back.

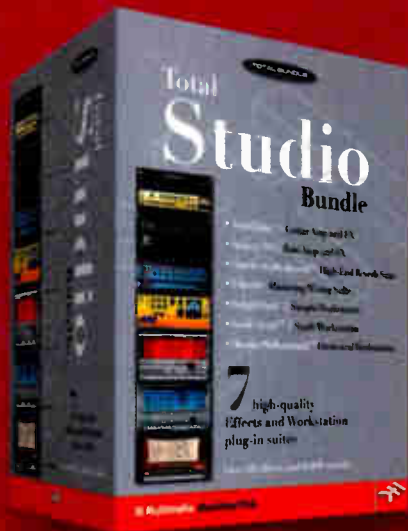
Receptor provides the ultimate in performance, stability, and sonic performance.



The MOTU experts at Sweetwater can build the perfect DP5 desktop rig for you. We'll help you select the right components, and we can even install, configure and test the entire system for you. Why shop anywhere else?

FilterFreak and SoundToys

Rejoice! The SoundToys Native Effects bundle is now Audio Unit compatible, so DP5 users can experience the incredible sound of EchoBoy, FilterFreak, PhaseMistress Crystalizer, and Tremolator. With the focus on fat analog sounding effects, versatile control and easy of use, SoundToys plugs get you great sounds fast. These are the tools the pros use to make a mix into a hit. Trent Reznor of Nine Inch Nails says, "Calling EchoBoy a delay plug-in is doing it a disservice. It has become the first thing I turn to for treating a wide variety of sources."



Total Workstation Bundle \$599

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- Sonik Synth 2
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IK Total Bundle Series

The IK Multimedia Total Bundle Series offers professional quality production tools at prices every musician can afford. IK's Total Studio Bundle with 7 award-winning plug-ins, 90 DSP Effects, 8000 sounds and over 21.5 GB of samples offers a diverse collection of instruments and effects for every mix. The Total Workstation Bundle delivers 3 award-winning virtual instrument workstations covering every style of music and genre, powered by SampleTank's advanced sample technology, built-in DSP, and easy to use interfaces. The Total Effects Bundle includes 4 award-winning effect plug-in suites for guitar, bass, mixing and mastering, all modeled after the most sought-after hardware gear, with 90 ultra accurate, analog modeled DSP emulations. Musicians First.

Waves native processing

Waves has long been synonymous with quality plug-ins, and the Waves Platinum Bundle contains a huge range of top-quality Waves processing for your DP5 studio. The Platinum Bundle now includes Waves Tune LT, L3 Ultramaximizer, and IR-L Convolution Reverb as well as all the plug-ins found in the Waves Gold and Masters bundles. Platinum brings extraordinary signal processing power to DP5, for tracking, mixing, mastering, and sound design. From dynamics processing, equalization, and reverb to pitch correction, spatial imaging, and beyond, Waves Platinum Bundle is a must-have for every MOTU studio.



Komplete control

For DP5 users who want it all: Reaktor5, Kontakt2, Guitar Rig 2 software, Absynth4, Battery3, FW8, B4II, Akoustik Piano, Elektrik Piano, Vokator, Spektral Delay and Pro-53 in a unified interface with hands-on control — Native Instruments KOMplete 4 and KORE put an infinite universe of sound at your finger tips. Every preset included in NI KOMplete 4, more than 8,500 in total, has been preconfigured and categorized in KORE with searchable musical attributes and hands-on controller assignments. This seamless integration of software and hardware turns Native Instrument's award winning synthesizers and samplers into tactile instruments.



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The MOTU Studio: 1,000 plug-ins and counting



Keystation Pro 88 features

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- 24 MIDI-assignable rotary controllers
- 22 MIDI-assignable buttons
- 9 MIDI-assignable Alps faders
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88 Weighted Hammer-Action Keys

Digital Performer 5 gives you unprecedented control over your MIDI and audio tracks. And what better way to take advantage of this hands-on control than the M-Audio Keystation Pro 88. Regardless of whether you're a seasoned pro or just ready to take your music to the next level, these hammer action keys are so expressive

that you just won't want to stop playing! The Pro 88 could easily become your sole keyboard in the studio or onstage. Yet the Keystation Pro 88 weighs only 47 lbs. — half of most weighted-action keyboards! And the Pro 88's extensive features make it the most comprehensive and competitive product of its kind!



Control room monitoring

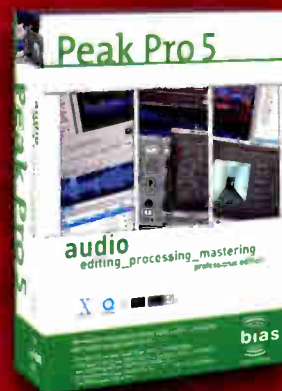
The PreSonus Central Station is the missing link between your MOTU recording interface, studio monitors, input sources and the artist. Featuring 5 sets of stereo inputs (3 analog and 2 digital with 192kHz D/A conversion), the Central Station allows you to switch between 3 different sets of studio monitor outputs while maintaining a purely passive signal path. The main audio path uses no amplifier stages including op amps, active IC's or chips. This eliminates coloration, noise and distortion, enabling you to hear your mixes more clearly and minimize ear fatigue. In addition, the Central

Station features a complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied for flawless visual metering of levels both in dBu and dBfs mode. Communicate with the artist via talkback. Send a headphone mix to the artist while listening to the main mix in the control room and more. The Central Station brings all of your inputs and outputs together to work in harmony to enhance the creative music production process.



Advanced waveform editing

Your DP mastering and processing lab awaits you: BIAS Peak Pro 5 delivers award winning editing and sound design tools, plus the world's very best native mastering solution for Mac OS X. With advanced playlisting. Superb final-stage processing. Disc burning. Plus PQ subcodes, DDP export (optional add on), and other 100% Redbook-compliant features. Need even more power? Check out our Peak Pro XT 5 bundle with over \$1,000 worth of additional tools, including our acclaimed SoundSoap Pro, SoundSoap 2 (noise reduction and restoration), Sqweez-3 & 5 (linear phase multiband compression/limiter/upward expander), Reveal (precision analysis suite), PitchCraft (super natural pitch correction/transformation), Repli-Q (linear phase EQ matching), SuperFreq (4, 6, 8, & 10 band parametric EQ) and GateEx (advanced noise gate with downward expander) — all at an amazing price. So, when you're ready to master, Peak Pro 5 has everything you need. It's the perfect complement — and finishing touch — to Digital Performer 5.



Professional pad controller

The Akai Professional MPD24 is the velocity sensitive pad controller for musicians and DJs working with sampled sounds. The MPD24 features 16 MPC-style velocity and pressure sensitive pads plus transport controls for interfacing with Digital Performer and your virtual instruments. You get Akai's exclusive feel: either MPC 16 Levels or Full Level features for ultimate pad control. Now add four selectable pad banks totaling 64 pads, six assignable faders and eight assignable and 360 degree knobs for transmitting MIDI Control Change data. Included editor/librarian software gives you complete, intuitive programming and control for DP5 all of your other software titles. The MPD24 provides unprecedented creative freedom for manipulating sampled material.



The MOTU experts at Sweetwater can build the perfect DP5 desktop rig for you. We'll help you select the right components, and we can even install, configure and test the entire system for you. Why shop anywhere else?



Accurate monitoring

The Mackie **HR-Series Active Studio Monitors** are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's wide, deep and incredibly detailed. Low frequencies that are no more or less than what you've recorded. High and mid-range frequencies that are clean and articulated. Plus the sweetest of sweet spots. Whether it's the 6-inch HR-624, 8-inch HR-824 or dual 6-inch 626, there's an HR Series monitor that will tell you the truth, the whole truth, and nothing but the truth.

Power conditioning

A large-scale MOTU-based multitrack studio is not only a fine-tuned instrument, it's an investment. Protect that investment — and get the best possible performance from it — with the **Monster Pro 2500** and **Pro 3500 PowerCenters**. Many so-called "power conditioners" only protect against random power surges and/or voltage spikes. But AC power line noise and noise from other components is an equally harmful and constant threat to your gear's performance. To prevent this, Monster's patented Clean Power™ filter circuitry (U.S. Pat. No. 6,473,510 B1) provides separate noise isolation filtered outlets for digital, analog and high-current audio components. The result is high quality sound that's free from hums, buzzes and other power line artifacts, revealing all of the rich harmonics and tone in your recordings. Get All the Performance You Paid For™. Get Monster Pro Power.

New hands-on control for DP5

The new Mackie **Control Universal Pro** control surface gives you ultimate hands-on control of your Digital Performer desktop studio. Nine motorized, touch-sensitive Penny + Giles faders, eight V-Pots and more than 50 master buttons let you tweak parameters to your heart's content. Unlike generic MIDI controllers, the MCU Pro employs a sophisticated communication protocol that delivers ultra-precise control, makes setup easy - no mapping required - and enables you to see your mix in action with real-time visual feedback via the huge backlit LCD and eight LED rings. Apply the custom overlay for Digital Performer for dedicated labeling of DP-specific functions. The MCU Pro is the ultimate way to mix in DP5!



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With roots as a shareware audio editor named Cool Edit Pro, Adobe's Audition has blossomed into a powerful workstation for audio editing and multitrack recording. Brimming with pro-quality features at a reasonable list price, Audition meets many important needs in the Windows-based studio. (A version for Intel-based Macs is slated for release in mid-2007.)

WHAT'S YOUR FREQUENCY?

Spectrum-analysis tools have been around for years, but I was delighted to see frequency space *editing* added to Audition. A chair squeaked during that piano recording? It might not be visible in a typical wave display, but switch to frequency display in Audition's Edit view and it sticks out like a sore thumb. That chair squeak will probably show up as a bar of frequencies that's out of character with the rest of the performance. Highlight what looks out of place with the lasso or marquee tool and zap it out. If that's a little too severe, replace what you zapped by pasting in a clean replacement from a nearby passage or capture a noise print using the highlighted section (which Audition remembers for the next use of the program's noise-reduction tool).

START PLAYING AROUND

Audio editing always involves critical listening, which often requires the repeated playback of a single audio segment. Audition provides not one, but *two* customizable playback buttons. What's more, you have complete control over pre-roll and post-roll times. I typically set up one button to play the current zoom range and the other to play the current selection with a one-second pre-roll.

BUILD A BRIDGE

If you're using Audition as part of Adobe's Production Studio bundle, then you probably have Adobe Bridge. From within Audition, you can open any file in Bridge, where you can set ratings, keywords and color labels to classify and organize your audio files. (There are keyboard shortcuts and other tools to do this efficiently.) Bridge is particularly useful for making sense of large collections of creative content, such as production music beds

(or Audition's huge collection of royalty-free loops and other content). Spend time getting organized, and in no time you'll be making queries such as "find all WAV files, rated 4 stars or higher, with 'jazz' and 'live' in the keywords."

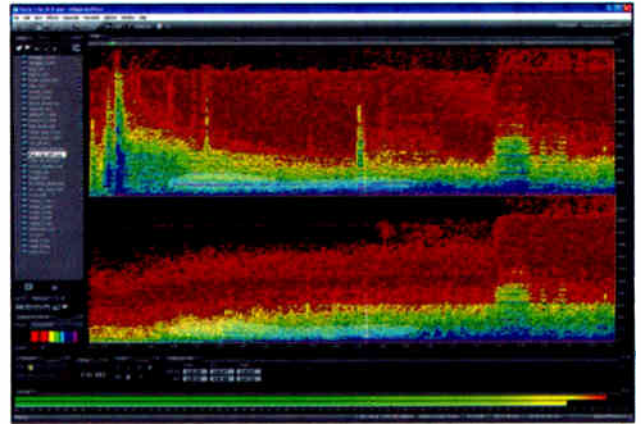
MARK THIS DOWN

Most audio editors have markers you can set within your content, and Audition is no different in this respect.

But markers in Audition can represent either single points in time or a passage with a start and end. What's more, markers can designate beats within a phrase or tracks within a CD project. The Track marker type lets you burn individual CD tracks directly from a single large file of a live performance. (Unfortunately, the marker names don't become the CD track titles, so you'll have to retype them.) There's also a tiny button at the bottom of the markers window that provides access to batch processes related to markers. This is where you'll go to extract your marked regions into separate files or add a little digital silence to the start or end of each passage.

SHARE AND SHARE ALIKE

Audition's Multitrack view is used for tracking and mixdown, and an Edit view allows you to do detailed offline editing of individual files. Real-time effects are available in both views, though in Edit view, the real-time capabilities are intended only for previewing the offline operation. It's often desirable to stack multiple effects in sequence, which is done in the Multitrack view with an effects rack similar to what you'd find in other DAW programs. But, the effects racks in Multitrack view operate nearly identically to the Mastering Rack in the Edit view. Also, the rack presets can be shared between the two. So if you create an effects rack with the perfect combination of live effects and their associated settings, you can call up that combination in the Edit view for offline processing.



The spectral displays in the Frequency Space Editing function

HOLE IN THE MIDDLE

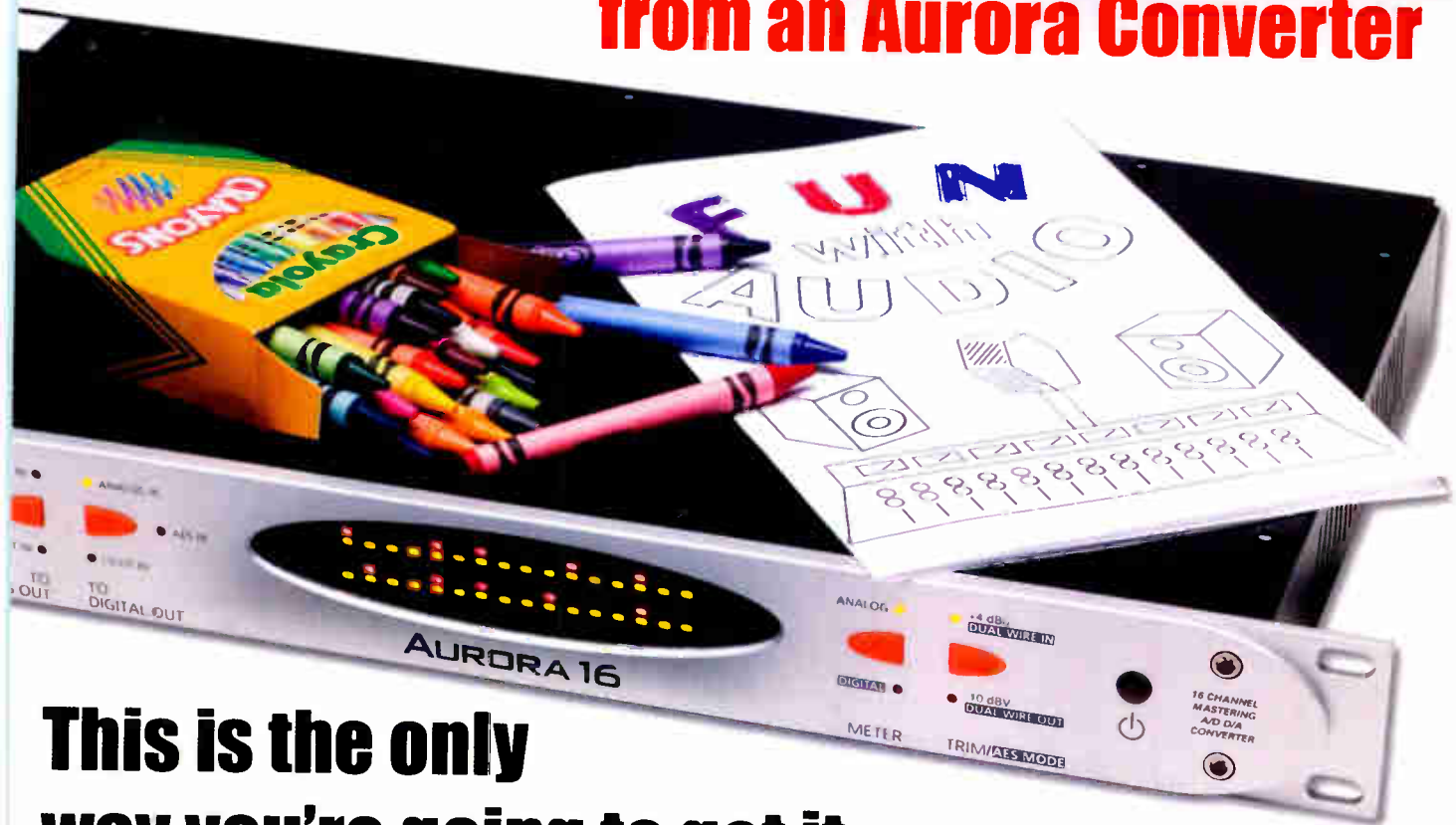
You might think that Audition's Center Channel Extractor effect is only useful for giving yourself a karaoke mix of your favorite song, but it's quite usable for other tasks. Center Channel Extractor is a bit of a misnomer, because you can boost or cut audio from anywhere in the stereo field (left, center, right, surround or "custom," which lets you specify any values for pan position, phase and delay). You also have complete control over the affected frequency range and algorithm settings, with presets for male voice, female voice and bass. Because you can boost and cut, this effect is quite valuable for making small adjustments to bass or vocal levels after the mix is complete.

HAVE SOME FUN

Audition offers lots of effects, but not all of them will find practical use in every project, though they sure can be fun to experiment with. Use the Doppler shifter to hear what your project sounds like when coming from a passing car. Combine the dynamic delay effect with the stereo field rotate effect and listen until you're dizzy. Audition's effects routing is flexible and intuitive, so it's easy to create combinations of these effects. ■

Allan Metts is an Atlanta-based musician, software/systems designer and consultant. Visit him at www.sonicbids.com/AllanMetts.

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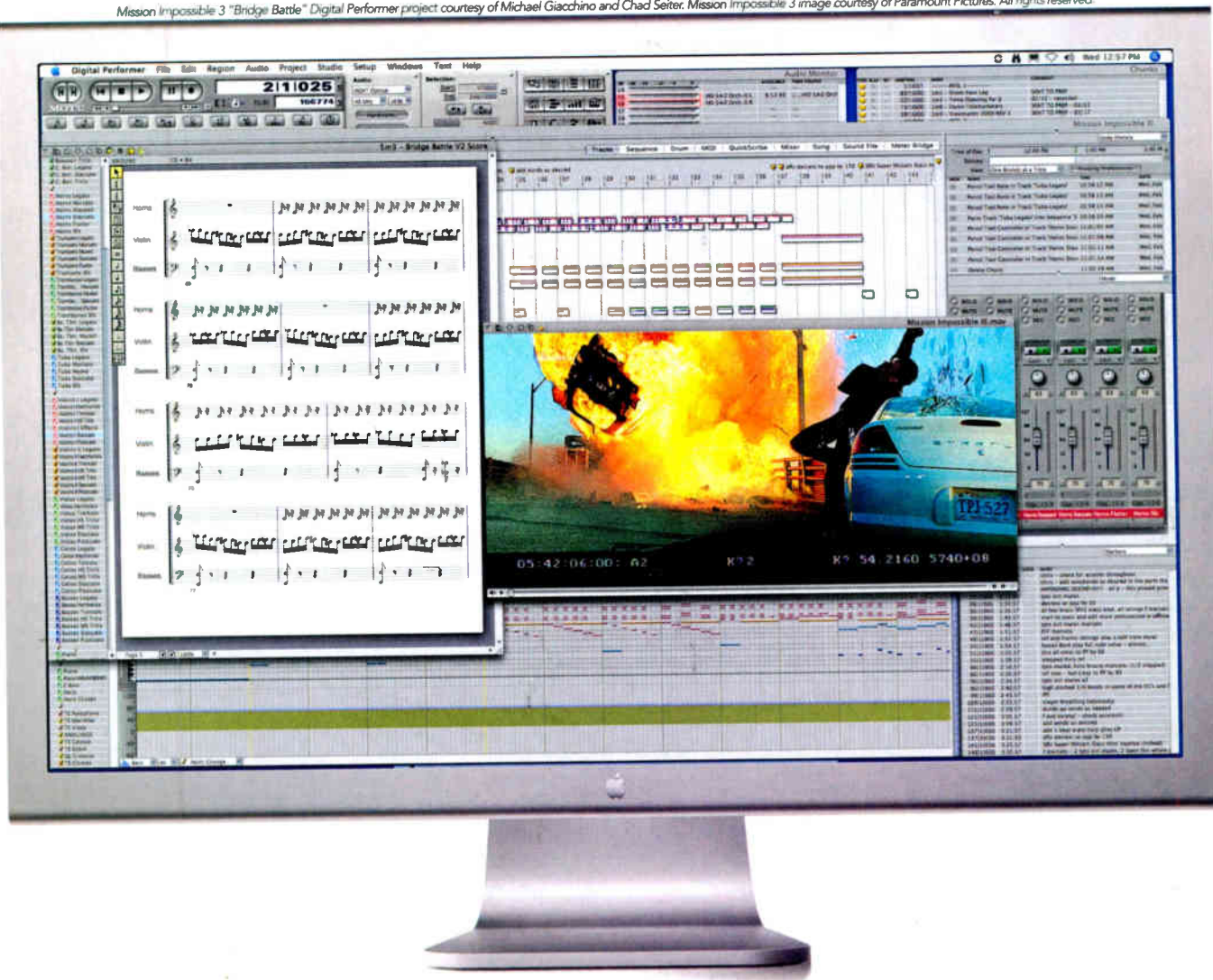
Digital Performer scores the impossible

"Digital Performer is a huge part of my scoring process. I do all of my writing in DP. At the Mission Impossible 3 sessions, we had a laptop running DP and a MOTU Traveler to handle prelays and record live stereo stems of Dan Wallin's mix from the main board. DP also drove video to the main monitors and synced the entire 100+ piece orchestra, so that everything was perfectly in line with my composition sequence. I count on DP every day. It performs flawlessly."



— **Michael Giacchino**
Composer
Original Music for *Mi:3*

Mission Impossible 3 "Bridge Battle" Digital Performer project courtesy of Michael Giacchino and Chad Seiter. Mission Impossible 3 image courtesy of Paramount Pictures. All rights reserved.



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