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- *Forgotten Piano Recordings*
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PROFESSIONAL AUDIO AND MUSIC PRODUCTION
DECEMBER 2006, VOLUME 30, NUMBER 12



On the Cover: Completed three months ago, the new Studio 510 at the Clive Davis Department of Recorded Music in the Tisch School of the Arts at NYU features an API Vision surround console and a 5.1 PMC surround monitoring system. **Photo:** Courtney Spencer. **Inset Photo:** Courtesy Dreamworks.



features

26 Issues in Modern Mastering

With today's lean recording budgets, it's tempting to cut costs by handling all aspects of production yourself. But some tasks require a second set of ears, dedicated tools and—admit it—skill sets all their own. Mastering engineers Paul Stubblebine, Andrew Mendelson, Alan Douches and Joe Gastwirt remind us why this final step is as necessary as ever.

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Equalization is essential in any mastering project, whether to add sheen, enhance a vocal or simply balance spectral levels. Make sure you have the latest tool for your next mastering job.

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An ambitious restoration project, as well as a labor of love, this epic 10-CD series showcases numerous rare and important female pianists' performances from the first half of the 20th century.

44 2006 TEC Awards Wrap-Up

This year's Technical Excellence & Creativity Awards recognized industry greats David Hewitt (inducted into the Hall of Fame) and Les Paul Award winner Steve Miller—who enthralled the crowd with a live performance of "Fly Like an Eagle" with ZZ Top's Billy Gibbons—as well as the talents behind the best audio products and projects of the year. Check out highlights from the show, which benefits hearing health and awareness.

62 The Vocal Channel

Having mixed more than 1,000 shows for Blue Öyster Cult during the past 12 years, plus working with vocally oriented artists including Firehouse, The Lizards, Patty Smyth, Danny Rodriguez and CloSEnough, *Mix's* new sound reinforcement editor, Steve La Cerra, knows plenty of techniques to ensure that the vocal channel is clean and clear.

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

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• **Bruce Swedien:** Grammy Winning
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• **Scott Litt:** Producer/Engineer
R.E.M., Nirvana, Incubus

"The Monitors Allen built for my studio are simply the best large speakers I have ever used and relate perfectly in character and balance to the small speakers I use."

• **Jon Lind:** Senior Vice President Artist & Repertoire
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• **Dave Grohl:** Foo Fighters
Nirvana

"The monitors Alan built for my private studio, which we used to mix the last Foo Fighters album, let me hear my music the way I want, very loud and very clear."

• **Rob Cavallo:** Senior Vice President of A&R/Producer
Warner Bros.

"The OWR Big Monitors are the only ones in existence that I trust. I feel like I'm getting the full impact of all the frequencies that I've recorded but without any hype. They really are the best monitors anywhere. Allen Sides' designs, studios, and sonics never cease to amaze me."

• **George Massenburg:** Engineer/Producer
/Designer

"Allen and I have been friends and at times competitors in the studio business over the years. We both share a passion for accurate, high definition speakers that have the ability to sound big and impressive for artists when it's required. The OWR monitor system squarely hits that mark."

• **Leslie Ann Jones:** Skywalker Ranch Scoring
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"I can't think of any large monitor system I'd rather have in Skywalker Scoring Stage than Allen's Ocean Way Monitors."

• **Tom Parham:** Musician, Studio Owner
OddsOn Recording Studios

"The sound of Allen's full range system is staggering, my mixes translate flawlessly to the outside world. My clients and staff are equally impressed. I'm installing them in all my studios."



Precision and Beyond

Way back in high school science and math classes, we learned about precision and the concept of three significant figures (sig figs). For example, the U.S. Census Bureau's POPClock projection estimates our current population to be 300,199,513 as of today: November 14, 2006. We can round that off to three sig figs and come up with approximately 300 million and be pretty close. If you're one of those 199,513 people left off that estimate, you might not be too happy about it, but rounding it to four significant figures (300.2 million) sounds pretty silly.

It's the same with our old friend π . If we cut a plywood circle for a tabletop, we can determine its area (πR^2) or circumference ($2\pi R$) and probably get by just fine in defining π as 3.14, rather than 3.14159265358979323846 (20 sig figs).

Precision applies to nearly every aspect of existence. Electronic components come in a variety of tolerances and can vary from ± 0.05 percent to ± 20 percent, depending on the part. So a 10-percent 100k-ohm resistor could fall anywhere between 90k-ohm and 110k-ohm. If you want a tighter tolerance, then be willing to pay more for the privilege. It's a case of picking your battles: A potentiometer inside a wah-wah pedal is a lot less critical than the main faders on a recording console. And as with tabletops or transducers, life is a series of trade-offs between precision and price.

Pro recording engineers must have the ability to hear with amazing precision, whether it's noting a subtle timing variation in an orchestral woodwind section or a slightly atonal pitch in a vocal or guitar fill. Yet mixes by even the most talented engineers require mastering to take the project to the next level. Just as in medicine, where doctors deal in specialization, mastering engineers can bring a fresh approach and that all-important second opinion to your project.

In mastering, precision is everything. Even with all of the available ultraprecise equalizers, compressors and specialized consoles designed for the mastering suite, none of it makes any difference without some human intervention, where a half-dB or two from the trained ears of a specialist can make all the difference in the world. The analogy here is like building a house. Working from a great architect's plans, skilled contractors handle the framing, drywall, electrical, roofing and plumbing, but the finishing touches (such as hardwood floors or granite countertops) can set a showplace apart from the ordinary.

This is what defines the mastering art: creativity and precision, all combined with a human touch from an artisan with years (and ears) of experience—something no technology can replace. And once your recording is 90-percent there, an investment in pro mastering can take your creation to the next step. Isn't your music worth it?

George Petersen
Executive Editor

Note: About two years ago, we moved to an automated workflow that generates high-res PDF images for online pre-press checks. We thought the "Recording Shoals Directory" typo on the cover of last month's subscriber issues had been fixed when we saw clean, corrected reference PDFs, but the printer picked up the wrong master file. We've since added procedures to avoid this glitch in the future, but there's a lesson here for us all.

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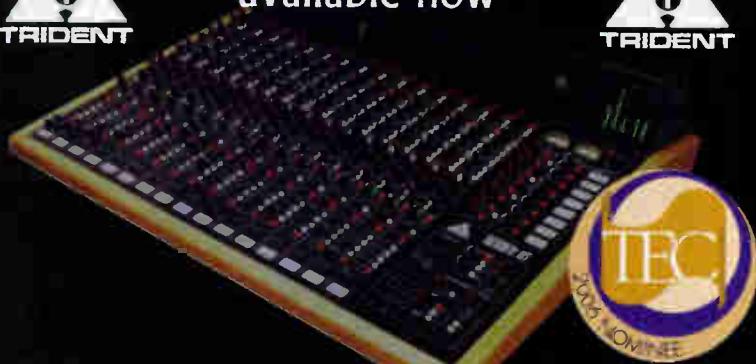
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Letters to Mix



NUMBER CRUNCH

As a musician working on getting a laptop rig together for live gigs, I was very interested in the article "The Outer Limits of Portability" (October 2006). While I certainly appreciate the work involved in creating the elaborate setup used in the test, I wish the participants had approached the issue from the other direction. In my opinion, latency is the Number One consideration for a musician using a computer rig for live playing. It doesn't matter to me how many plug-ins can be run or how many inputs or outputs are addressed if a musician can't be comfortable playing his or her "instrument."

From the article, there was no time where a setting less than 256 samples was used successfully. I currently use this setting on my PowerBook G4 (1.67 GHz) and find it acceptable, but not ideal—and this is only for soft synths. Processing live audio would, as the article said, double the latency.

What I mean by the "other direction" is fixing the buffer setting at 64 or 128 samples, and then adding soft synths and plug-ins until the CPU is maxed out. In my opinion, this would better help me determine whether investing a few thousand dollars in the latest MacBook Pro and the associated software (like Ivory, B4II, SampleTank, etc.) would pay off or not. Still, it was impressive to see what could be done with a 256-sample buffer setting. Thanks for the enjoyable read!

Rob Aries

Rob,
Glad you enjoyed our attempt to take the little laptop to the edge. For this feature, we wanted to try to load the computer as much as possible and see if it was still something the players could live with, as far as latency

was concerned. While there was discernible delay, our seasoned pros felt it was workable, so we didn't try to go lower and lose other capabilities. As it was, we took it right to the limit, which was our aim. The MacBook Pro is a great little box and I would say that if you weren't asking it to perform such power-hungry tasks as we were, it would certainly do the job you are asking at 64 or 128 samples.

—Kevin Becka

KATRINA SURVIVORS SPEAK UP

I read the article about Trina Shoemaker (September 2006) and thought it was great. However, Trina misinformed your writer about the aftermath of Hurricane Katrina. As a New Orleans native and wife of a producer/engineer who lost his studio in the storm, I must correct her: FEMA did not give everyone affected by Katrina \$2,300. Rather, through a random algorithm, they determined who received funding and who did not. Unfortunately, my husband and I, and so many others who evacuated and lost jobs and homes, did not receive a penny from the government. The real helpers were other organizations such as MusiCares, who stepped up to help artists along the Gulf Coast.

Jodi Dieck

DRIVE JUMBLE

In the August 2006 article on hard drives ("Issues and Answers for Recording's New Media"), George Petersen states in the "Counting Tracks" section that "When working on a session on an IDE/ATA drive, you can't record or play Pro Tools files to/from a SCSI disk." This is incorrect. You can use any mix of drives you want, as long as they are set up properly for playback and recording in the Workspace window.

Arthur Alexander
grtek productions

Arthur,

Thanks for the correction. While I don't recommend splitting audio files within a session across multiple drives, you can use any mix of drives as you suggest.

—George Petersen

THREE CHEERS FOR TV MIXERS

I read Paul Lehrman's ["Insider Audio"] column in *Mix* every month and find it to always be a very compelling read. Thanks

for that. And that's why I'm writing. I just wanted to drop a personal line of thanks for the past two columns regarding mixing for live sports (September and October 2006 issues). I'm still relatively young in my career (about seven years in) and long ago abandoned my dreams of working in a music studio once I realized how much more work there was in the world of sports television, especially in a healthy sports market like ours in Denver.

I think too many people seeking careers in audio sometimes overlook areas of great opportunity and instead put on those music blinders, thinking that it's recording studio or bust. Sure, I'd love to be doing music, but I stay busy year round and keep the mortgage current instead of worrying about getting my next booking.

There are some very unique challenges in the world of sports mixing that are taken for granted by the casual viewer watching the game at home, many of which you wrote about. I'd be willing to bet that most music mixers would be lost if asked to set up even a small broadcast in a TV truck, what with mic inputs, tape inputs, PL and IFB assignments, router assignments, heavy (yet judicial and appropriate) DA usage—the list goes on and on.

In no way do I mean to boast on behalf of us TV mixers, but I do think that complex signal paths and routing are our biggest challenges and areas of expertise, where music demands EQ, dynamics, imaging and FX expertise. While we all have our challenges, I think ours is easier to take for granted for its complexity. Add to that the component that you mentioned of having to do it on the fly in a different environment with a different crew and gear selection every time, and things get really crazy, really fast.

Don't forget all the in-game mixers (like me, for the Denver Broncos) and crews out there. Many people cut their teeth for TV in those roles. And while many stadium gigs are low-key, at the upper end of that (the NFL specifically), the show is just as demanding as any TV broadcast or large venue concert.

Jamie Smith
Audio engineer

Send Feedback to *Mix*
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ARDENT TURNS THE BIG 4-0



Ardent Studios manager Jody Stephens (left) and founder/owner John Fry

A new store building on Memphis' National Street, which he shared with a bookshop. The original equipment came from the garage operation: Altec tube console, Ampex 2-track, Pultec EQ and Neumann mics, some of which are still in use. Tom Dowd was consulting with Auditronics on an early multitrack console for nearby Stax Records, and Fry ordered the same input modules for his second board. Next came a Scully 4-track, the first EMT plate reverbs in the area, and the beginnings of a world-class collection of gear.

As a young studio owner, Fry was fortunate to get the overflow work from Stax Records: Booker T & The MGs, The Bar-Kays, Johnny Taylor, Rufus Thomas, Albert King. Ardent also became home to young producers and engineers such as Jim Dickinson, Terry Manning, Joe Hardy, John Hampton, Paul Ebersold and so many others.

In 1971, Ardent Studios moved to its present location on Madison Avenue, followed by the acquisition of 24-track recorders, bigger consoles and more gear. Today, Ardent has three studios equipped with large-format Neve and SSL desks and Pro Tools rigs, and is managed by Jody Stephens, who also does double-duty as the drummer for Big Star. The more recent incarnation of Ardent Records, a contemporary Christian music label, was launched with *Big Tent Revival* in 1995 and has released 36 albums to date, with a string of Grammy-nominated albums in the Rock Gospel category.

"We're flexible and we've always strived to adapt to the changes in the recording industry," Fry said of the studio's continued success. "We've also been fortunate to have so much talent on our staff and long-term relationships with successful artists and producers. Also, having a production company, a record label and a publishing business has allowed us to be one of our own best clients."

Sam & Dave. Led Zeppelin. Isaac Hayes. Leon Russell. The Staples Singers. James Taylor. ZZ Top. Bob Dylan—the list goes on and on. For the past 40 years, Ardent Studios in Memphis has been home to countless hit projects and continues this legacy today with such artists as the White Stripes, 3 Doors Down and North Mississippi Allstars, and films such as *Hustle and Flow*.

The Ardent story began when a teenage John Fry built a studio in his family's garage, where he recorded his first Ardent Records 45s. "In 1966, I was done with school and my family sold our house," he remembered. "I felt it was time to make a career commitment to recording music." He found



John Fry at Ardent in 1968

LEARN TO MASTER



Mastering engineer Billy Stull (above), owner of Masterpiece Mastering and pro audio equipment manufacturer Legendary Audio, has created the Masterpiece School of Mastering at South Padre Island, Texas. The school, an intensive three-day course on all aspects of the mastering phase of commercial recordings, will be held monthly.

"As more and more recordings are done at small or project studios, the need for quality mastering is greatly increasing," Stull commented. "Unfortunately, that service is not always readily available, yet without it, these projects can't possibly reach their potential. Therefore, we hope to train, guide and assist engineers in their efforts to either start a mastering studio or enhance their current business and ultimately satisfy their customers."

For more information and an application form, contact info@legendaryaudio.com.

KEN LATCHNEY 1966-2006



Engineer Ken Latchney passed away in his sleep on July 27; it is reported that he died of a heart attack. Latchney has mixed and/or engineered for numerous artists, including Les Claypool,

Bela Fleck, Backstreet Boys, Adrian Belew (he spent many hours working at Belew's Studio Belew), The Kennedys, King Crimson and Rick Wakeman; he also logged numerous hours on the road as a front-of-house engineer.

He is survived by his parents, a brother and two nephews he adored.

NOTES FROM THE NET

GET YOUR MONEY!

SoundExchange, the nonprofit organization designated by the United States Copyright Office to collect and distribute royalties from Webcasters, satellite radio services and other digital music providers to recording artists and record labels, is trying to reach approximately 9,000 unregistered recording artists and approximately 2,000 unregistered independent record labels, as the deadline to sign up to receive digital performance royalties collected between 1996 and 2000 fast approaches. Claims to royalties paid for the years 1996 through March 31, 2000, will not be accepted after December 15, 2006.

SoundExchange has published the list of names on its Website, www.soundexchange.com; registration forms are available online.

NYC MIXER

PHOTO: DAVID WEISS



Frank Filipetti addresses the New York City In the Mix crowd at Legacy Recording Studios

The New York City pro audio community was abuzz in September with a very welcome event: In the Mix at Legacy Recording Studios (formerly Right Track/Sound on Sound), a Grammy® event put on by the Producers & Engineers Wing and hosted by Frank Filipetti, Dave O'Donnell, Phil Ramone, Elliot Scheiner and Maureen Droney, executive director of the P&E Wing.

"Our New York City Producers & Engineers Wing In the Mix is the third one we've done," Droney said. "The others were at The Village Studios in Los Angeles and at Masterfonics in Nashville. We've been fortunate to have the sponsorship of JBL Professional to create these events, which help further our mission to create a strong sense of community among recording professionals. These days, with so many engineers and producers doing a lot of their work in private studios or at home, we don't get together with our peers often enough.

"It's been great for us to get the word out about the P&E Wing and what we're doing, and it's also been great for JBL to be able to introduce working professionals to their new LSR Series of studio monitors," she continued. "Those who attended the events have given us great feedback. They not only enjoyed them, they really appreciate that we're working on issues that are important to them."

—David Weiss

ALL-OUT WAR GAME STUDIO MIXES



Back row (L to R): Joel Yarger, Clint Bajakian, Ron Fish, Cris Velasco, Gerard K. Marino. Front row (L to R): Jonathan Mayer, Mike Reagan, Lucas Zavala

Sony Computer Entertainment America booked Pyramid's (S.F.) The Vault studio (Pro Tools HD3) for three days in September to master orchestral performances recorded in Prague for the videogame *Warhawk*. Two weeks later, senior music supervisor Clint Bajakian and associate music supervisor Jonathan Mayer returned to Pyramid, this time with all four composers (Ron Fish, Cris Velasco, Gerard K. Marino, Mike Reagan) for the soon-to-be-released sequel to *God of War*. Pyramid producer Greg Gordon was asked to find exotic instrumentation to complement the Mediterranean and Middle Eastern-tinged soundtrack. Gordon brought in multi-instrumentalist Muhammad Nejad.



Muhammad Nejad on the Kanoun

The two days of tracking for *God of War II* were done in Studio A with help from both Miik Dinko and Dave Nelson of Outpost Studios.

BOOKSHELF

Gina Fant-Saez's *Pro Tools for Musicians and Songwriters* provides insights on recording professional demos at home, with techniques on editing tracks, adding effects and outputting songs onto a CD. Also available are downloadable audio files from www.protoolsformusicians.com. Peachpit, \$44.99.



Don Davis (co-founder of Synergetic Audio Concepts) and Eugene Patronis (professor emeritus of physics at the Georgia Institute of Technology) has updated *Sound System Engineering, Third Edition*, with topics that run the gamut of sound system design from the simplest all-analog paging system to the largest multipurpose digital systems. Topics include interfacing electrical and acoustical systems, loudspeaker directivity and coverage, designing for speech intelligibility, loudspeakers and loudspeaker arrays, and sound system equalization, among many others. *Sound System Engineering* comes packed with numerous illustrations and useful appendices. Focal Press, \$79.95.



INDUSTRY NEWS



Zühre Sü

New face at StarCity Recording Company (Bethlehem, PA): engineer Zak Rizvi...Hollywood-based Sonic Pool hired Brett Butler as mixer...Architectural/acoustical designer Zühre Sü joins Russ Berger Design Group's (Dallas) design project team...POP Sound (Santa Monica, CA) promoted Moksha Le Blanc to executive producer, home theater...Sennheiser (Old Lyme, CN) news: Dan Radin, product manager for Neumann, Klein + Hummel and distributed brands, and Tori Seliokas, inside sales supervisor...SIA Acoustics (New York City) added

Elizabeth Howard, director of office operations, Ben Jones, consultant, and Courtney Spencer, director of marketing...Jim Latimer joins ADAM Audio (Westlake Village, CA) as national sales manager for the U.S....Kurt Metzler

and Will Lewis join Meyer Sound (Berkeley, CA) as Northwest regional sales manager and Southwest regional sales manager, respectively...Live sound engineer Ken Boswell joins Northern Sound & Light's (Pittsburgh) sales staff...Royer Labs (Burbank, CA) promoted Andy Georges to the newly created position of sales and marketing support manager...New distribution deals: Moog (Asheville, NC) added RepTronics (Northwest U.S.), Tech Repts (North and South Carolinas, Georgia, Alabama, Tennessee, Kentucky, Ohio, Michigan and Western Pennsylvania) and Mike Deeley (Virginia, Maryland, Delaware, Eastern Pennsylvania, Southern New Jersey); Multi-Voice Electronics (Jakarta, Indonesia) distributes LA Audio (North Hampshire, UK) in the Far East; FiberPlex (Annapolis Junction, MD) appointed SF Marketing (Quebec) as exclusive Canadian distributor; and S-Wave Marketing (San Diego, CA) handles Symetrix's (Mountlake Terrace, WA) products in Asia, Australia, New Zealand and the South Pacific.

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

"The Vocal Channel"

In addition to the tips and techniques offered by our sound reinforcement editor, Steve La Cerra, find out what top front-of-house engineers are using on their artist's vocal channel.



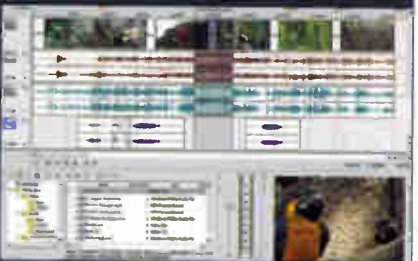
TEC Awards Photo Spread

Wish you had seen Steve Miller accept the Les Paul Award (and jam with ZZ Top's Billy Gibbons) or David Hewitt inducted into the Hall of Fame? Go online to see additional photos and videos (brought to you by Broadjam).



"Field Test:" Sony Cinescore

Get in deeper with this professional soundtrack creation software tool with additional screenshots.



"On the Road": Megadeth

Find out what else front-of-house engineer Nigel Paul has to say about his gear and style of mixing for the current Gigantour 2006.



NOTES FROM THE P&E WING

LABELING YOUR MASTERS—MORE IS BETTER

BY ADAM AYAN

Mastering is often described as the final step in the creative process of making a record and the first step in manufacturing. These days, it's common to receive mixes for a project from multiple engineers, producers and studios—in multiple formats. As a mastering engineer, it's my job to combine all these sources into a cohesive-sounding album. To do that, it's vital that all source mixes are clearly labeled and that all source media and mastering notes are well organized.

We get every kind of format: analog tape and digital files, as well as Sony DSD. We get CD and DVD-ROMs, MasterLink discs, PC- and Mac-formatted hard drives, DAT and digital multitrack tapes, electronic deliveries and the occasional iPod file. Here are some basic guidelines for labeling this source media. Be sure to include these on every source, regardless of format or media type: artist's name, client's name, project name/album name (if one exists), track titles and mix take names (i.e., master, vocal up, vocal down). Also, make sure to notate the "choice" mixes approved for mastering.

ANALOG TAPES

- Note tape speed (30 ips, 15 ips, etc.) and noise reduction, if any. (If Dolby, indicate if it's SR or A.)
- Note the record level (plus 3, plus 6, etc.) and record machine type (ATR, Studer, etc.).
- Put calibration tones at the *tail* of the first reel. (Remember print-through? This will avoid it.)
- Always provide *at least* the following tones at 0 VU: 1 kHz, 10 kHz, 15 kHz, 100 Hz and 50 Hz.
- Always leader the head of the tape, as well as between each take/track.

DIGITAL SOURCES

- Note sample rate and bit depth.
- Note file type: AIFF, WAV, SDII, etc.
- Include a label with your source material (on your jewel case or hard drive box). It saves a lot of time to know what's on your source without having to mount a hard drive or CD-ROM. Check the P&E Wing Website for a good media ID label. Go to www.producersandengineers.com, click on the tab on "Guidelines & Recommendations," use the link for "Session Documentation Examples" and scroll through the examples.

You can create a quick list of media contents using the Grab application on your Mac. Expose all folder/file levels on your Mac's desktop and then use Grab to take a snapshot of the contents and print. Save the Grab file for your records. You can also use the Print Screen function on a PC to accomplish this.

- Don't forget to label your audio files well. Always include the song title and mix name or number. If using an Alesis MasterLink, then please explain those cryptic file abbreviations!
- Note the song sequence: Tracks are not necessarily in order on a CD-ROM unless the sequence is alphabetical. Include any notes you have for mastering and your chosen sequence. You can start every file name with that file's sequence number, but just be sure to include a "0" in front of the single-digit track numbers so your files will fall into order (i.e., "01_SongTitle_MixName" for track 1).

ELECTRONIC DELIVERY

At Gateway Mastering, we receive many of our digital sources electronically. We have our own FTP server, as well as a DigiDelivery server. When posting your digital files electronically, include some type of text file or e-mail with all appropriate information. Stuffing a Mac file can make it more interchangeable when passing through PC servers. StuffIt™ can also add further security by using an extra password.

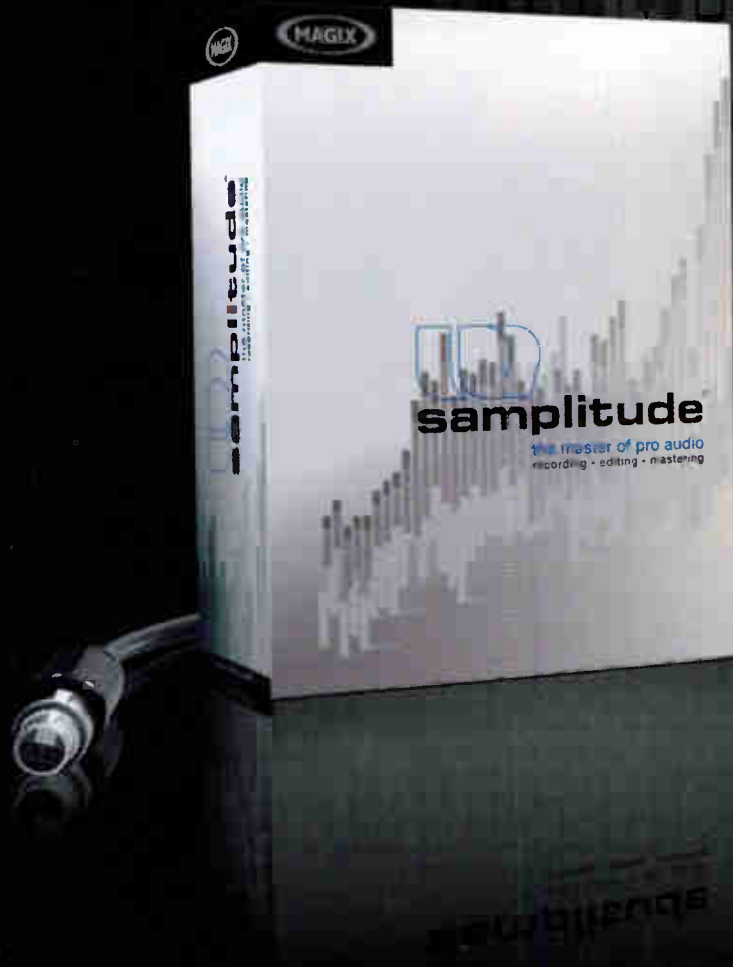
Following these guidelines and spending the time to get your labeling right will allow your mastering engineers to spend their time doing what they do best: making your project be the best it can be. ■

Grammy Award-winning mastering engineer Adam Ayan works at Gateway Mastering & DVD in Portland, Maine. Ayan's client list includes the Rolling Stones, Nirvana, Faith Hill, Linkin Park, Nine Inch Nails, Rascal Flatts, LeAnn Rimes and Sarah McLachlan.

PHOTO: BRIAN LEE



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The Clive Davis Department of Recorded Music at NYU

By George Petersen

In February of 2003, the Tisch School of the Arts at New York University (www.nyu.edu/tisch/) received a \$5 million donation from industry icon Clive Davis to create a new Clive Davis Department of Recorded Music. The four-year, intensive B.F.A. program is limited to 28 students a year and focuses on music recording as both a creative medium and a complex business enterprise; pupils are expected to master both aspects of the industry.

The curriculum includes studies on the cultural impact of recorded music and the history of different musical genres, including rock, pop, hip hop, jazz, Latin and world music. A major part of the program centers around recording studio practices, and the school opened with Studio 505, a small room equipped with an SSL K Series console.

With its emphasis on production, the school looked to expand its facilities, and the demolition of a half-floor of office spaces began in August 2005 to make way for the state-of-the-art Studio 510. The construction and demo work could have been scheduled to occur during holidays and off-periods, but department chair Jim Anderson felt that "observing every phase of facility construction offered the students a rare learning opportunity."

The centerpiece of Studio 510 is a 48-frame, 32-channel API Vision surround console. One of the factors in the console choice was "to get that classic API sound in a 5.1 console," according to Anderson. However, selecting an analog console was another key ingredient. "Teaching serious audio flow requires an analog console. We bucked the digital trend and went analog, which we felt is how people learn," Anderson explains. "For NYU, the API Vision console will be a remarkable teaching tool. This board will be around for a long time, and this was our only chance to do it right." Keeping all options available, a massive TT patchbay links the Vision to a Studer A827 analog 24-track in the adjacent machine room and to a full-blown Pro Tools HD rig.

The studio has a large (850-square-foot) recording space that can accommodate 35 musicians or can double as a lecture space. The cavernous control room is 27 feet

front-to-back and has a rear seating area for 28 students. The project offered plenty of challenges to studio designer Sam Berkow of New York's SIA Acoustics, especially considering the studio location: in the heart of New York City, in an occupied former manufacturing plant. Achieving isolation in such cases can be difficult, especially with offices and classrooms above and below the studio.

The floating floors are a complex six-layer sandwich of Kinetics RIM with Fiberglas pucks/plywood/Kinetics honeycomb SR board/plywood/cement board/plywood. The studio floors boast a final layer of cherry wood with large inset slate panels, allowing for choices in recording surfaces. "I'm a fan of hard, not mushy surfaces," says Berkow, "so we used slate flooring. You can always cover it with a rug if you want it softer, but slate is amazing—particularly for drums." Additionally, swing-out wall panels along the side open to expose RPG diffusers for more variation. Acoustical cloth covers the ceiling, which hides RPG Flutter-Free panels that provide echo control and bass absorption.

"Everyone that sees the room says, 'Wow,'" Anderson enthuses. "This is how studios used to be built."

The spacious control room has an asymmetrical design with an alcove area to the left of the mix position that doubles as a bass trap. The room's rear corners are angled at 60 and 30 degrees, eliminating bass buildup and allowing space behind the wall for ductwork. In a room filled with 30 or more occupants—each generating the heat equivalent of an 80-watt lightbulb—air flow is critical, and Studio 510's large-diameter ducting offers sufficient heat control without adding handling noise.

In keeping with the classroom theme, the control room has four soffit-mounted 42-inch flat screens that can show video or



A group of Clive Davis Department of Recorded Music's future hitmakers pose in Studio 510's control room during construction.

DAW displays with excellent sight lines to all seated positions. Audio playback is emphasized by a PMC surround system with five MB2 monitors driven by Bryston 14B amps. "You need a lot of audio to fill a room of that size," says Anderson.

"It's much larger than the normal listening area," adds Berkow, "and creating a listening environment that works for the mixer and the students in the rear of the room was quite a design challenge." One of Berkow's solutions was to angle the studio window so that the multiple panes of glass form a wider triangle at the bottom—the opposite of the typical inverted-triangle method. "This reduces reflections from off-axis sound from the front speakers, as well as from the rear surround speakers by bouncing any sounds upward toward the absorptive ceiling," Berkow explains.

Since the room opened in September 2006, reaction has been overwhelmingly positive, from both students and staff. "The room reflects the program's exciting and accessible environment for sessions and teaching," Anderson says. "With the department's focus on contemporary music, we look forward to the variety of projects that our new studio and new console will attract within the university." ■

George Petersen is Mix's executive editor.

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All I Really, Really Want

Dear Santa, or to Whom It May Concern

Here we are in that strange time between Thanksgiving and the Winter Solstice holiday, when our thoughts turn from what we have to be thankful for to what we ain't got yet. And from turkeys, cranberries, pilgrims and football to the superhumanly fast-moving oversized elf who we hope will leave all kinds of stuff for us underneath a rapidly dehydrating coniferous tree that somehow is taking up a large portion of our living space. Like I said, strange.

This year, I happen to have a lot to be thankful for. Besides managing to push some projects I'm pretty happy with out the door, I have lots of new toys to play with. There are new versions of my favorite MIDI and audio sequencers and of my favorite soft synth suite, all of which hold the promise of great new features that I and scores of other users have been clamoring for.

There are astonishingly good sample libraries coming from dozens of different manufacturers that give me access to instruments spanning the globe and the centuries. There are plug-ins by the hundreds that can enhance or destroy—accidentally or on purpose—my work in ways that were simply unimaginable just a couple of years ago. There are new control surfaces and input devices for music and for mixing that are getting cheaper by the minute (and smarter, too) as their manufacturers are communicating with each other—and with the makers of the platforms they hook up to—to an unprecedented degree. There are great microphones at low prices, and even greater ones at middling prices, offering a level of performance that previously cost five or 10 times as much. Large-screen LCDs have plummeted in price so I can now think about having three on my desk, and I'll still have more space for broken pencils and illegible scraps of paper than I did when I was chained to a 19-inch CRT.

And there are new computers—oh, what a brave new world that has such machines in it! I don't think I'm the only one who thinks that the one word that best sums up the new Intel Macs is "scary." As I write this, I am working on a proposal for my school to acquire about two dozen of them, and those machines combined probably represent more computer muscle, storage and speed than you could have found on the entire floor of COMDEX a decade ago. As Apple continues to reposition itself as a multimedia company, we creators are the beneficiaries: All of that horsepower designed to deliver



ILLUSTRATION: KAY MARSHALL

audio and video to consumers means much more juice for us who have the privilege of *making* the audio and video.

So what do I need from the big guy sliding down the chimney? Well, let me start by thinking of everything I've always wanted in the past, and see what's left.

Way, way back when I first started in this business, what I really wanted was my own studio, where I could work on projects, my own and my clients', without worrying about the money clock ticking. Well, now I have that. I can do everything at home: record, score, orchestrate, overdub, edit, mix, master and video layback. Sometimes when I need someone else's expertise—a mastering engineer or a TV sound mixer—I will visit his or her facility (which is often as not in *that person's* home), but in general, the only time I spend in a commercial studio is when I'm writing an article about it or giving my students a tour. So that's covered.

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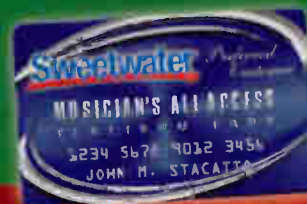
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Alan Says



We just wrapped up *Pirates of the Caribbean: Dead Man's Chest*, and there are Royer R-122V tube ribbons all over the score. I used three R-122Vs on the decca tree, and also extensively on the woodwinds.

There's something going on in the mids with Royer's tube ribbon mics that's hard to explain; there's a reach and depth and lushness that sounds magical to me.

For some remote island cues that needed a cannibal vibe, Vinnie Colaiuta, Abe Laboriel Jr., and JR Robinson played drum kits simultaneously on the Sony scoring stage. I captured each kit as a mono setup - panned left-center-right - using a single R-122V over each kit. It sounded amazing.

Alan Meyerson

(Scoring Engineer & Mixer - Hans Zimmer, James Newton Howard)

See photographs of Alan's *Pirates* sessions at royerlabs.com - Session Photos



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years or so, I have wanted tools that could make me more productive and/or more creative. I remember early in the MIDI era, I wanted electronic instruments that had more flexible and organic sounds than the FM and subtractive synths prevalent at the time. Along came samplers, L/A synthesis and physical modeling—okay! Then I wanted a MIDI sequencing program that could give me precise and intuitive control over continuous variables like controllers and tempo. To the rescue came Passport Designs, Opcode Systems, Mark of the Unicorn (MOTU) and others on the PC side. I asked for a universal patch editor/librarian program that could keep track of all the synths I was collecting—in my stocking one year I found just that, courtesy of Opcode Systems and Dr. T's.

It's almost criminal how much power and creative capacity I have in my studio that I have never had a chance to explore or exploit. I have software instruments and studio gadgets sitting in boxes that have been waiting for me to install them for months.

To handle all of the signals from those synths and all of the effects boxes that were finding their way into my studio, I wished for a small, high-quality mixer with expansion capabilities and plenty of routing flexibility. Greg Mackie was my St. Nick that year (he looks the part, too), and his CR-1604 (two of them, actually) took an honored place under my tree. With multitimbral modules becoming the norm, I needed to access a lot more than 16 or 32 MIDI channels—once again, MOTU and Opcode Systems came through with multiport interfaces. Because my studio was small, I couldn't handle big monitors, but the small monitors I wanted had to be ones I could rely on—and soon there were gifts galore from Event Electronics, Genelec and many more. I wanted a cheap, simple and reliable way to sync my computer to audio and video tape—the MIDI

Manufacturers Association delivered MIDI Time Code and it was a very good night.

I wished to get rid of my analog audio decks, their wow and flutter, and their endless need for maintenance—PCM-F1 and then DAT showed up at just the right time. And when I wanted to edit nonlinearly, there was Digidesign coming down the chimney, first with a stereo hard disk system the company called Sound Tools, and just a couple of seasons later, its multitrack version, which made my, and a lot of others', very biggest wishes come true. And then I wanted a program that could work on MIDI and audio simultaneously and seamlessly—Opcode Systems' Vision was the first to circle around my tree, and many others have done the same since. I wished for higher track counts on my computer, but before that happened, modular digital multitrack tape decks arrived in the sleigh, and allowed me to do really complex mixes using three ADATs or, even better, three DA-88s. But then fast hard disks with SCSI2 arrived, and I didn't even need those any more. And when my first CD burner came along, I could take my DAT machine offline, too.

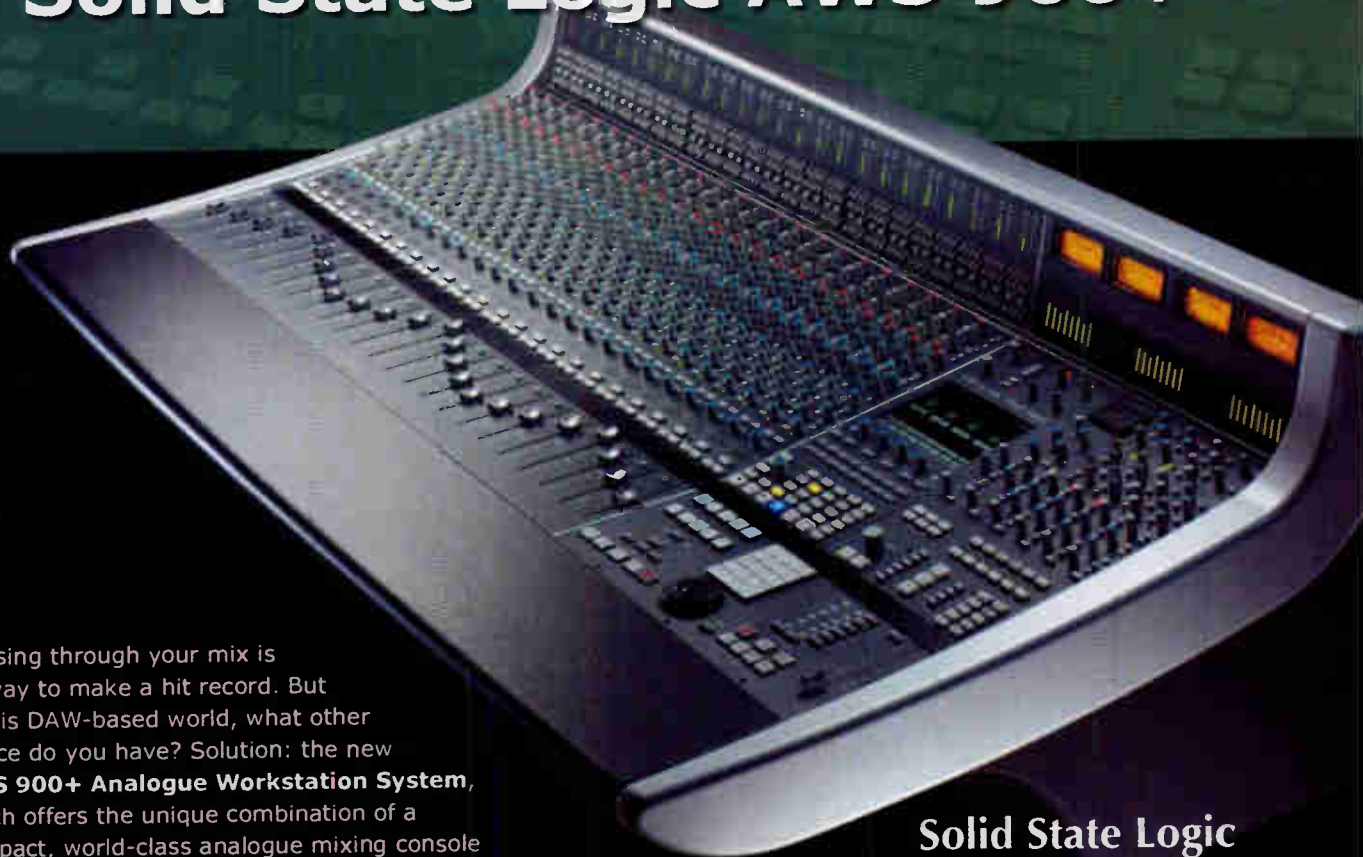
Because I was still working a lot in the analog domain, I wished for an automated mixer with moving faders. For years, visions of NECAMs and SSLs danced in my head, but then Yamaha started coming out with inexpensive mixers like the DMP-7. Though they weren't exactly what I had in mind, they were an interesting idea, and they led to the 01V, which not only did just what I needed, but it sounded good.

I needed a keyboard I could take on gigs, but that would also interface with my studio with the best quality possible. Santa brought me a Kurzweil K2000, which had digital I/O and great sound, and was flexible and powerful enough to handle all the stuff I needed it to do, whether I was playing in a bar or at an avant-garde music festival. Then I thought maybe I could ask for a computer that could also travel easily, and handle audio and MIDI. My G3 iBook with USB and FireWire appeared under the tree five years ago, and it is still handling everything when I'm lecturing, performing or doing weird sonic installations.

As computer power grew and plug-ins became more ambitious, I started to hanker for something almost impossible to achieve in hardware: a limiter that could look ahead and really tamp down those overloads. And I also wanted a reverb plug-in that sounded as good as a hardware reverb, and was completely programmable and automatable. Wouldn't you know it—soon I had dozens

—CONTINUED ON PAGE 128

The analog console for the digital world: Solid State Logic AWS 900+



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Issues in Modern Mastering



ILLUSTRATION: DAVE EMBER

Golden Ears
Take On
Volume Wars,
Competition From
The Masses
And the Great
Workstation
Debate

BY BLAIR JACKSON

despite the much-publicized malaise afflicting the record industry in general, these are pretty good times for most mastering engineers. After all, even though major-label rosters have been trimmed, many recording studios are struggling and album sales are down, the sheer number of audio and DVD projects flooding the marketplace—an increasing number of them as independent releases—is still enormous, and competent mastering continues to be viewed as an essential and affordable step in the recording process.

There are some dark clouds gathering, however: Reputable mastering professionals are competing against a growing legion of recording facilities (and sometimes even the musicians themselves) who often use less-than-optimum semi-pro gear. And while we all know that these days one

can record a great album on budget gear, the critical detail called for in mastering requires professional tools, often designed expressly for the task, such as top-quality audiophile monitors and EQs offering super-precise increments of adjustment. And perhaps even more insidious to quality-conscious engineers is the widespread, passive acceptance of low-resolution audio experienced through tiny ear buds and mediocre computer speakers. That's beyond their control, of course—it's a societal shift toward convenience and portability. All they can do is make sure that the music sounds as good as it can when it leaves their mastering rooms.

Recently, *Mix* spoke with four top mastering engineers from different parts of the country—Paul Stubblebine, Andrew Mendelson, Alan Douches and Joe Gastwirt

(see “The Featured Four” on opposite page for details)—to find out about some of the issues that affect them these days.

DEMOCRATIZATION OF TECHNOLOGY: GOOD FOR ALL?

Stubblebine starts us out with a little historical perspective: “I started long ago enough that I remember the days when you couldn't make a record until you convinced a record label you were worth making a record with. The labels had the only studios, and you couldn't even say, ‘I'll hire the studio.’ Those days are long gone, obviously. Now anyone with a gold card and access to Guitar Center can have a studio at home and make records, and many of them do. Then the next thing that happened is the home studio revolution spread to mastering. Everybody started

thinking, 'It's just another program in the computer, or plug-in, or box, and I can do it.' For better or worse, now everybody says they do mastering, and I suppose they do on some level. The spread of the technology has meant that it can be in anyone's hands. I'm certainly in favor of anything that puts power in the hands of the artist, but an awful lot of records are being made by people who don't approach the craft of recording with as much enthusiasm as they do the musical side. And the fact that [mastering] is so widespread now means perhaps the craft is not quite as respected as it was at one time. I regret anything that dilutes the seriousness of the craft."

"Just like everywhere in the business," Mendelson notes. "there's a decentralization going on in mastering, in part because the tools required aren't the same as they used to be—I mean, you don't need a lathe anymore, for example, and CD burners have become very affordable. It's easier than ever to open up a 'mastering studio.' There's been a decentralization of the recording industry in general, and attention to quality has in some instances gone away. It seems as though people are focusing less on, 'Am I using the best possible burner?' 'Am I finding the best diather for this project?' 'Am I using the absolute best A-to-D I can to transfer to the digital domain?' There's been a shift away from quality in favor of convenience and economizing, but there are still many artists who treat mastering seriously, even at the indie level.

"On a lot of independent projects that were done on a budget—maybe they were made in a bedroom or a garage—they're looking for some step to take their music to the next level," he continues. "Certainly top-notch mastering is a great place to accomplish that if you don't have the budget to go in and mix with the best engineers in the best studios on the best gear. What's the one step that can take this project to the next level while keeping to a relatively small budget? Mastering can be an economical place to put your money."

"Purely aside from my own business interest," adds Douches, "I think it's really important for an artist to have someone with a fresh perspective viewing their music, someone they respect, because

they don't know where it's going: Is it only going to be 1,000 sales, or is it going to be 150,000? We've had the good fortune of having a couple of indie artists break through, like Ben Folds Five and Sufjan Stevens. We did their first records, and if we didn't take the care we did with them, who knows what would have happened? I certainly don't take credit for their success—that's absurd—but you really have to do whatever you can with every project that comes in, whether they're big or small. I think indie artists are learning that if they take their career seriously—if they're going out on tour and will be promoting and marketing their product—good mastering is not a step that should be overlooked."

"Something that happens with artists who record and mix at home," Stubblebine says, "is when they walk in my door, if they monitored on a system that isn't really dialed-in or full-range, sometimes they are a little surprised at what's actually there [on their master]. Maybe their monitors are not very 'ambitious,' let's say, and the room they're placed in hasn't been treated and their placement in the room is not optimal. What they've been hearing all along may be a little skewed and it affects the mixes, and then we have to try and deal with that [in mastering]. That's always been the case somewhat,



Indie artists are learning that if they take their career seriously, good mastering is a step that should not be overlooked.

—Alan Douches

because not every studio control room is well-tuned either, but the variation is more and the percentage is much higher in projects that are not done in a professional studio."

The Featured Four

Originally based in New York, where he worked at Media Sound, Masterdisk, CBS and Frankford Wayne, **Joe Gastwirt** (www.gastwirtmastering.com) moved to Los Angeles a number of years ago, plying his trade at Kendun, Artisan, CBS, JVC, his own Oceanview Mastering and now his eponymous facility, located in his house.

Paul Stubblebine (www.paulstubblebine.com) has been a top independent in San Francisco for many years, spearheading the popular Rocket Lab operation in the old Wally Heider Studio C on Hyde Street, and now operating two rooms in the former Coast Recorders on Mission Street.

Andrew Mendelson came to Nashville's Georgetown Masters (www.georgetownmasters.com) from the highly regarded Telarc Records stable of engineers. He apprenticed under Georgetown's storied co-founder, Denny Purcell, and took over Georgetown after Purcell died in 2002.

More than 15 years ago, **Alan Douches** (rhymes with "couches") named his mastering studio West West Side Music (www.westwestsidemusic.com) as a small joke: It was located way west of Manhattan's West Side—in New Jersey. Now it is even farther west, about 40 miles from Midtown in the placid Orange County, N.J., town of New Windsor. No matter—WWSM's large clientele of major-label and indie artists has followed Douches to his new, expanded digs.



Every record has a magic level where it sounds best and shouldn't be pushed any further.

—Joe Gastwirt

LOUDNESS WARS RAGE ON

All four engineers agreed that one of the most troubling issues they face in mastering is clients'—and radio-hungry labels'—insistence on producing the loudest and “hottest” possible masters.

“I deal with the so-called level wars all the time,” offers Gastwirt. “I've been really lucky that most of my clients are very loyal and do care about good sound. That's probably why they came to me in the first place. As far as the level thing is concerned, I usually demonstrate on several listening systems: I'll show my clients the level that I'd like to master the record, and then I'll put the signal through the typical equipment to make it louder, like a [Waves] L2 [hardware] limiter or some other type of digital compressor/peak limiter and demonstrate the effect it has on the sound. Almost always the client agrees that the result is unmusical; the louder, more compressed version seems to flatten the stereo image, as well as eliminate much of the dynamics intended in the mix. And when the peaks are removed, the three-dimensionality and the space between the speakers become compromised. This is a big problem to me because I am a fan of listening on a large hi-fi system where detail and dynamics rule. Listening on an iPod with little ear buds or in the car won't reveal all the problems that are being introduced by this type of signal processing, but I believe that the abrasive-sounding distortion can be heard on any listening system.

“Every record has a magic level where it sounds best and shouldn't be pushed any further,” Gastwirt continues. “I personally like to make records that sound so good they invite you to turn up your listening system, not records that have so much distortion built in that you have to turn down because it simply hurts your ears.”

“If someone comes in and says, ‘I want the loudest disc ever,’ which I've actually been asked about,” Georgetown Masters'

Mendelson says with a laugh, “it's my job to tell them, and maybe even show them, the negatives that can result from trying to do that, but I'm not going to turn down the project. It's not my project. I'm there to help the artists attain their vision. They need to hear about the downsides of over-compressing and distorting the music, but if they want it to jump out of speakers even after knowing that, I'll do my best to take them there. Obviously, some mixes lend themselves better to extreme compression, and the project where I was asked to do that was mixed very well for ‘loud.’ Some mixers can get away with it more than others.”

“I can't wait for the loudness wars to go away,” Stubblebine says. “Music that's being made is going to sound very dated, like gated reverb in the '70s. I happen to be a big fan of compression—it's one of the most wonderful tools we have in audio, artfully applied—but this loudness race took any chance of artfully applying it out of the equation, and for me it's about a fallacy: The idea that on the production end we should try to determine how loud the listener is going to listen to it. The paradox of it is, the more you do that, the less fun it is to listen to loud. If you leave some breathing in the music and then let the listener crank up the volume control, it's a much more engaging and enveloping and fun way to listen to music.”



The idea that on the production end we should try to determine how loud the listener is going to listen to [music] is a fallacy.

—Paul Stubblebine

THE AGE-OLD TECHNOLOGY DEBATE

Like the rest of the music industry, the mastering side has had to adjust to the proliferation of digital audio workstations—especially Pro Tools—as the primary means of music recording and delivery to the mastering studio, as well as the concomitant near-disappearance of tape. This has, not surprisingly, brought its own set of challenges. Fortunately, on the issue of actual sonic quality, all our interviewees note that digital recording formats sound much better today than they did just a few years ago.

But there can be problem areas that affect mastering engineers. One is the widespread use of lower-end processing plug-ins in recording and mixing, though even here our panel agrees that plug-ins have, in general, gotten better and more reliable. Most seem largely to eschew them in mastering, however.

According to Gastwirt, “Ninety-nine percent of everything I do is analog, working with real equipment that software writers use to model their plug-ins after. I won't use a plug-in in mastering. The L2 [Ultramaximizer] that I have here, and seldom use, is a stand-alone, rackmounted hardware piece—not a plug-in—and I find that makes a huge difference, maybe because it is not sharing computer power with Pro Tools or whatever else is running. I'm very old-school. Generally, I'm using the same gear I used in 1975, with the addition of some newer, necessary digital tools. I have highly modified Sontec equalizers and a series of tube compressors I'm very attached to. I also have a pair of tube equalizers from Esoteric Audio Research, as well as a large assortment of compressors, equalizers and other goodies that come in very handy when a project calls for a specific sound.”

Stubblebine still isn't sold on the sound quality of most plug-ins for his purposes. “We're starting to find a few we can use.”

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he says. "We still do almost all our sonic tune-up work and reshaping work with outboard gear, either analog or digital. We don't even use the workstations for most of it. The dedicated boxes all seem to have enough DSP to do the job. You're never worrying that something is borrowing processing cycles when you're overloading it; it's just there. And with the ones we've chosen—the better ones—the people know how to write algorithms that sound good. I haven't found many plug-ins I'd say the same about. We have some hardware boxes

from TC Electronic, and now they're putting some of that in plug-in form—you still need hardware to run it—and those sound pretty good, their reverbs. Some of the plug-ins that Universal Audio is making are really good, too."

Douches, for one, does much of his work in Pro Tools, and working with so many indie artists at West West Side Music, he's been exposed to every level of plug-in use and abuse. I asked if he could do anything with a file where the artist had used a bad-sounding plug-in. "Fortunately,

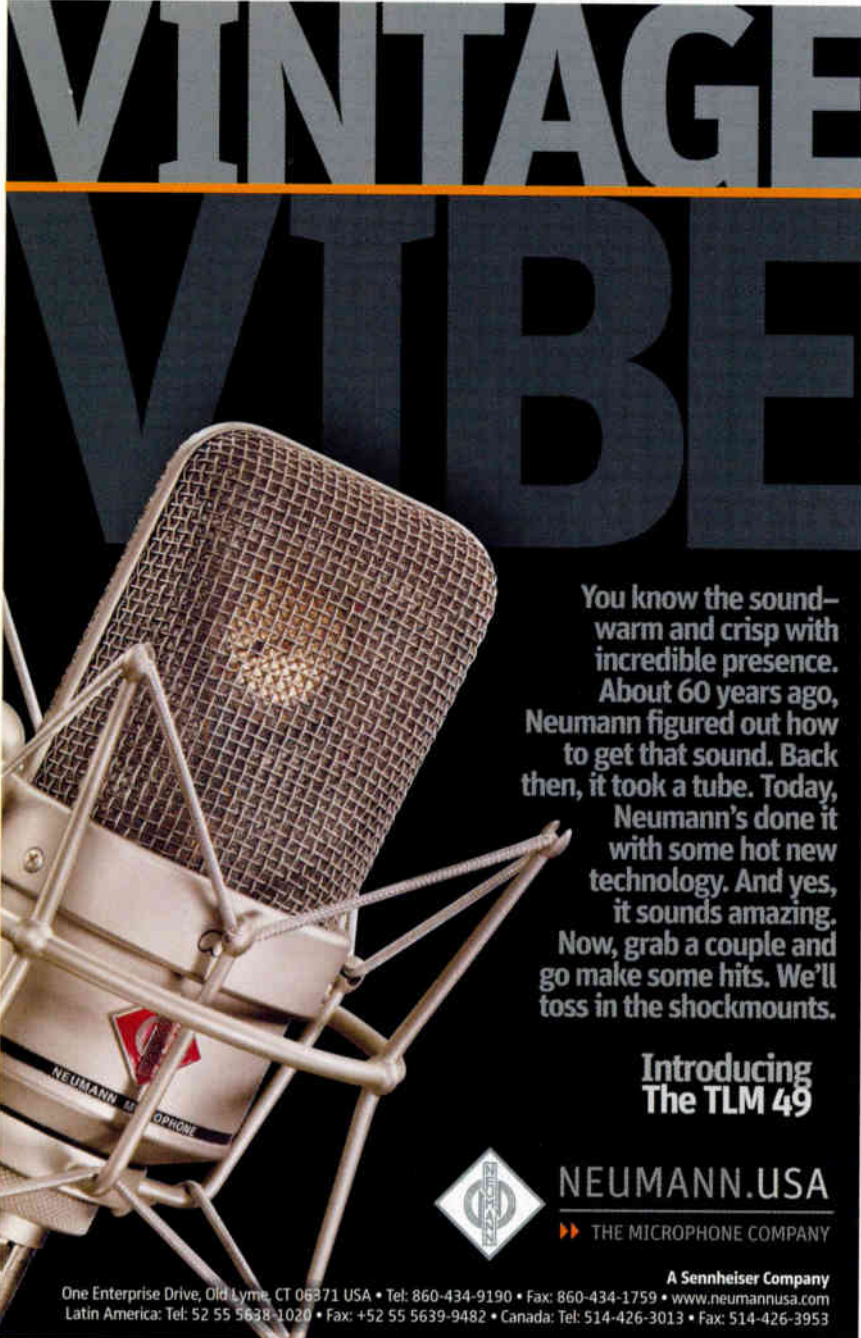
there are things you can do," he replies. "We're getting more stems and we're getting more people literally bringing in hard drives with all flattened files. We ask them to have versions with plug-ins and without, if they were using them on the mix bus. If whatever unique combination they were using is creating a vibe that's working, then we'll go with it. It normally limits—with all puns intended—our options here, but our job is not to remix their record; it's just to make sure they get what they want. We have found ourselves actually mixing on several occasions, and we have to stop ourselves, and say, 'Are we sure we're liking this?' With stems, if I'm altering something more than a dB and a half or so from their prescribed mix, there was probably something wrong with the mix to begin with, and what they provided us really wasn't a finished mix anyway. We've had people walk in the door with unfinished mix sessions and they expect us to pull up a Pro Tools mix with every plug-in they used. So we try to head that off before they come through the door."

"I am not a big fan of working from stem mixes," Gastwirt comments. "Traditionally, balances between different sections of the mix were made by the producer and engineer in the mix studio. There are generally enough challenges in mastering that we shouldn't look to make it more complicated than it needs to be. However, when it is necessary to work with stem mixes, I think everything benefits greatly when I use a good-sounding analog summing bus instead of combining tracks in the box."

GO-TO GEAR

In his mastering work with Pro Tools, Douches particularly sings the praises of Metric Halo's SpectraFoo signal metering and analysis software: "For the most part, it's impossible to master in Pro Tools without SpectraFoo," Douches explains. "The metering in Pro Tools is good, but certainly not capable of delivering the type of results you need as a professional mastering facility. We have Sonic [Solutions], as well, but Pro Tools is our main option, mostly because of the kind of editing, special effects, sequencing requests and other options that people put upon us. So we've worked out our own way to work with it, and SpectraFoo is an amazing part of it. They really jumped on that bandwagon early and have really done magnificently.

"Another piece I love is the Pendulum Audio PL-2 analog peak limiter, which is a great way to avoid using digital peak limit-



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ing," Douches continues. "It doesn't replace digital software, but when you're trying to get every half-a-dB from wherever you can, it's been a really big help. Also, the TC [Electronic System] 6000 is essential in all our surround work—probably 75 percent of our processing for multichannel work is done through the TC 6000. Without it, I'm not sure we could do authoring and/or mastering for 5.1 in our analog domain."

Asked about new gear that's making his job easier, Gastwirt says, "My equipment bucks usually go toward better sound, not making my job easier. My most recent acquisition is a pair of Antelope Isochrone OCX-V [video-enabled clock generator] clocks: one for the Pro Tools rig and one for the Sonic rig. It has reduced the jitter throughout my whole system—and it was pretty good before—improving stereo image, detail, clarity and bass punch. It is also a lifesaver when working on stereo and 5.1 sound for DVD because of its video-sync capabilities. Other than that, I'm always looking for new, cool tube stuff."

At Georgetown Masters, Mendelson notes, "We put a new console in—it's one of those projects that will never end," he



There's a decentralization going on in mastering, in part because the tools required aren't the same as they used to be.

—Andrew Mendelson

says with a chuckle. "John LaGrou from Millennia has been helping out, designing some custom buffered distribution amps for us. I went looking for a mastering console that was exactly what I wanted when I set out to update our current console, but there wasn't anything I found that had everything I was looking for. So instead, we've built a custom console, incorporating the best of old and new. The console includes some of the custom gain stages from our modified Neumann disc-cutting console, an SPL [Sound Performance Lab] MasterBay for inserting and routing processors, a Pass Labs preamp;

a Crookwood source switcher and a few other things. We found that a custom 'one-off' console allowed us the performance and attention to detail that we couldn't get in an off-the-shelf system."

Stubblebine has been investigating analog summing at his studio. "People are using that so they don't have to sum in the workstation, but I'm experimenting with a couple of things in mastering using an analog summing box," he says. "If I'm processing in the analog domain, which I'm doing 90 percent of the time, I'm trying things

—CONTINUED ON PAGE 100

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Tools for That Finishing Touch

BY MICHAEL COOPER

Equalization is one of the two most-common processes employed in mastering (the other being dynamics processing) to put the finishing touch on a recording project. Whether used to correct a problem, enhance something that already sounds good or simply lend consistency to the spectral balance of multiple songs, equalizers must fulfill more demanding requirements if they are to be used for mastering, and not just for tracking and mixing.

An EQ designed for mastering must provide quick, accurate recall of settings for making changes requested by the client, and for making A/B/C, etc., comparisons. For analog units, this means the EQ must have some sort of digital recall, or either switched or detented controls. Digital hardware and DAW plug-ins need the ability to store and recall custom presets.

Only products that have such functionality are included in the following collection of mastering equalizers. We've also limited the playing field to units that provide 1dB or smaller steps between boost/cut settings. That said, most mastering engineers would agree that 0.5dB steps are the minimum required for treating a project with kid gloves.

We've also limited the list of products to those that provide at least four bands,

New Mastering EQs Offer Fast, Accurate Frequency Fixes

plug-ins that are self-contained (even if sold in a bundle); those provided by channel strips were omitted. Stock equalizers for DAWs are not included either, unless they're also available as third-party plug-ins for other platforms.

In some cases, both mastering and tracking/mixing versions of the same model are offered, so be sure you're ordering the right version. List prices provided are for the mastering versions. And remember, all information presented here is derived from manufacturers' literature and should be considered a starting point in your research. We'll begin with hardware units, followed by plug-ins.

GEAR WITH REAL KNOBS

The dual-mono, all-discrete, Class-A AD2077 from Avalon Design (www.avalondesign.com) provides four EQ bands per channel and takes a hybrid design approach. Passive shelving or bell-curve filters can alternately be chosen for low and high bands, while the two para-

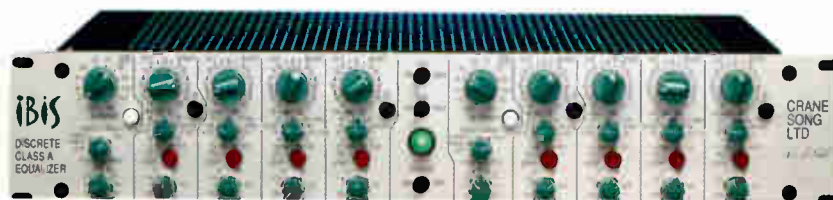
metric mid-bands use active filters and offer x10 frequency multipliers to yield a total choice of 10⁴ switched frequencies per channel. The passive filters provide up to 20 dB of boost or cut in steps of 0.5, 1 or 2 dB. The active filters effect up to 10 dB of boost or cut in 0.5dB and 1dB steps.

Announced at the October AES show, the Buzz Audio (www.buzzaudio.com) Resonance Equalizer Model REQ-2.2 (\$718) derives its name from its use of switched inductors and capacitors as the reactive elements in the EQ stages. The four bands of parametric filters in this stereo unit have independent bypass switches; low and high bands can alternately give shelving response. A passive, choke-based highpass filter is also included. An unusual addition is a variable transformer-saturation circuit that adds harmonic distortion to low frequencies.

Many of the frequency settings for Crane Song's (www.cranesong.com) IBIS (\$8,000 for the mastering version) are noted as musical pitches (e.g., C#, F, etc.) in lieu of Hz and kHz markings. Each of IBIS' two channels offers a highpass filter and four widely overlapping bands of parametric EQ (switchable to shelving response for bands 1 and 4), with up to 6 dB of boost or cut in mostly 0.5dB steps. Independent color controls add second- and third-harmonic distortion in varying amounts to the full program or individual bands. Channel-sidechain inserts allow additional processing of the filters' output.

The dual-mono George Massenburg Labs (GML, www.massenburg.com) Model 9500 (\$10,000) is the mastering version of the venerable Model 8200 EQ. Featuring five parametric bands per channel (switchable to Shelf mode on the highest and lowest bands), the 9500 offers 24 different frequency choices per band and up to 15 dB of boost or cut in 0.5dB steps. The unit is powered by two included GML 8355 power supplies (\$525 each).

Another AES 2006 debut, the Great River (www.greatriverelectronics.com) MAQ-2NV (\$5,330) stereo mastering equalizer features the same Class-A, inductor-based circuitry as found in the

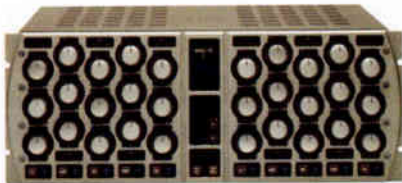


Crane Song IBIS notes many frequency settings as musical pitches (C#, F, etc.) instead of Hz.

including at least one band each of parametric and high- and low-shelving filters (or the equivalent for EQ curves drawn with a mouse) per channel. All of the hardware products (which are analog, unless noted otherwise) accommodate +4dBu nominal levels. The digital hardware and plug-ins listed here offer at least 24-bit resolution. We've focused on EQ

metric mid-bands use active filters and offer x10 frequency multipliers to yield a total choice of 10⁴ switched frequencies per channel. The passive filters provide up to 20 dB of boost or cut in steps of 0.5, 1 or 2 dB. The active filters effect up to 10 dB of boost or cut in 0.5dB and 1dB steps.

Announced at the October AES show,



The all-discrete, Class-A SPL PQ 2-channel EQ

company's EQ-2NV, but adds extended high- and low-frequency ranges, switched gain controls, highpass filters (in addition to the four parametric bands per channel) and a channel-link function. High and low bands can be switched to provide shelving response. Boost/cut steps are 0.5 dB to ± 3 dB, and then 1dB increments to ± 8 dB. Transformer-balanced inputs and transformerless outputs are standard.

At first glance, the Junger (www.junger-audio.com) e07 digital filter processor (\$5,838) seems to be simply a 4-band (per-channel) parametric, but each band in this switchable stereo/dual-mono unit can provide dynamic equalization for duties such as de-essing. Other features include timecode-based snapshot automation and an integral digital limiter; the latter helps prevent clipping. The e07 provides both AES3 and S/PDIF digital I/O, and standard sampling rates up to 96 kHz.

Masterpiece from **Legendary Audio** (www.legendaryaudio.com) is a 2-channel, modular rack system that can be fitted with up to nine modules designed by Rupert Neve. The Model 1515 peak equalizer module offers 16 frequency choices for each of its three overlapping bands. The Model 1517 shelf equalizer module

The Legendary Audio Masterpiece, designed by Rupert Neve

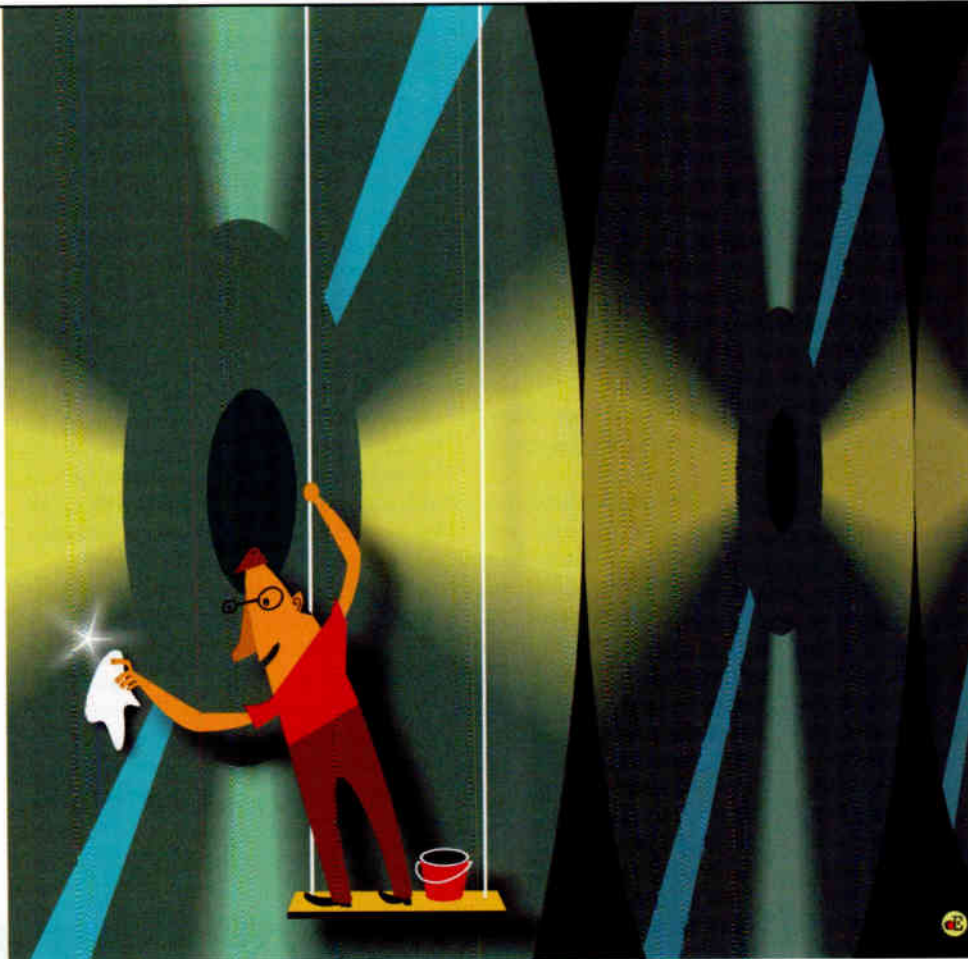


ILLUSTRATION: DAVE EMBER

provides high and low shelving, and a switchable "classic" circuit for transformer-effected coloration. Both modules provide up to 14dB boost/cut. A short-loaded Masterpiece with two 1517s, two 1515s and the required Master module (which provides high- and lowpass filters and an image control) and power supply lists for \$10,800.

Tube-based makeup gain and line drivers complement an all-passive equalizer design in the Manley (www.manleylabs.com) Mastering Version Massive Passive EQ (\$6,000). The 3U, dual-mono unit uses switched frequency and detented gain and bandwidth controls. Four parametric bands join high- and lowpass filters for each channel. A total of 44 different overlapping and interleaved frequency choices are offered per channel. Maximum boost/cut is 11 dB over 16 steps, but varies—along with step sizes—depending on the chosen bandwidth settings.

A MAST option (\$750) for Millennia Media's (www.mil-media.com) NSEQ-2 2-channel parametric EQ (\$3,500) adds detents for Q and frequency controls to those already in place for gain knobs. The unit offers two alternate transformerless audio paths—discrete, Class-A FET and triode tube—for each channel. Up to 20 dB of boost/cut are available for each channel's four filters. Low and high bands can be alternately switched to provide peaking or shelving response. The two middle bands are parametric and offer 10x frequency multipliers for extended range.

The Maselec MEA-2 (\$7,505) precision stereo equalizer from Prism Sound (www.maselec.com) offers four overlapping bands of EQ and a total of 84 discrete frequencies per channel. All controls are stepped. Each band can be switched for either shelving or for one of five different bell-curve responses. Up to 8 dB of boost/cut is available in 10 steps for each band, with 0.5dB steps offered up to ± 3 dB. The bandwidth of equalized bands

Tools for That Finishing Touch

remains constant as gain is changed. I/Os are electronically balanced.

Taking digital recall of analog gear one step further, SPL (www.spl-usa.com) equipped its PQ Mastering Equalizer (\$13,900) with motorized controls. The discrete, Class-A, 2-channel equalizer offers five fully parametric and overlapping bands per channel, channel link and master/slave link modes, and an optional remote that controls up to four units for surround applications. Each band can be independently switched to provide either constant-Q or proportional-Q equalization, and has up to 11.5 dB of boost/cut available. SPL's discrete, high-voltage Supra op amps provide a blistering 150dB dynamic range.

Each of the SPL Passeq (\$4,890) passive equalizer's three boost and cut bands provides 12 switchable frequencies. Both shelving (fixed for high- and low-cut and low-boost bands) and bell filters (for mid- and high-boost and mid-cut bands) are provided in this dual-channel, passive unit. The Passeq's unique design puts each coil on separate cores for improved phase performance. Supra circuitry provides the necessary makeup gain. Maximum gain boost is

between +10 and +17 dB, and maximum cut is -11.5 to -22 dB, depending on the band chosen. A few controls are currently not detented, but will be updated shortly.

The Weiss Digital Audio (www.weiss.ch) EQ1 7-band equalizer comes in four different flavors: "standard" (EQ1-MK2; \$3,490), linear phase (EQ1-LP; \$7,350), dynamic (EQ1-DYN; \$7,350) and combination linear phase and dynamic (EQ1-DYN-LP; \$8,975). All four digital EQs are capable of 24/96 operation via AES/EBU I/Os, and offer seven identical, fully parametric bands covering the entire audio range. Each band can provide high or low shelving, peaking, or high- or low-cut response, or can be bypassed. Boost/cut, frequency and Q controls each have 128 steps. An M/S mode allows independent equalization of mid- and side channels.

Z-Systems' (www.z-sys.com) z-Q2 (\$3,150) 2-channel digital EQ provides four parametric and two shelving bands (six bands total) per channel, and can operate in either dual-mono, linked-stereo or M/S modes. Center frequencies are on sixth-octave ISO frequencies. The z-Q2 has AES/EBU I/Os and offers POW-r word-

length reduction and resolution up to 24/96. Gain steps are an exacting 0.1 dB. Its 80 user presets can be recalled via MIDI program-change commands. The z-Qualizer (\$1,380) is essentially a much smaller-sized version of the z-Q2 that offers the same sound quality and functionality, except the former offers 99 RAM slots for storing presets.

Z-Systems also offers the z-Q6 6-channel digital equalizer (\$8,700) for surround mastering. Featuring AES/EBU I/O connectors (three each), 24/96 precision and POW-r noise shaping, the z-Q6 delivers up to 12dB boost or 95dB cut for each of the four parametric and two shelving bands on each channel. Gain steps are 0.1 dB for the first 12 dB of boost/cut, increasing incrementally to between 1dB and 5dB steps for deeper cuts. The z-Q6 offers sixth-octave ISO frequencies and 50 user presets.

PLUG-INS GALORE

The SuperFreq mastering equalizer from Macintosh specialists BIAS (www.bias-inc.com) is part of the \$599 Master Perfection Suite™ plug-in bundle and is included as part of the BIAS Peak Pro XT 5 stereo editor. SuperFreq can be instantiated in

GT PROFILE

Michael Wagener goes for the Glory!

WHAT HE'S DONE: Produced, recorded and mixed some of the biggest names in rock and pop, including Mötley Crüe, Dokken, Metallica, Janet Jackson, Ozzy, King's X, and many more. Over 50,000,000 (!) copies of his work have been sold worldwide.

WHAT HE'S DOING: Developing and producing new bands like *Hydrogyn* and *Goldyllocks*.

WHAT HE USES: Groove Tubes' ViPRE™ tube mic preamp, Glory Comp™ tube compressor, and all of GT's studio condenser mics.

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Michael

More info on Michael Wagener and GT's other Friends & Relations at www.groovetubes.com

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Bombshell
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4/6/8/10-band versions and has parametric, high- and low-shelving, and high- and low-cut filters with up to 24 dB of boost/cut. All bands offer 20 to 20k Hz range. Independent bypass switches for each band and A/B/C/D compare buttons facilitate mastering workflow.

The Massenburg DesignWorks (www.massenburg.com/mdw) Hi-Res Parametric EQ 2 (\$795) processes audio at 88.2/96 kHz, even when the sampling frequency for the session is half that. This plug-in uses double-precision, 48-bit processing and emulates the GML 8200's constant-shape reciprocal filter curves for its five bands. The frequency selectors on each band span 10 to 41k Hz, with up to 24dB boost/cut. Low and high bands can provide either peaking or shelving response. An innovative IsoPeak™ function temporarily hypes notch-filter response to aid in finding problem frequencies while remembering your previous settings. The plug-in is available for Pro Tools HD TDM, Mackie D8B digital console and the TC Electronic System 6000.

PSP Audioware (www.pspaudioware.com) produces three dual-channel mastering EQs. The MasterQ (\$149) assigns different filters to each of its channels' seven preconfigured bands: Parametric peaking filters serve low-mid, middle and high-mid bands, while low- and high-shelving and low- and high-cut filters serve the others. Either channel can be independently bypassed. A variety of limiting, soft-clipping and saturation algorithms are also available. MasterQ uses 64-bit, double-precision, floating-point computations and sampling rates up to 192 kHz.

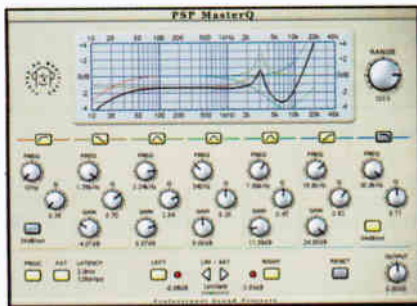
The PSP Neon (\$149) is a linear phase EQ that allows any of the general filter types mentioned for MasterQ to be assigned to each of its eight bands. Dual-mono, stereo and mid-side modes are all supported, along with independent processing and control of left and right channels. A high-resolution version of the

Neon, dubbed the Neon HR (\$249), offers increased fidelity for ultracritical applications. MasterQ, Neon and Neon HR are also included (along with PSP's Vintage Warmer and MasterComp plugs) in the company's MasterPack bundle (\$569).

The Frequl-izer (\$249), a dual-channel, linear phase EQ plug from Roger Nichols Digital (www.rogernicholsdigital.com), foregoes the traditional band-based approach and uses 50 control points to draw EQ curves using a mouse. Up to 18 dB of boost/cut is available for each band. Equalization

curves can be smoothed, scaled in amplitude, or slid higher or lower in frequency range, and the results can be viewed on a spectrum analyzer. Frequl-izer can morph between two custom presets to arrive at intermediate settings. Stereo and mono modes, A/B setups, automation support, spectrum matching, four channel-linking modes and independent equalization of left and right channels round out this plug's feature set.

Also from Roger Nichols Digital is Uniquel-izer (\$249), which offers an unlim-



PSP MasterQ assigns filters to preconfigured bands.

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ited number of bands, each with access to parametric, low- and high-shelving EQ, and low- and high-cut, bandpass, notch and harmonic filters. Other goodies include independent parameter control for left and right



RND's dual-channel, linear phase Equalizer EQ

channels, as well as facilities for making A/B comparisons. Equalizer and Uniquelizer can be bought individually or as part of the company's Pro Bundle (\$745).

The Sony (www.sonyplugins.com) Oxford EQ plug-in (\$885, TDM; \$549, Native) offers five bands of parametric equalization with shelving filters alternately available to low and high bands; an LPF and HPF are also included. Four EQ types can be chosen. (GML 8200 emulation is optionally available as a fifth EQ type.) Up to 20 dB of boost or cut can be applied to peaking and shelving bands. This stereo plug-in for Digidesign Pro Tools and TC Electronic PowerCore can be instantiated in six different configurations for optimal DSP usage, and offers support for automation and sampling rates up to 192 kHz.

Like analog hardware units designed for mastering, the Universal Audio (www.uaudio.com) Precision Equalizer (\$199) uses stepped-gain and frequency-selection controls, the former providing 0.5dB steps. Both dual-mono (allowing independent settings for each channel) and stereo-linked modes are featured in this 2-channel plug-in, which uses 192kHz upsampling for higher-quality processing. Four bands—two each for overlapping lows and highs—provide up to 8 dB of boost/cut for a choice of shelving and peaking filters. Also included are an HPF, independent bypasses for each band and facilities for A/B comparisons. The Precision Equalizer is also included in the company's Precision Mastering Bundle (\$500).

URS (www.ursplugins.com) offers five different parametric equalizers that can be used for mastering applications: the S Series (6-band), A-MIX (7-band), N-MIX (7-band), S-MIX (7-band) and FullTec (5-band). They are each offered individually for \$249.99 (Native) and \$499.99 (TDM), or together

(with several additional plugs substituted for the FullTec plug) in the company's Everything EQ bundle (\$1,149.99, Native; \$2,299, TDM). All but the FullTec plug-in offer switchable filter types (shelving or peaking) for low and high bands and an additional HPF and LPF, and are designed for use with Digidesign's ICON console. The FullTec plug is a mix-bus equalizer based on the Pultec EQP-1 and MEQ-5 analog equalizers, and offers simultaneous boost and cut controls for the same low- and high-shelving bands, along with three wide-ranging, parametric middle bands. All of URS' EQ plug-ins offer 0.1dB gain steps.

Waves (www.waves.com) offers two versions of its Linear Phase Equalizer—LinEQ Broadband and LinEQ Lowband—in one package. They are available only as part of the Waves Masters (\$900, Native; \$1,800, TDM), Platinum (\$2,100, Native; \$4,200, TDM) and Diamond (\$3,800, Native; \$7,000, TDM) bundles. LinEQ Broadband provides five overlapping midrange and high-frequency bands (with access to nine types of filters) and an additional low-frequency band (sporting five different filter types). LinEQ Lowband covers the 10 to 600Hz range, and provides access to five different filter types (including bell, low shelving and HPF). Up to 30dB boost/cut per band is possible, and a time-saving Trim function automatically sets 0.1dB headroom at the plug-in's output. Linear Phase Equalizer boasts 24/96 operation and 48-bit internal processing.

There are many more equalizer plug-ins available, some of which are suitable for mastering work but didn't meet the criteria for this roundup. Notable mentions include the Paragraphic Equalizer included in iZotope's Ozone 3 integrated plug-in suite and select equalizers included in Focusrite's



Waves' LinEQ, shown in broadband version

Liquid Mix. But this article should give you a running start in your research. ■

Michael Cooper owns Michael Cooper Recording, in Sisters, Ore. Visit www.myspace.com/michaelcooperrecording.

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Women AT THE Piano



Hungarian-born Sari Biro (1910–1990) became the only woman to perform nine piano concertos in a series of three concerts at Carnegie Hall in 1949.

Ambitious
Restoration
Series
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Musicians

BY HEATHER JOHNSON

Imagine a musician who spent most of her childhood practicing her craft, then most of her adult life studying at a prestigious music conservatory under the guidance of a renowned music instructor. She toured the world, performing the masterworks of such composers as Franz Liszt, Johann Sebastian Bach, Ludwig van Beethoven and Fryderyk Chopin, with symphonies in Paris, London, Berlin and Boston to full houses and roaring applause. But that musician, although considered a master of her instrument, later received little public recognition, despite her talents and commitment. Her career received virtually no mention in music history books; her presence diminished. Because she is a woman, the professional music community treated her as an afterthought.

Fortunately, with the introduction of the

CD in 1982, a number of scholars have gradually rediscovered early female composers and performers and made their works available to the public. One of the most recent and arguably one of the most ambitious endeavors to unearth these recordings comes from producer/historian/restoration engineers Victor and Marina Ledin, who teamed with classical label Naxos to release Volumes 1 and 2 of *Women at the Piano: An Anthology of Historic Performances*, which features a broad scope of female pianists from the first half of the 20th century—the recording industry's formative years. Ultimately, the anthology will comprise a total of 10 discs, each containing at least 20 selections, all meticulously restored in the Ledins' Pleasant Lane Studio in San Rafael, Calif.

Performances on the first two volumes date from the mid-1920s up through the

mid-1950s, though the series will contain works dating as far back as the early 1900s. The Ledins developed the idea while serving as restoration producers for several piano compilations from Naxos' historic collection in 2000, and over time, they assembled a database of more than 300 pioneering women pianists. At that point, they began the global hunt for rare recordings and nearly impossible-to-find biographical material.

"We wanted to document everything with background information," says Marina Ledin. "What's interesting, and sad in many respects, is we discovered that after the first 80 or 90 women, you can't find birth dates, death dates, not even a footnote, yet these artists left a legacy. Some of them are living but you can't find their biographical data. Googling doesn't help; the Internet, library-

ies and other archives don't yield much. Sometimes we'll learn that a woman studied at a particular conservatory, but the trail goes cold if there is a name change."

The Ledins began their research by poring through their own massive archives, which occupy three connecting storage facilities not far from their studio. Their collections include more than 10,000 illustrations, historic photos, concert programs, musical memorabilia and more than 25,000 music scores, as well as more than 100,000 classical recordings on cylinders, 78 rpm vinyl, transcription discs, LPs, CDs and tapes—in alphabetical order!—and thousands of broadcast transcription discs containing historic speeches, radio programs and news. "We've been collecting for quite a few years, finding items everywhere from garage sales and thrift stores to discarded library collections," says Victor Ledin.

If the biographical digging is the most research-intensive part of the project, then the restoration process is equally aural-intensive. Because metal masters for this type of material are pretty much gone, the Ledins attempt to collect multiple copies of commercial 78s or acetate transcription discs. "In many cases, they're extremely rare, especially from the pre-war period or WWII era, because a lot of record companies and factories were bombed and destroyed in



Victor and Marina Ledin in their Pleasant Lane Studio in San Rafael, Calif.

Europe," says Victor Ledin.

After gathering multiple copies of the source materials, they put them through a half-hour cleaning with one of Keith Monks' record-cleaning machines. From there, the discs go onto a modified Technics SP-15 direct-drive turntable, with a custom electronic sensor that clocks accurate rpm readout. The Ledins listen to multiple copies, selecting the best-sounding one. Then they must also choose the appropriate styli configured to the exact groove on the record (and before 1950, there were no RIAA standards) and appropriate recording curve, which is accomplished with the Millennia Media LPE-2 archival playback equalizer (#44 out of 50 or so produced). "If you want accuracy, you have to dial it in," says Victor Ledin. "The Millennia allowed us really infinite abilities to fine-tune what we're listening to, and it's phenomenal for extracting the best sound."

Audio gets converted from the analog turntable via 24-bit dCS AD/DA format converters into a full CEDAR system, which runs on a dedicated Mac computer. With the powerful CEDAR system, the Ledins make a light pass to reduce clicks, ticks, pops and hiss, leaving mastering engineer Anthony Casuccio to handle the final cleanup.

For the *Women at the Piano* discs, the Ledins not only had to repair the ravages of time, but they also had to edit compositions split between two sides of a disc. For this job and additional editing, they moved the CEDAR files into their Sonic Solutions workstation. "On the 78 rpm recordings, performers would slow down

or stop, knowing they were running out of space on one side," says Marina Ledin. "Sometimes they'd even repeat a note. If you're blindly editing the two sides, you might not hear the slowdown or a repeated note. We follow the score when we edit to make sure that we have a fluid, integral piece instead of just connections." If it's a live recording in the form of a transcription disc, she adds, then the musical overlap might be two or three bars! Therefore, it's important to pay attention. "In 1937 at Boston Symphony Hall, you wouldn't hear these side-joins, so we're bringing these performances back the way they were actually performed."

The Ledins use almost no external processing—it wouldn't be true to the performance. A Weiss EQ1-MK2 24/96 EQ assists in fixing a few problems with the masters, and a Z-Systems z-8.8 Digital Detangler serves as a switchboard of sorts between the analog and digital equipment.

Before they burn the tracks onto a CD to hand off to Casuccio, the Ledins must make sure that all of the tracks flow together in terms of key signature, which determines the order of the compositions more than the date of composition, the country of origin or the performer. "Our human ear likes to have a progression of comfortable key changes," says Marina Ledin. "We have to consider how the piece starts and ends and find a natural progression into the next piece of music. Considering we have a wide variety of music from different studios and different years, that's the real jigsaw puzzle."



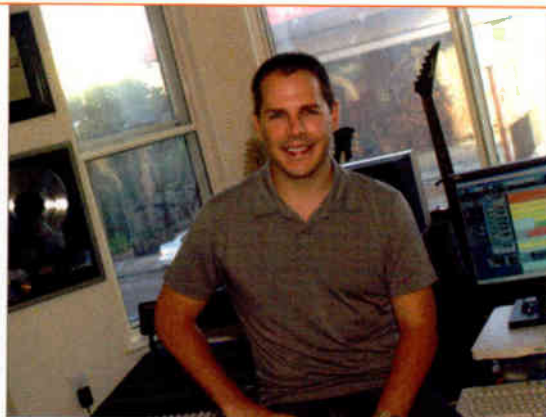
English pianist Myra Hess (1890-1965)

EXTREME CLEANUP

Casuccio, a former San Francisco Bay Area resident who relocated to the New York area in 2003, took on the demanding job of restoration mastering for the project. "If you can compare what we did with the CEDAR system to sanding a piece of wood, then Anthony added the polish," says Marina Ledin. His goal, like the Ledins', was to draw out the original performance, "polish" it to the best of his ability and maintain continuity between the tracks.

Working at his Xtream Audio Mastering

facility, complete with ample software such as Steinberg WaveLab 5 and Sony SoundForge 8, Casuccio first cleaned up the broadband noise left on the front and back of each track, then began work on the piano sounds. Despite the Ledins' meticulous efforts to find the best-available source material, some transfers have not fared well over time. Some tracks require intense cleanup



Restoration mastering engineer Anthony Casuccio



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while others may be rejected altogether. One track, for example, still had a warble as the result of an irreparably warped 78. To remedy the problem, Casuccio used Antares Auto-Tune to steady the piano notes and to correct bits of wow or flutter in a composition's final chord. "I found that by using some of these new applications not necessarily designed for restoration. I can actually fix a lot of the problems that we run into with the older recordings," he says.

Casuccio often uses the TC Native EQ-G, which allows him to bring back the presence of the piano. "I do like the warm sound of this plug-in, especially on older 78 transfers," he says. "It allows me to really hone in on a specific frequency."

Casuccio's Juilliard training proved beneficial during the editing process, when he would often place edits in a particular place that the Ledins had marked in the score. He also knew how much space to leave between each musical work. "We base this on the performance notations," he explains.

The Ledins are wrapping up Volumes 3 and 4, but have come to an impasse concerning future compilations. Although they've "thrown the net" out to Washington D.C.'s National Museum of Women in the Arts, The Library of Congress, and many universities and music conservatories worldwide, they're running low on biographical material for their female contributors. They hope that publicity from the first two discs will ferret out some of that information and generate awareness about the importance of historical archiving and restoration for all genres of music.

"Even libraries are disposing of their collections," says Victor Ledin. "But every new generation of performers should have access to the musical treasures of the past because we can learn so much from history." ■

Heather Johnson is a Mix contributing editor.

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Sterling Alum Goes Solo

The mastering business has weathered as many surges and reversals as any segment of the music industry in recent years. So it may seem fairly surprising that just a couple of years ago, when everyone was in a digital panic over the arrival of new tools that could make mastering engineers redundant, Adrian Morgan had the courage and resources to leave a secure gig as head of DVD audio production at Sterling Sound and open his own one-man shop.

Morgan is a Berklee College of Music grad and a horn player who found once he was in college that he enjoyed working in the production and engineering department. After graduation, he got a job at Sterling and moved up the chain there. "I found myself in the position of cutting vinyl for a while, working on this great equipment that had just been restored by Chris Muth," Morgan says. "He became one of the co-founders of Dangerous Music, and he was one of the few guys in town who really knew how to take an older Neumann '70s-era lathe, completely disassemble it, reassemble it and make it work great. That's what got me into mastering and gave me a feel for it."

Morgan then worked as an editor under senior engineer Tom Coyne, whose projects included Britney Spears, Busta Rhymes, Backstreet Boys, Dido, Black Eyed Peas, D'Angelo—a tremendous list. At the same time, Morgan was seeking freelance projects. He was big into electronica and offered cheap rates to artists he liked, working on Sterling's equipment during the studio's off-hours. "I had 80-hour weeks sometimes," he says. "I was doing editing and production at the same time."

He was also using a sizable portion of his income to amass his own collection of equipment. Having used all of the gear and all the rooms at Sterling, Morgan knew what he wanted. "Ted Jensen had moved over to the PC platform and was using SEK'D, and then Magix Sequoia. They sent a version to me to check out when I was in the DVD department over there, and I've been using it ever since. I feel it's great for mastering. There's some room for improvement in the interface, but in terms of under-the-hood processing, it's key to my sound."

In 2001, Morgan was ready to open his own small studio, then called Blumljen Sound, in the Williamsburg neighborhood of Brooklyn, N.Y. When *Mix* first spoke with Morgan last spring, he was dividing his work time pretty evenly between music mastering and DVD audio work for projects such as Nike's *Battlegrounds* series, which combined footage of street basketball with hip hop tracks. Since then (again swimming against the tide), he has returned his focus almost exclusively to



Adrian Morgan's Timeless Mastering is built around a Magix Sequoia system and offers high-end vintage and modern analog equipment.

music, and he's moved into a new studio space (also in Williamsburg) centered around Sequoia, Nuendo, Mytek, Dangerous Music, Dynaudio monitors and an ever-expanding collection of processing gear. "I've made quite an investment in high-end analog equipment in the last few months—vintage and modern," Morgan reports. Recent acquisitions include a completely rebuilt Ampex ATR-102 and a rare set of Sphere 920 graphic EQs from a '70s-era Sphere Eclipse C Series console.

"My goal is to offer the service, expertise, experience and gear in a well-tuned room to independent and major artists for down-to-earth fixed rates," Morgan says. "These days, I feel the focus in pop music mastering is seeing the beginnings of a shift from volume wars and zero dynamic range to more warmth and punch—quality gain with some breathing room versus totally slammed levels. The quality of a mastering studio's analog and digital conversion chain is becoming more the name of the game, in addition to the skills and ideals of the engineer. Having had the privilege of cutting vinyl exclusively from well-mastered tracks for a period of time, I got a chance to hear and get used to great-sounding analog at its finest.

"It's a shame, but I've noticed lately that there seem to be a lot of 'mastering' engineers out there looking to make a quick buck out of quick work: 20 and 30 dollars a song," Morgan continues. "It's as if there is some simple formula to finishing a mix in cookie-cutter fashion in your everyday digital workstation. Transferring the energy of inspiration onto a mix is what I'm going for in mastering. That almost always requires real time and effort, not to mention some dedicated and expensive tools. I want my customers to walk away feeling like they got that effort from me." ■

Barbara Schultz is a Mix assistant editor.

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Recording Magazine, November 2006

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Lorenz Richter Recording Magazine, April 2006

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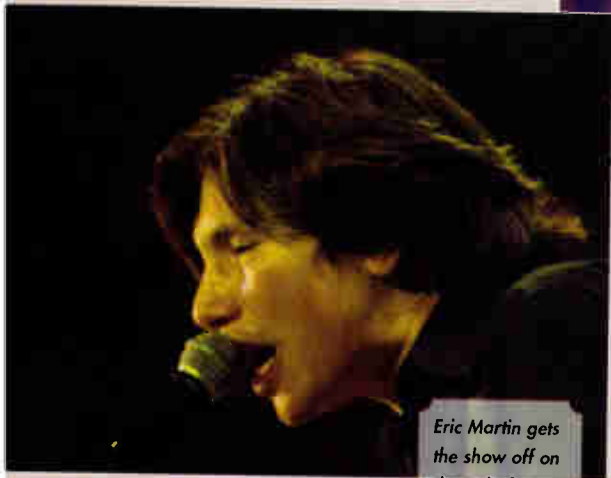
PHOTOS BY ERIC SLOMANSON & KIRK WUEST

A record 750 people attended the 22nd Annual TEC Awards at the Hilton San Francisco to honor Hall of Fame inductee David Hewitt, Les Paul Award recipient Steve Miller and the best audio products and projects of the past year. The evening's highlights included the appearance of vocalist Eric Martin opening the show with "Dancin' With My Devils," followed later by Steve Miller performing his mega-hit "Fly Like an Eagle," and then joining forces with ZZ Top's Billy Gibbons to perform T-Bone Walker's "T-Bone Shuffle."

This year's double-winners included AMS Neve's 88D (Large Format Console



Steve Miller and Billy Gibbons rock out in an impromptu jam.



Eric Martin gets the show off on the right foot singing, "Dancin' With My Devils."

Technology) and 1073 DPD (Mic Preamp Technology), JBL's VRX932LA (Sound Reinforcement Loudspeaker Technology) and LSR4300 Series (Studio Monitor Technology), and Shure's UHF-R (Wireless Technology) and E4 Earphones (Ancillary Equipment). Digidesign took home three awards for D-Command (Small Format Console Technology), Mbox2 (Digital Converter Technology) and Pro Tools 7 (Workstation Technology). A complete list of winners can be found at www.mixfoundation.org.

Funds from the TEC Awards and other activities of the Mix Foundation for Excellence in Audio support hearing awareness programs of the House Ear Institute and H.E.A.R., as well as scholarship programs for students of the audio arts and sciences.

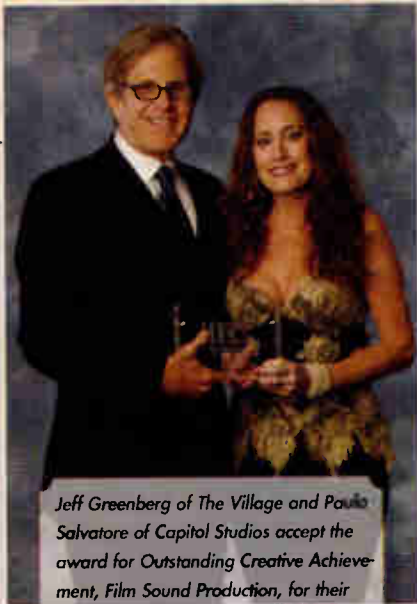


Mix Foundation president Hillel Resner (left) with Hall of Fame inductee David Hewitt



Henry Juskiewicz, chairman/CEO of Gibson (left), with Les Paul Award recipient Steve Miller

To view the TEC Awards online, go to www.broadjam.com.



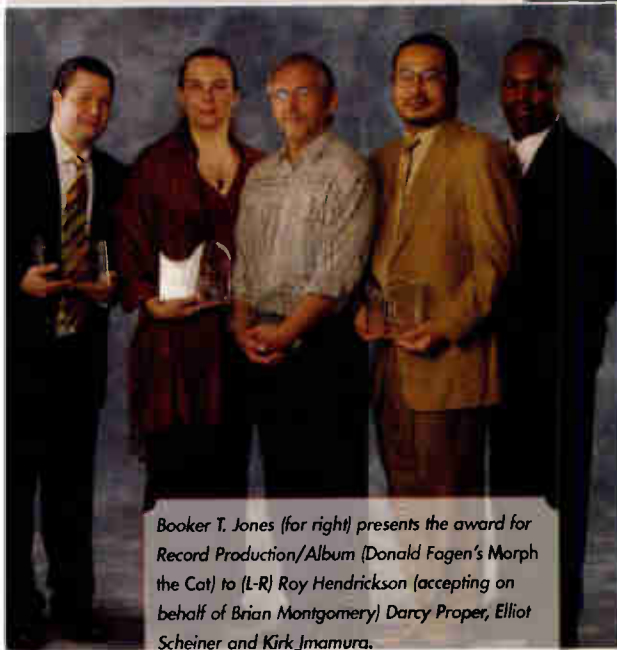
Jeff Greenberg of The Village and Paula Salvatore of Capitol Studios accept the award for Outstanding Creative Achievement, Film Sound Production, for their work on Walk the Line.



Billy Gibbons is flanked by Rory Kaplan (left) and Chris Walker, who represented Intel, sponsor of the Technology Awards.



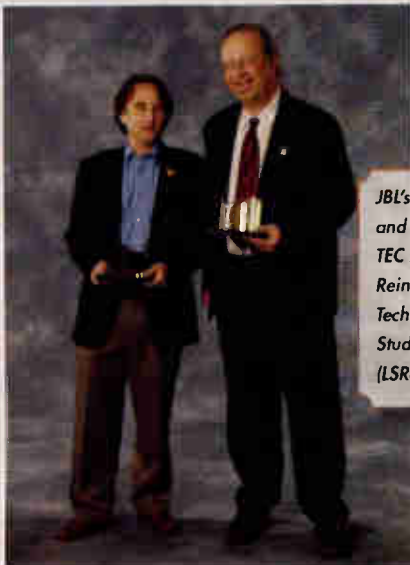
Kevin Burgin (left) and Rupert News win the award for Signal Processing Technology/Hardware for the Portico 5042 Tape Emulator.



Booker T. Jones (for right) presents the award for Record Production/Album (Donald Fagen's Morph the Cat) to (L-R) Roy Hendrickson (accepting on behalf of Brian Montgomery) Darcy Proper, Elliot Scheiner and Kirk Jmamura.



Getting ready for dinner: (L-R, front) Elliot Scheiner, Frank Filippetti, Al Schmitt, Geoff Emerick. (L-R, back): Intel's Chris Walker, Chrystian Kaplan, Rory Kaplan and Chuck Ainlay.



JBL's Peter Chaikin (left) and Mark Gander accept TEC Awards for Sound Reinforcement Loudspeaker Technology (VRX932LA) and Studio Monitor Technology (LSR4300 Series).



Gannon Kashiwa (left) and Rich Nevens accept one of DigiDesign's three TEC Awards for the evening (Digital Converter Technology, Mbox 2; Workstation, Pro Tools 7; and Small Format Console, D-Command).

A Day in the Wish List Life

Gift Suggestions for the Gadget Audio Freak

With the holiday season upon us, game freaks and new-wave audio tech heads have much to talk about. *Gears of War* was recently released by my old friends at Epic Games, and the sound is incredible—even though no real-time mixing was involved—and is getting rave reviews.

While perusing new releases in the audio world (not just videogames) for holiday gifts (for others and myself), I got to thinking about the way I manage my personal audio and how it connects with my game projects and how that has changed more than I ever could have imagined. For the first time, audio as a digital object is starting to coalesce before me in everything I do, as I'm sure it has for others. Take a typical day.

WOKE UP, GOT OUT OF BED

I wake up at 7 a.m., mostly because my kids are early risers, but it gives me some time to be in tune with pop culture at my old age of 32. In the shower, I select the "Shower" playlist, as I'm sure hundreds of us do on our portable players, from iPods to Zens to Rios, and for the first time, XM and Sirius portable players. Meanwhile, MP3 capabilities are starting to lead the pack, so the "FM radio" feature is no longer a staple of budget-priced consumer audio devices, and broadcast audio is now at the forefront of cool features.

My company uses a dandy online tool called Mediabase (www.mediabase.com), a database with information on the playlists of (nearly) every commercial radio station in the country. I can listen to the music that I used to compile from FM radio on Maxell cassette tapes and find out which tunes are currently getting the most spins today. I can then "ka-ching" my favorites at the iTunes store. I now understand what our marketing and licensing folks are talking about at meetings, rather than sit there sulking and insisting that we hire a custom composer instead. Mediabase, while it certainly isn't cheap, is available to artists, as well as game publishers and record labels. (I plan on registering myself.) If you're an aspiring artist, then head to the Website, talk to Jeff Gelb, encounter his unrivaled professionalism and figure out what it will take to stick it to the competition. This site offers the most honest and data-driven look into what is popular in music. Hats off to Mediabase for compiling such an exhaustive database.

My day continues, the trusty iPod following me on my bike during the daily commute, and here I am wishing I had a backpack that actually could adjust volume from the strap rather than rely on the almost non-functional Sound



Check. And, lo and behold, one exists! The Burton Audex has that functionality and more. Now all the company needs to do is add this functionality to CamelBaks. Of course, water and an iPod may not mix all that well.

I arrive at work. The iPod becomes iTunes as the two have the same songs and playlists. Clever design there. Not so clever at DRM, but that's a separate story, and besides, they're getting better.

At this point, I usually shoot a glance at my "demo shelf" and frown because here are people who want to work on games. Some are serious, some are just out for money, some are semi-delusional, but *all* of them are behind the times. I hate wading through demo CDs. Save your laser-etched plastic. I have a database of composers, and MP3s are the format of choice. And those who don't have the money for programs with MP3-conversion utilities, such as Sound Forge and WaveLab (or multitrackers such as Pro Tools/Nuendo/Cubase/Logic) can go to www.mp3converter.com. This site lists MP3-conversion programs and rates them, going beyond your run-of-the-mill sites that bring up oodles of pop-ups and programs that promise a lot but deliver nothing but wasted time. I suggest using compressed files for demos. A cool little package with that "physical" feeling may all be well and professional from an old-fashioned perspective, but it's wasteful. What matters is the music. Wow, a cool Journey-looking cover. Don't make them like that anymore. I let out a sigh and continue the day.

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Next up, I must figure out how to best get Tascam GigaStudio Version 3 functioning in Midway Home Entertainment's new studio, which the company will occupy next year. We have gigabit Ethernet capability for the first time (yes, it's a bit late to jump on the bandwagon, but hey, we're not The Village), which means what, exactly? MIDI and audio via Ethernet? That would be nice. Check out Uniwire (www.museresearch.com/uniwire.php), which doesn't require gigabit to function. Granted, component-based control is the great tradition of audiophiles, but keep in mind that your components are still there; they just aren't physical anymore. For those who want to keep their audio outs along with crazy MIDI configurations and sock them into Ethernet, check out MIDlover-LAN (www.musiclab.com/products/rpl_info.htm). It does away with the crazy 12 to 16-cable baches that are the start of your average three to four-PC orchestral Giga farm.

Once I've figured out this routing, I need to record some fast, temporary voice-over for an upcoming milestone on one of our games. Sadly, our engineer Drew left last Friday, so I have to figure out how to run a one-man show from the control room to the

studio. Think. The answer is easy: Frontier Design Group's TranzPort (www.frontierdesign.com/Products/TranzPort). I can't laud this \$200 item enough. It has given me a great deal of control for recording things single-handedly for a voice-over session. Everything has become attainable except for riding the mic preamp knob, so musicians at home can now keep their PC in their bedroom without hauling it into the garage.

FUN ON THE RUN

The voice-over is recorded, edited (with a far too liberal use of Waves' L1 Ultramaximizer) and shipped off to the developer. Now it's time to run an errand and put some things in the post office. On the way, I hear the coolest sound I've ever encountered. I actually have many of these, but just for this example, I'll pull out the "hydraulic sound of the garbage truck" effect. But how to record? No DAT. But I do have my phone. For those with a Palm Treo 650, try SoundRec (www.infinityball.com). It's freeware and can record up to 44.1kHz/16-bit mono. Granted it isn't exactly a Tascam HD-P2, but I told a friend of mine (the lead audio designer on *Star Trek: Legacy* for Bethesda Softworks) about SoundRec,

and his response was, "Holy cow. Next thing you know, they'll be putting pre-amps on the damn things." And well they should! The company has already started augmenting portable speaker systems for this so you can hear your 44.1kHz/16-bit mono playback on something other than a cell speaker. Check out the Brando Music Dock (<http://shop.brandomusic.com/hk/treo650musiclock.php>). At \$32, it does an excellent job of providing a great travel companion for your phone's audio system.

When musical inspiration strikes, I have an answer on my cell phone: Bhajis Loops (www.chocopoolp.com/bj_index.php), a full-featured digital multitrack editor with waveform editing, a mixer and effects plugins—all on a 2.5-inch screen. This \$30 program is compatible with any Palm device.

I hope I've whetted your appetite with some useful, affordable tools that will enhance the personal and professional lives of amateurs and experts alike. Do a little shopping (at least for yourself) and have a gadget-filled new year! ■

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



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Stage to Screen

Post Challenges for the Musical *Dreamgirls*

By Blair Jackson

Nearly 25 years to the day after the musical *Dreamgirls* opened on Broadway and began a triumphant four-year run, a film version is finally hitting theaters. Its makers are no doubt hoping that some of the magic that propelled *Chicago* to great heights two years ago will rub off and help *Dreamgirls* make that always-difficult transition from stage to screen.

Dreamgirls has an awful lot going for it, including director Bill Condon, who was Oscar-nominated for writing the screenplay for *Chicago* (and won earlier for another film he directed, *Gods and Monsters*), and a fantastic cast including marquee players such as Jamie Foxx, Eddie Murphy, Beyoncé Knowles and Danny Glover, with soon-to-be-household names Jennifer Hudson (of *American Idol* fame), Sharon Leal and Anika Noni Rose. The story follows the rise of a Supremes-like group of female singers from their humble roots in Detroit's black clubs to crossover stardom during the 1960s and '70s, with plenty of pitfalls along the way. It's loaded top to bottom with soulful songs (music by Henry Krieger, lyrics by Tom Eysten), the best known of which is "And I Am Telling You I'm Not Going," which turned Jennifer Holliday into a star overnight, and may well do the same for the big-voiced Hudson.

Spearheading the post-production sound team for *Dreamgirls* at Technicolor Sound Services and Todd-AO West were



supervising sound editor Richard Yawn (*Fearless*, Condon's *Kinsey*, et al), and re-recording mixers Mike Minkler (a two-time Oscar winner, including *Chicago*, and nine-time nominee) and Bob Beemer (a three-time Oscar winner, most recently for *Ray*).

"Musicals by nature are an awful lot of work because there's so much music and so much pre-recording, live recording and post recording, and many different locations and environments," says Minkler, who mixed the film's dialog and music. "The full musical production has probably been going on for a year or year-and-a-half, and is being produced by a group called The Underdogs [Harvey Mason Jr. and Damon Thomas]. The music has gone through various stages of

being sweetened—changing out drum tracks or bass lines, things of that nature—and then there's also an original score that's being done [by Stephen Trask and Paul Rabjohns], too. So it's a huge challenge, and, of course, we're always trying to get the best performance we can out of the vocals while still maintaining sync—because if it doesn't look good in sync, you're going to lose the moment. It's tough to have the precision that you need and the dramatics that you need and the musical quality

you need. It's a combination that's very difficult to attain."

Minkler notes that *Dreamgirls* has 32 numbers in it—more than *Chicago*—and with that amount of music, when you play it big and full and rich, cue after cue after cue, making it sound as good as you can make it sound can get tiresome; it's tough to take that for two hours. So we're not doing that. We're cutting away from music a lot—there are performances onstage and we'll cut backstage a lot for dramatic reasons to keep the story going and to vary it. Then there are different locales—small nightclubs, recording studios, theaters, a garage—so without degrading a beautiful musical sound, we do like to put the music into the location, too, so it's not the same sound all through the film. It's done with choices of reverb and different spaces within the mix. Plus, since we're in a 5.1 environment, we use that to our advantage as much as we can by going small and big."

Among the processors Minkler and Beemer used on the Todd-AO stage were the TC Electronic System 6000 and the Lexicon 480 and 980. Their desk is a Euphonix System 5, which Minkler says is "absolutely my console of choice. I have worked on other ones, of course, but I prefer this. [Euphonix has] a version coming out with new software, and I'm excited about that."

According to effects mixer Beemer, "On this show, for me the biggest challenge

—CONTINUED ON PAGE 57



At Todd-AO West Stage 1, from left: re-recording mixer Mike Minkler, sound editor Richard Yawn and re-recording mixer Bob Beemer

'American Hardcore'

True to American Punk's Beginnings

By Iain Blair

In our current era of safe, blow-dried, corporate rap and rock, and super-bland pop, the snarling, spitting, angry punk acts profiled in the new film, *American Hardcore: The History of American Punk Rock 1980-1986*, come across like a musical speedball—dangerous, manic, provocative and obviously in league with the devil. Want a little political commentary on President Reagan? Here's D.O.A. smashing their way through "F***ed Up Ronnie." Think only disaffected white kids from the South Bay related to punk? Well, here's Bad Brains, the all-African-American outfit, kicking some serious ass, along with such seminal bands as Black Flag, Circle Jerks and Wasted Youth.

Based on the book *American Hardcore: A Tribal History* by Steven Blush and directed by Paul Rachman, a top music video director who began

his film career making underground hardcore punk films and music videos for bands such as Bad Brains, Gang Green, Negative FX and Mission of Burma while he was still in college, the film examines the influential punk subculture using a mix of more than 100 interviews, original performance footage and rare archival material. It does justice to its subject matter by purposely not polishing its visuals or offering a spotless aural landscape.

"The music was all about energy and aggression and anger, and I wanted to preserve that raw, primal scream," notes Rachman. "So when it came down to all

PHOTO: EDWARD COLIVER. COURTESY OF SONY PICTURES CLASSICS INC. © 2002 CTB FILM COMPANY



Henry Rollins crowd-surfing during a Black Flag live show

the problems we had with audio, I didn't want to lose all the rough edges anyway. I wanted it to match the whole punk approach, which was basically D.I.Y."

With this in mind, Rachman and Blush

—CONTINUED ON PAGE 60

Romus Studio

Italian Composer Comes Home

By Mike Clark

Rome-born musician, composer, arranger, conductor and producer Romano Musumarra quickly showed his musical flair when, at the age of nine, he entered the Eternal City's world-famous Santa Cecilia Conservatory. He graduated in piano playing and took specialized courses in composition and conducting; he also attended the Pontifical Institute of Sacred Music.

Musumarra embarked on a successful pop career in the mid-'70s with La Bottega dell'Arte, a band that charted several Italian hits. In the early '80s, he began work as a composer/arranger with top Italian artists such as Riccardo Cocciante, Luca Barbarossa and Fiorella Mannoia.

Yet, Musumarra is relatively little-known in his home country, probably due to the fact that the majority of his work has involved international artists

and because he moved to France for a period in 1983. There, thanks to his classical background, he began to make a name for himself by composing, orchestrating and conducting radio and TV projects before embarking on a European career as a movie score composer. In addition to the score for the musical *Cindy*, which had a three-month run at Le Palais des Congrès de Paris, film works to his credit include *L'Élève*, *The Teddy Bear*, *Day of Atonement*, *Adventurer Jean Galmot*, *Dark*





The construction of a sound box ensures perfect acoustics for Romano Musumarra's Bösendorfer piano.

Woods, Faceless, Malady of Love and Women of My Life.

His artistic talent was recognized when he received the title of "Chevalier des Ordres des Arts e des Lettres" in 1998

from the French Ministry of Culture. The impressive roster of French-speaking artists he has worked with includes Mireille Mathieu, Sylvie Vartan and Jeanne Mas. Through the years, international artists

with whom Musumarra has worked include Celine Dion, Gino Vanelli, Ray Charles, Carol Welsman, top UK soprano Katherine Jenkins and Luciano Pavarotti. One of his latest projects is tenor Vittorio Grigolo's album In the Hands of Love, Musumarra performed live in New York City at the album's U.S. launch.

After an 11-year stay in France, Musumarra returned to his native Italy and bought a farm in the beautiful rolling Umbrian countryside. After settling in with his family, he decided to build his own recording studio. "When we moved here, I had my own workspace," Musumarra says, "but used other studios for recording. However, since there was plenty of space, I eventually made the decision to build a serious on-site facility, thanks also to my acquaintance with acoustic architect Giuseppe Zappata, whose work I consider to be of international standard." Zappata, of Rome-based Zappata and Partners, was selected to design the studio.

Musumarra's goal was to design and build a studio that would not only be acoustically correct, with a preference for bright tones, but also would be literally luminous, with as much natural light as possible. Without

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a doubt, the most striking feature upon entering Romus Studio's control room for the first time is the huge glazed area where the ADAM S6A MK2 main monitors are mounted, supported by custom steel arms. The glazing forms a very spectacular (and efficient) isolation chamber and gives a breathtaking view of a wooded valley, and nearby Orvieto's 14th-century fortress and cathedral.

Zappata explains, "The studio has two key features, both with considerable visual impact. The first is the special twin glazing with the flush-mounted main monitors, an idea that, as far as I know, has never before been applied in such a spectacular manner, while nevertheless ensuring perfect sound. The second is the studio's acoustic treatment via one very large, complex resonator/diffuser, which ensures linear acoustics and control of all frequencies produced in the room by means of its varied cross-section."

Going into the more technical aspects of his application of Italian style to acoustic design, Zappata continues, "The studio's long, horizontal 'poly-cylinder' forms a multiple absorption unit, which works along with the rigid multi-angle sawtooth ceiling. Low frequencies are therefore controlled by differentiated absorption due to the shape of the cylinder and its internal frequency selection, whereas mid-highs are controlled by means of the diffraction and diffusion of the 'wave system' of the cylinder and the inclined surfaces of ceiling; this interaction ensures a suitably short delay time without any sound 'tails.'"

The ceiling and cylinder control the static sound waves between the floor and the walls, while for the other shorter walls—at the entrance of the sound lock for the control room—this was done by ensuring the structures were not parallel. This combination of functions and shape is at the basis of the construction of a "sound box," which is able to ensure perfect acoustics for the beautiful Bösendorfer full grand piano that it hosts.

All the carpentry work in the studio was done by the all-female team of specialist firm La Madia. Control room acoustics, on the other hand, apply the SAE (Stealth Acoustic Environment) technique, based on military applications that enable planes and ships to give low radar return and developed by studio designer Zappata, who says he "sculpted" the area around the sound engineer's listening point to trap the flow of acoustic energy

"The form of glazing that makes up the internal reflecting shell and the external insulating part creates a cavity with

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The Toby Keith Big Throw Down II tour audio crew. L-R: Ryan Reynosa, Monitor tech; Russell Fischer, System Engineer; Dirk Durham, FOH engineer; Earl Neal, Monitor Engineer; John Brawner, System Tech.

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Dirk Durham



Not shown but also available: DriveRack 4820 with tamper-proof front panel for installed applications.

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considerable dimensions, which operates as both an acoustic and thermal barrier," Zappata explains. "The passage between the two glass walls facilitates access to the speakers and 'invisible' cabling, as well as the work of cleaning the glass. And an invisible absorption system eliminates the residual resonance that occurs inside the space between the two glass walls."

Thanks to the shape of the glass wall, all of the energy from the ADAM S6A MK2 enclosures is fed directly to the sound engineer's listening position—free from early reflections, which are within the limits of integration precedence effect (Haas effect). The sound reflected by the glass wall is within 35 ms and doesn't reach the center of the desk, where it could mix with direct sound, but is instead collected behind the mixing position and dissipated by an impressive waveguide baffle system, which makes the rear part of the control room particularly absorbent, avoiding any energy return.

Musumarra leaves no doubts as to the reasoning behind his choice of hardware for the studio, explaining, "I don't intend using Romus Studio for recordings by third parties, so I decided against the high-end analog consoles that the commercial recording market expects nowadays. Apart from their cost, they're also very demanding to run. I therefore decided to concentrate my investment on the structure of the studio. When you use top-quality mics, preamps and converters, I think the desk should be used as a mixing tool that doesn't influence the sound."

The console eventually chosen was a Yamaha DM2000, and the facility's interesting assortment of outboard gear includes handmade preamps by Livio Argentini, which Musumarra loves. Other goodies include two Millennia Media TD-1s, a Chandler EMI TG2, Universal Audio 2-610, Focusrite ISA 115 HD, GML 8200, two Sherman Filter Banks, two Focusrite ISA 131s and a GML 8900. Mics include two of just 100 DPA Type 4040 models available worldwide.

Musumarra records direct to hard disk with Logic Audio, software he considers "a step ahead of the others." His system comprises a Mac G5 dual 2GHz with a 64-channel RME Hammerfall DSP MADI and a Prism Sound Dream ADA-8XR high-resolution multichannel AD/DA converter. A pair of Genelec 1031A monitors are used with the computer.

The impressive ADAM S6A MK2 main monitors are uncommon in Italian studios, and Musumarra frankly admits he bought

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them without ever having heard them: "I'd used the manufacturer's S3A enclosures [five of which are installed in the control room for 5.1 projects, along with an ADAM Sub10] when doing my mixing work in the past, and wanted something that maintained the characteristics I was accustomed to; I'm very happy with the choice, and their ribbon drivers are extremely linear."

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Although his first project in the newly inaugurated studio was mixing the audio for a show recorded by Grigolo for Polydor UK, Musumarra emphasizes that recording will take up most of his studio time. The first tracking job on the books was a group of sopranos for Decca UK at the end of the summer—a project he is enthusiastically looking forward to: "I think we've definitely come up with a working environment that is both efficient and beautiful!" ■

Mike Clark is a UK journalist based in Italy, and can be contacted at mclark@rimini.com.

Dreamgirls

—FROM PAGE 50

was the crowds. There are lots and lots of performances and crowd scenes, and crowds are one of the hardest things you can do, mixing-wise. There's a lot of shrieking and yelling, but at the same time, you have to make these artificial recordings sound organic to what you're looking at. So that's what I've been trying to do with dozens, maybe hundreds, of crowd elements recorded who-knows-where."

Supervisor Yawn, who collected most of the crowd sounds from Technicolor Sound Services' extensive libraries, says, "We were using a variety of recordings we had, as well as material we gathered from four group ADR sessions. [Robert Ulrich was ADR supervisor; Doc Kane and Greg Steele the ADR mixers.] The idea is for the crowd to be very interactive with the performers. I listened to a lot of other live-recorded performances on DVD to get a sense of what sort of things poke through in between lyrics and things like that. With that information, we then went and recorded in a warehouse at Technicolor to get the ambience we needed and specific call-outs, like where you hear someone calling out one of the girl's name. That helped liven things up a lot because you can't just have beds of cheers

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constantly—it tends to smear. You want the big cheer, but there are also ways of selling it with specific sounds and whistles.”

Beemer notes that there was no crowd sound from the set: “The extras were quiet but acting animated, so it was important to get the added crowds right. At the beginning, there are specifically small, black crowds and they’re very vocal, super-boisterous and fun, and then later on they go to the Copacabana and they’re attempting the crossover for all these conservative white people with flat-top crew cut hairdos and horn-rimmed glasses, and that crowd has a totally different feel, of

course. By the end, when the Dreamgirls are playing larger venues, it’s a very respectful, mixed black-and-white crowd with a black-tie audience, so it lends itself to medium hooting and hollering. Each of these places had to have its own sound and feeling, and basically had to be made from scratch, from wild to elegant.

“Richard [Yawn] would give me the various crowd



elements, and then we made sure that people are yelling at the right times and not stepping on Jennifer Hudson when she’s belting something out,” Beemer continues. “I got lots and lots of individual voices, calling out their names or whatnot, or cheering or hooting, and sometimes I’d get left-right pairs of maybe eight people cheering. Then it became a matter of orchestrating the voices in a sense; plus, you have to put them into the five channels so they’re in the surround speakers at the right time. It’s really fun: It’s like the crowd has to be a living animal that behaves in a certain way.”

Yawn and company also had to deal with specific period sound elements. “Of course, we were using ’60s and ’70s cars, but it’s also a lot of background ambience sounds that have to be right: the phone rings, the typewriters,” Yawn says. “Early in the film the typewriters are older-sounding manuals, and then when we’re into the ’70s, they’re IBM Selectrics. That’s one way you help sell the period and passage of time. Still, you never want to bury the music, because the music is king in this film—it’s all about the music and lyrics.”

And though the film is not nearly as stylized as, say, *Chicago*, Yawn says that he and Beemer were able to go “a little broader in certain areas” with sound effects than in a conventional dramatic film. “Some of what we do is going to be dictated by the editing [by Virginia Katz] and some of it is from the cinematography [by Tobias Schliessler], which is amazing,” Yawn says. “There are certain light flares as we intro into a performance, which allow us to use whoosh-type sound effects to accentuate certain types of camera shots, but then in other places, we wanted it more reality-based, so it doesn’t sound quite so much like a prerecord or a staged event. The other key was to try to find sounds that work well with the music rhythmically, especially in transitions in and out of songs. In one particular song, we finish a song—‘Fake Your Way to the Top’—and at the



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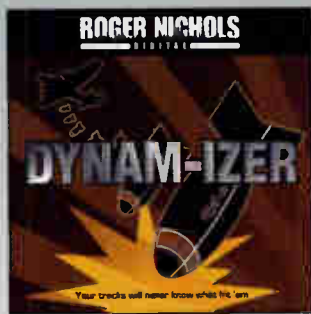
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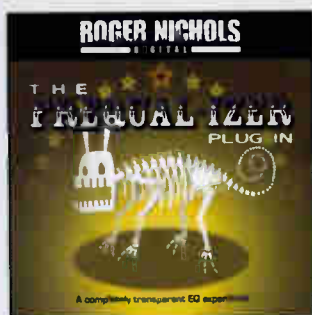
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end we punch on a close-up of a musician playing the trumpet and then the next shot is a new scene with a car going by, so we put a Doppler car horn sound of the car going by in the same pitch coming out of the trumpet so it blends together really well. In the opening of the film, too, it starts with the logo and we have the crowds starting to fade up in reverb and then we have rhythmic clapping and stomps, which then time out in beat to the drum beat at the beginning of the [first] song. Bill [Condon] encouraged us all to come up with interesting ways of dealing with the sound and music, and I think it's come out really well."

The veteran Minkler agrees: "It's really solid on every level. Scene after scene. It's going to deliver." ■

American Hardcore

—FROM PAGE 51

self-financed the film and started shooting interviews for the project at the end of 2001, and then spent the next four-and-a-half years chasing down the musicians. "Even though we're friends with many of them, it was hard finding them and then getting them to sit down and talk," Rachman admits.

"Most are still on the fringes of society, and usually where we met was far from ideal for recording audio. We had to deal with everything from A/C hum in a warehouse to strong desert winds when we shot on location in Joshua Tree [Calif.]. But it's a documentary and you just go for it."

Rachman used two cameras—a Sony VX 2000 and a PD 150—with a Sennheiser EW100S lavelier wireless system and a Sennheiser 64 shotgun. "I kept it simple for the field work, and my crew was just me on camera and Steven holding the boom," he says. "We did all the interviews with shotgun in channel 1 and the wireless in 2, and whenever we had to interview two people, the primary one would get the lav and we'd move the boom between them."

"As for all the performance and home video footage, we had to deal with so many different formats," Rachman continues. "I had a lot of material I'd shot back then using ¾-inch video or U-matic, and there's even stuff on third-generation VHS, recorded in SLP mode, as those were the only masters we could find of some of these shows."

He also had to deal with a kaleidoscope of different audio formats. "Even some of the records from the early '80s were recorded

in a noisy basement on a 4-track cassette recorder, barely mixed and then put out on vinyl," he adds, "and those were some of our key sources. So I knew there was a certain raw element to the sound, but I also felt I could make it all work artistically in the context of the subject matter and story."

Once all the collected footage had been transferred to Digital Betacam, "We transferred back down to DVCAM and MiniDV for the offline edit," Rachman says. "And I had an Avid Xpress Pro system that was totally portable, so even when we were moving around, I had my laptop and I could digitize from the camera onto the computer and keep organizing material as we went. So we started the early stages of editing while we were still filming."

By last year, Rachman says the editing "was getting serious. Our first cut was six hours, and gradually we got it down to the current 100 minutes and got it finished in time to screen at Sundance this year."

For that cut, he did a mix in the Avid. "Our interviews were on MiniDV tapes, and a lot of our music came from CDs of the original vinyl recordings, or the vinyl itself, or raw, live VHS tape with just a camera

—CONTINUED ON PAGE 104

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Vocals on the Road

BY STEVE LA CERRA

What do disparate styles of music such as R&B, country, rap, rock and opera have in common? The money channel is always the vocal. To be a successful engineer, you've got to make the lead vocal sound great. Having mixed more than 1,000 shows for Blue Öyster Cult during the past 12 years, plus working with vocally oriented artists including Firehouse, The Lizards, Patty Smyth, Danny Rodriguez and CloserEnough, I've learned a few tricks for putting your money where your mouth is, even when there isn't enough money in the P.A. system! Let's examine techniques for ensuring that the vocal channel is, in fact, where the money is.

FLATTERY WILL GET YOU JUST ABOUT EVERYWHERE

An engineer's first task is to make the lead vocalist comfortable. You can give singers the latest, most expensive mic, but if they're not comfortable with it, then your efforts will be wasted. Rehearsals are the best time to try out a few variations to find what suits a particular singer, though not all vocalists are willing to experiment. Here, a mic's accuracy makes no difference; what counts is finding a mic that flatters the singer through the monitor and house systems.

Pay attention to the tightness of the pickup pattern and the singer's style. Different microphones may employ the same polar pattern (e.g., cardioid), but off-axis characteristics can vary greatly. If a singer maintains consistent distance from the mic, then you can use a mic with a tighter pattern without worrying about off-axis response. In this case, a tighter pattern can improve the vocal sound by decreasing the intrusion of ambient noise (such as the guitar player's raging Marshall). On the other hand, singers who move around a lot or have poor mic technique will benefit from a wider pattern to maintain a more consistent sound. In this case, the

trade-off is an increase in the pickup of unwanted stage leakage.

Blue Öyster Cult bass player Rich Castellano recently mentioned he was hearing too much stage spill through his in-ear monitors. Switching his wide-pattern cardioid mic to a model with a tighter pattern solved the problem. Once you've decided on a mic that makes everyone happy (yikes!), then you can tackle other issues, most notably the mic preamp.

Some onboard mic preamps are okay for critical applications, but if you've got the budget and the rackspace, having a money channel is a beautiful thing. Two of my favorites are the ATI 8MX2 (which packs eight channels in a single space) and an Avalon VT737, both of which are capable of taking a Shure SM58 to a higher level. In most cases, the outboard preamp would reside at the front-of-house position and simply connect into the console's line-in or insert return. Placing the preamp at the stage allows the monitor mix to take advantage of the enhanced signal path, but takes gain control out of the hands of the FOH engineer.

NUTS 'N' BOLTS

It's amazing to see how many engineers set the highpass filter without listening to its effect while the band is playing. In the context of the mix, you can run the roll-off fairly high without making a voice sound thin. If you're dealing with a female voice, you can often set it as high as 250 Hz to reduce the low (and even low-mid) rumble from the stage.

Listen to the vocal sound while changing the polarity of the channel: You may be able to decrease low-mid interference that the mains sometimes kick back to the stage. And don't ignore the lowpass filter. A lot of cymbal leakage can be removed from a vocal mic (without making the vocal sound dull) by setting the lowpass filter at around 8 kHz. Any leakage you can eliminate will result in an increased signal-to-noise (voice-to-leakage) ratio.

What's in Your Money Channel?

THE FUN STUFF

With the right vocal mic, you shouldn't need a lot of equalization. With Blue Öyster Cult, I'm blessed with *two* great singers—Eric Bloom and Donald "Buck Dharma" Roeser—yet it's astonishing how differently I need to treat their voices. Bloom has a very dynamic voice that can be aggressive if you don't watch the high-mids. I often notch his channel down a dB or two at around 4 kHz, and sometimes add a dB or two around 250 Hz. Contrast that with Roeser, whose smoky voice can easily get lost in a thick mix. I often cut his channel 2 or 3 dB at around 400 Hz, sometimes adding a dB or two around 5 kHz to increase presence. If you need a lot of EQ on the vocal, then look elsewhere for the source of your problems. There may be an EQ or crossover issue in the system, or the room may simply be a hostile acoustic environment.

Using Bloom and Roeser again as examples, compression has to fit the voice. Bloom's voice requires compression that borders on limiting, especially because his voice gets stronger as the night progresses. If I can get one on the road (I don't have the luxury of carrying a rack), the Empirical Labs Distressor works great, typically with the fastest attack possible, medium release and a ratio of 4:1 or 6:1. I'll set the input level so that I'm getting 5 to 7 dB of reduction when Bloom lays into it.

Roeser's voice remains pretty consistent throughout the night, so I can use a much lower ratio, more like 2:1 or 3:1. I'll bring the threshold (say, on a dbx 160SL) down to around -7 dB so he's being

gently compressed at all times. Attack time for Roeser's voice is critical; if it's too fast, then his voice sounds dull. I'll slow it down in the vicinity of 50 to 100 milliseconds. Someone like Mike DiMeo of The Lizards and Riot requires a different approach. DiMeo has an absolute powerhouse voice with pipes that can melt mortal P.A.s, so he gets more severe compression, often a dbx 160X/XT set to a 6:1 ratio, with OverEasy™ switched on and the threshold around -10 dB. When a singer has a particularly "hot" range, the BSS DPR-901(II) can be a great tool, varying the amount of EQ dynamically with up to four tunable bands.

A LITTLE DELAY GOES A LONG WAY

I usually don't add reverb to voice unless the room is very dry or it's an outdoor show, as large rooms typically have enough natural 'verb. If reverb is in order, I'll use the Concert Wave program from a Lexicon PCM 80, Rich Hall from a PCM 91 or the 480 program from a TC M5000, shortening the decay time down to 1.5 seconds and decreasing the LF multiplier. In the Concert Wave program, the room size parameter can be adjusted to accomplish the same effect. Don't be afraid to use the reverb's low- and high-pass filters. Lowering the high cut to 5 kHz reduces spitty-ness, while raising the low-cut (to around 150 Hz) prevents low-end rumble in the reverb.

Delay can add dimension to a voice without reducing articulation, even in a reflective room. Vary the delay time from 165 ms with zero feedback, to 315 ms and 5-percent feedback. The TC Electronic D•Two is consistently showing up these days, so I'll start with the factory Tape Echo preset and build programs from there. Typically I set up four basic delays: 165 ms (zero feedback/zero repeats), 215 to 225 ms (3-percent feedback/zero repeats), 265 ms (3-percent feedback/one repeat) and 305 ms (5-percent feedback/two repeats). I pull up shorter delays for faster songs and longer delays for slower tempos. You



can always use the tap-tempo feature to place a delay in tempo, but keep in mind that when a delay is in time with a song, it may be masked by drum hits. To make delay more distinct from the lead vocal, apply filters, either in the program or on the return channel. I'll chop the high end off at 4 or 5 kHz and roll the low end up to at least 100 Hz so the delay doesn't mask the vocal.

I use a Yamaha SPX990 for my BOC "gags," including long echos for songs such as "Cities on Flame" or "Godzilla." For "Godzilla," it's a stereo delay split 650/665 ms, 70-percent feedback, 100Hz highpass and a 6.3kHz lowpass. For the song "Black Blade," I flange Bloom's vocal using the SPX990's Dual Flange algorithm. I set the delays at 1.2 and 3 ms, 65-percent feedback, highpass at 100 Hz, lowpass at around 5 kHz and crank the depth up for a very eerie lead vocal effect.

If there's a Lexicon PCM 70 available,

try recalling the Double Slap program. Set one delay time at around 40 ms and a second near 60 ms. Pan the delays hard-left and -right, and turn the feedback down all the way; then feed the vocal into it from an aux send. This effect makes the vocal absolutely huge, but the beauty of it is that it doesn't sound processed or draw attention to itself. The idea works with any stereo delay, but the PCM 70 sounds especially nice.

STAY HEALTHY!

One quick note about hygiene: You can reduce the spreading of germs by wiping the mic basket with a paper towel that has some Listerine on it, or spraying the mic with Biocide Virofree disinfectant. ■

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

She Wants Revenge



Photos and Text by Steve Jennings

Out on tour with Placebo, She Wants Revenge (Justin Warfield and Adam "Adam 12" Bravin) are playing to sold-out theaters across the U.S. According to the band's front-of-house engineer/tour manager, Keith Danforth, they are using Placebo's L-Acoustics V-DOSC P.A. (with dV-DOSC front-fill), "and it's really made the room come alive and give both bands an extra push and more control in each venue.

"I request Midas consoles whenever possible," Danforth continues, "but most of the time, it's whatever console is already there. The upside

is the system in use is the one they use every day, so everyone's familiar with it and it's tuned well for the room. We only run about 24 channels total with returns: 21 inputs and three effects. It's a fairly small setup considering that we run a bit of tracks. Adam and Justin are both producers, so when they mixed the tracks and put together the live rig, they did so with a few things in mind: ease of use, reliability and a good balance between electronics and live musicianship so that it wouldn't be too track-based. We trigger the sounds from a drum pad and a key pad. The only downside being that I don't have control over the keys' parts on the track separate from, say, the drum loop on a track, but what I get is already so balanced and dynamic that I do very little EQ'ing from song to song to make different parts jump out a little."

Danforth also carries an Eventide H3000, Roland SDE-100, TC Electronic M-One reverb and dbx 160. The vocal mic is a hard-wired Shure Beta 87C. Drummer Scott Ellis' kit gets Shure SM91 with a Shure Beta 52 combo on kick, Shure 98s and Sennheiser 604s; Ellis wears Shure PSM400 hard-wired IEMs.

"We have a great crew and everyone helps out a lot," Danforth concludes. "Everyone is real easy to work with. These shows have been a lot of fun. When the bands go on and the room is just full of energy, I get a rush from the fans and the bands' performances; it's been a treat."



FOH engineer/tour manager Keith Danforth

FixIt

Monitor engineer Ramon Marales is currently out with hip hop artist Mary J. Blige and a five-piece band. Blige sings through the Neumann capsule paired with the new nickel-finish Sennheiser SKM 5200 handheld.



The supercardioid 105 capsule is not for everyone. It depends on the artist and the situation. What helps with Mary is that the drummer is on a second level above her and everybody is on ears, so there are no amps onstage. I have two wedges, and that's it. It's a quiet stage, and she's got so much energy we don't worry about her not giving us enough level. I'm actually turning her down! I have three combiners, as I'm using a total of nine units. It's a beautiful thing that they have power, as well. There's one AC cord and it powers four units. I do my [frequency] research by going to the Sennheiser Website [to] see what's going on in the area we're visiting. It's becoming harder and harder to find usable frequencies. But recently, I've been using what was pre-selected on all the units, and it's working out pretty good.

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News



PHOTO COURTESY OF GRAND OLE OPRY/CHRIS HOLLO

Grand Ole Opry (Nashville) member Dierks Bentley performs using the venue's new stock of Sennheiser and Neumann mics; Bentley sings through a Sennheiser SKM 5200

Completed just in time for the 2006/'07 football season, Stanford Stadium at Stanford University sports a brand-new audio system, integrated by Pro Media/Ultrasound. In addition to bringing fans closer to the action (stripping out some 40,000 seats), the stadium boasts an audio system comprising JBL loudspeakers, Crown amps and BSS Soundweb processing...Across the Bay, UC Berkeley's Zellerbach Hall has the first install of Meyer Sound's new Constellation system, which is powered by the company's VRAS technology and allows a venue to provide acoustics appropriate to the needs of each program at the touch of a button...One of the first new DiGiCo D5T12 consoles is already hitting the road, touring throughout the UK for the stage production of *Me and My Girl*; sound designer Andy Collins designed the sound spec for this tour around the new DiGiCo offering...Held over Columbus Day weekend, top Soca, calypso, reggae, Zouk and salsa artists performed at the annual Broward Caribbean Carnival (Sunrise, FL), which featured a mobile Dynacord Cobra system supplied by Drummer Boy Sound (Miami).

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On the Road

Megadeth

As the headliner on Gigantour 2006, Megadeth has been performing in North America, Japan and Australia, with sound companies Thunder Audio, Clair Bros. and Johnston Audio Services, respectively. *Mix* caught up with FOH engineer Nigel Paul (in red jacket) as the tour wrapped up.

What kind of board are you using?

On all legs of the tour, I was using a Midas XL4, each with a minimum of four stereo modules. There are 39 inputs at FOH from the band, plus effects returns, CD inputs, et cetera.

What is your mixing approach?

I'm ultimately responsible to the artists for the sound of their concerts. For that reason, I request the tools that I believe will best help me achieve the results we're both looking for. Sometimes a degree of compromise is called for.

While every artist is unique, and from a mixing standpoint presents different challenges, I approach mixing for Megadeth the same way I approach mixing any of the other artists I work with [Dream Theater, Steve Vai, Joe Satriani, Cheap Trick, Yellowjackets], regardless of the musical genre. I always do my homework and come into the project well prepared, having listened to, lived with and thoroughly learned the material. This typically involves listening to the prospective tour material as it's represented on the artist's albums, and the live performance may vary in any number of weird, wonderful, inspired, unexpected and dangerous ways. Yet the basic building blocks are the same.

There will always be reactive elements, because no two performances are ever identical, and the technical and environmental variables are endless, but the more one can anticipate and pre-position oneself from a musical and mixing perspective, the more polished, mature and true the final product is likely to be. Then again, there's always the old piece of two-by-four!

Now Playing

Keb' Mo'

Sound Company: Schubert Systems
FOH Engineer/Console: Carlos Novais/Yamaha PM5DRH

Monitor Engineer/Console: Steve Bumbera (also systems tech)/Yamaha PM5DRH

P.A./Amps: 24 JBL VerTec 4889s/12 SSG 2x18s, Lab Gruppen FP3400s/FP6400s

Monitors: Shure PSM700 transmitters with P7R bodypacks. P6HW wired bodypack

Outboard Gear: all onboard, except Schubert Systems analog VerTec crossovers and Lake Mesa EQs

Microphones: Shure Beta 52, Beta 91, SM57, SM81, Beta 98, KSM 32, e609; Sennheiser MD 421

Additional Crew: John Schirmer, chief systems tech

Children of Bodom

FOH Engineer/Console: Piestu "Chiddy" Pietikäinen/house-supplied, spec Midas H3000/H2000, Crest or Yamaha PM4000

Monitor Engineer/Console: Kal "K-Man" Kaercher/house-supplied

P.A./Amps: house-supplied

Monitors: Sennheiser in-ears

Microphones: Audix CX112s, i-5s, OM7s

Additional Crew: Jörg "Neubi" Neubart, tour/stage manager/guitar tech; Markus "Duce" Faradacco, drum tech

Particle

FOH Engineer/Console: Reuben Cantu/house-provided

Monitor Engineer/Console: Kevin Rudnick/Allen &



PHOTO: JOSH WITZ

Heath GL2800

P.A./Amps: house-supplied

Monitors: Shure PSM700 in-ears

Microphones: Sennheiser e 835, Audix OM2

"Late Late Show" Boosts Monitor Offerings

Any touring act and their engineers will find a new, larger performance area at *The Late Late Show With Craig Ferguson*, which recently completed a renovation of its set at CBS Television City in L.A., featuring an improved monitor system comprising a dozen new L-Acoustics 112XT and two 115XT stage wedges, all powered by L-Acoustics LA Series amps.

The show's P.A./monitor mixer, Chris Maddalone, says, "I've used V-DOSC and dV-DOSC a bunch of times and loved them." When the new monitors are used in front of a lead singer, "There's a nice coupling boost that takes place, and it's completely free of the phasing issues that can commonly plague a monitor setup," Maddalone continues. "The dispersion of the horn on the high-frequency driver is perfect.

"Even though this is a television studio, we still have bands that really crank the volume when they play in here and not one of them has complained about not being able to hear themselves, which was a problem with our old wedges. Now, even the hardest rock and punk acts that come through here are all smiles."



From left: Maddalone, production mixer Otto Svobota and monitor mixer Aaron Lepley



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MASSIVE ATTACK



Photos & Text by Steve Jennings

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CGTACAG 31 3GACGTTAGCC CATCC

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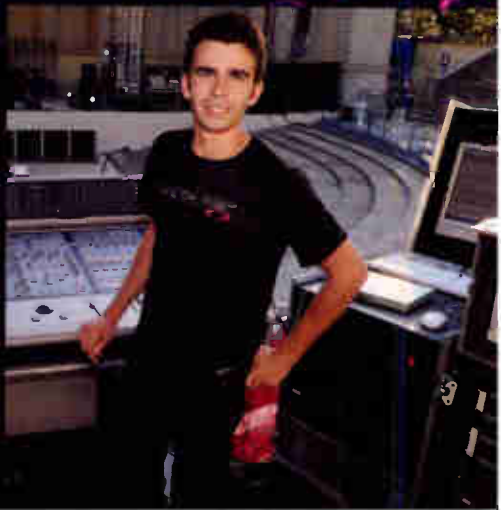
Complete with a smoke-filled stage and pulsing LED lighting behind the band, the sold-out crowd at the Greek Theater (Berkeley, Calif.) for trip-hop threesome Massive Attack reveled in the band's return to live performances, having "retired" from the scene for almost four years. *Mix* caught up with the tour's engineers, Richard "Basil" Ferneley (front of house) and Danny Stead (monitors) moments before the late-September show.

Front-of-house engineer Richard "Basil" Ferneley is working on a Digidesign VENUE board, which he inherited from engineer Rob Allen, who had mixed the show up until the American leg. "This is my first time on the Digidesign console," Ferneley says. "The plug-ins are all very good, which means that we don't need to carry any outboard gear. The only rack gear I have is a CD player for walk-in music! We are also carrying another CD for recording and a Pro Tools rig to multi-track record every show."

With not much in the way of outboard racks to pack in the truck, the tour is maintaining its slim profile by not carrying a P.A. "This can be a pain as you don't always get exactly what you want," Ferneley continues, "but for the Berkeley show today, we have an [L-Acoustics] V-DOSC system. We have nine a side, plus six subs a side.

"This has proved to be a very challenging job," he continues. "There are some very quiet vocals to

deal with, mostly spoken-word level, and on some shows up to six different vocalists. There is a huge dynamic to the show, and with all the different vocalists, a digital console has proved itself invaluable."





Drummer Damon Reece's vintage kit is miked with Shure SM91/Beta 52 (kick), SMS7 (snare) and SM98s (toms); and Audio-Technica 4050 (hi-hat/overheads).



Andrew Small's Yamaha kit has the same setup as Reece's, except that there is a Sennheiser mic in the kick.



Bassist Winston Blisset also plays some keyboards, including an Edirol PCR-M80 MIDI controller.



Guitarist Angelo Bruschini



Vocalist Robert Del Naja (aka, 3D)



Monitor engineer Danny Stead

Also sticking with onboard effects, monitor engineer Danny Stead is on a DiGiCo D5 Live, which he calls "the best console I've ever used; the band and I think it sounds great."

The band and techs are on IEMs: RF is Sennheiser G2s, three hard-wired packs of Shure and Shure E5 ear pieces (apart from two sets of UltraEars).

"This is the best bunch of people I've ever worked with," Stead enthuses. "I've been on tour with these guys since May, and we're like a big family."



Keyboardist Arden Hart (above right) is tech'd by Marcus Lindsay (above left). Hart uses a Korg Triton (original with Moss DSP option), Moog Source, Korg Micro, Yamaha P300 piano and a custom-made theremin. All the keyboards are linked to a Yamaha 01V digital mixer, and then mixed to a stereo pair. There is also one extra output from the mixer for cueing a vocalist. This is routed within a saved scene memory and recalled with a MIDI program change message. Hart also sings a couple of backing parts.



MARIAH CAREY

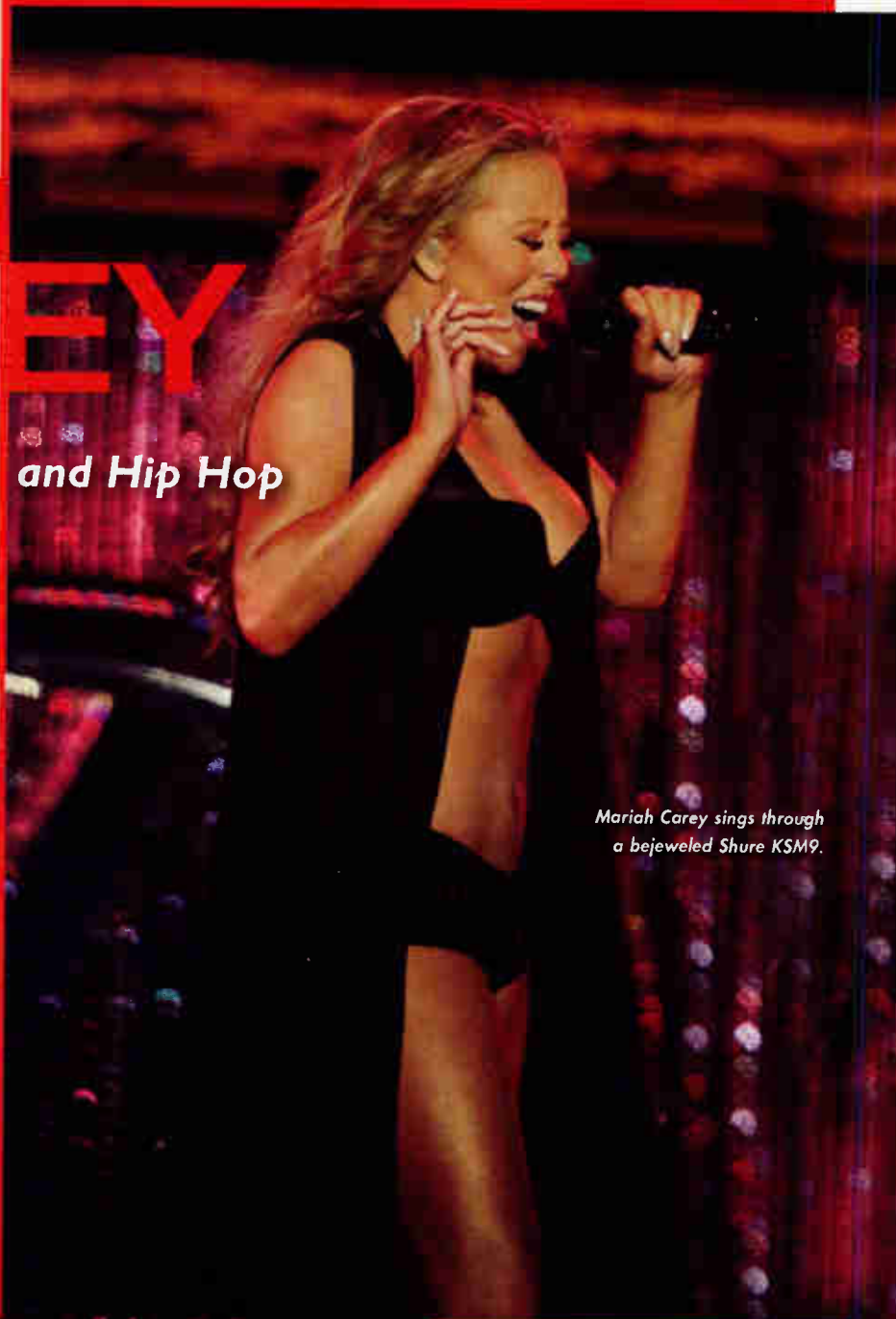
Balancing Ballads and Hip Hop

With 30-plus-years' experience as a front-of-house engineer, including outings with Sting, James Taylor and Paul Simon, it's safe to say that Howard Page has seen his share of unusual tour requirements. Perhaps the most surprising specs he's encountered are on the current Mariah Carey tour, for which the songstress has requested a collection of bejeweled microphones. "The microphone's jewels have to match the dress she's wearing, and that changes three, four or five times a night," reports Page, who now serves as director of engineering at Clair Bros./Showco. "So we have about five or six different mics for her."

So far, Page and the rest of the crew on the Adventures of Mimi tour have watched the ballad-queen-turned-hip-hop superstar rotate the inventory of microphones at arena shows in Tunisia, Japan, China and all across the United States. When Carey, her four-piece band, three backup singers and a handful of dancers stopped at the Oracle Arena (Oakland, Calif.) in early October, she used silver, black and gold mics.

The all-Clair Bros. tour is carrying an i4 array. Most of the adjustments are made during production rehearsals, leaving Page time to speak about the amount of coverage he is getting from the front and side arrays. "When you attempt to extend the horizontal coverage of a line array system, you have to be incredibly careful,"

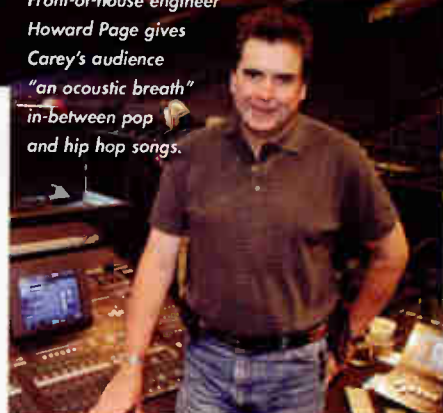
PHOTOS: STEVE JENNINGS




Mariah Carey sings through a bejeweled Shure KSM9.



Front-of-house engineer Howard Page gives Carey's audience "an acoustic breath" in-between pop and hip hop songs.



A woman with long brown hair is wearing large headphones and looking upwards. She is in a recording studio, with a mixing console and a computer monitor visible in the background. The studio has red and blue lighting.

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he explains. "You want to have minimal overlap of the pattern of the main [to avoid] comb filtering, and you want a perfect continuation of the horizontal coverage of the main array. Not only perfect in terms of the dispersion of the main array versus the sides, but also time-aligned. Instead of using artificial methods to make those two systems match, I have designed them such that they are rigged in a perfect arc."

Page also spent a fair amount of time perfecting the bottom end, designing a steered sub-bass array. "My role is typically to go out to tours and fix things that are not right, and I've been out to many tours where the bottom end is an over-the-top, gut-wrenching, awful noise," he continues. "Sometimes it's a gain structure problem, but usually it's a balance problem."

On this tour, Page is using Prism II subs. "They give me an absolute depth-defined note," he says. "They may not be as musical as other subs, but the idea is that for the level that I'm running this show, which is quite loud, I want the tightness. The trade-off, unfortunately, is that I have to sacrifice some depth in the low end to get that definition and hear those notes."

By steering the subs, he adds, he has virtually eliminated the summing in the middle

is that you want the image to appear bigger than it really is. That environment in the first two rows is always a bit tricky to get right because if you just put little front-fill speakers down there and turn them on, that is all those people will hear. They don't get any feeling that they are in a big gig."

Speakers aside, Page is using a fairly straight-ahead setup at FOH that includes a Yamaha PM5D console and Clair Bros. I/Os driving the system. "In a normal situation with my sound system, the I/Os at front of house are almost straight-through devices," Page explains. "I'm using them as my D-to-A converters for the output of the Yamaha PM5D. I stay in digital all the way to the I/Os at 96k and then I convert and run analog to my [dbx] DriveRack."

Page doesn't rely on much outboard gear—just a touch of onboard limiting and a TC Electronic 6000 multi-effects processor for reverb on Carey's ballads. "I see guys have compressors on every channel and gates all over the place," Page says. "Sometimes that's valid, but what I notice is that it distracts from them mixing the show."

MONITOR COMPOUND

At the monitor position, Robert Miller is using a Digidesign VENUE to mix eight pairs of stereo personal monitors, a mix for the engineers below the stage, a mix for monitors that are flown over the stage and placed on the side of the stage for the dancers, and a shaker and a sub. "There are a lot of things going on," he says with a laugh, "but I try to keep it as simple and straightforward as I can."

Carey uses Ultimate Ears personal monitors, and, yes, the pieces have bling, while the band and backup singers use Future Sonics models.

Miller delivers all onstage a straight-ahead mix. "There is nothing too crazy going on," he says. "Everybody gets a nice blended mix. I've worked on some tours where the music is in their left ear and the vocals in their right ear. It's not like that. Everyone has a stereo mix with good separation." The flown and side monitor cabinets are Clair Bros. R4s.

Knowing that this tour was going to take them across the globe, Miller picked

the VENUE board for its availability and kept the list of plug-ins simple. "I stuck with the standard Digidesign plug-ins so I can get them wherever we go," he explains. "I didn't want to be needing something that wasn't available." Troodon Technologies' TrooTrace Audio Analysis Bundle, which he uses as a spectrum analyzer, is one of his more useful plug-ins.

SINGING TO VIDEO

Where it gets challenging, though, is when Carey sings with videotaped performances by such artists as Jay-Z and Jermaine Dupri on the more rap-flavored tracks. "She interfaces with [the video] and Mariah winds vocally in and out between the rap track with this larger-than-life hip hop feel going on behind her," Page says. "The essential thing is that you have to have the gain structure on your console completely in control at all times. In those circumstances, if you're not careful of the overall level you're running or of the interplay between all of the elements of your mix at all times, it will train-wreck in a heartbeat."

That's especially true, Page adds, with so many elements to juggle. "There's the little rap section, now it's back to Mariah, now a little keyboard riff, now a scratch hook from the DJ," he describes. "Suddenly, you get a situation that I call 'everything louder than everything else,' and you've lost any reference point of your mix."

This tour, featuring Carey's catalog of songs that bounces between ballads and hip hop tracks, has given Page an opportunity to prove a philosophy that he's worked with since early in his career. "Excessive low end fatigues an audience, and three-quarters of the way through a show, you notice that they are not as excited and up for the next song as they were in the beginning," Page says. "It's essentially because, psycho-acoustically, you are beating them to a pulp with the low end. When I get an opportunity, I give the audience what I call 'an acoustic breath.'

"There's an interesting psychological thing that goes on with an audience," he continues. "They scream their heads off during the show, but when she starts a ballad, they scream for about four words of a song and rather than me turning it up to fight them, I leave it where it is and they all stop screaming. They are essentially here to hear the song. If you give them a dynamic breath, they will come back and they'll listen." ■

David John Farinella is a San Francisco-based writer.

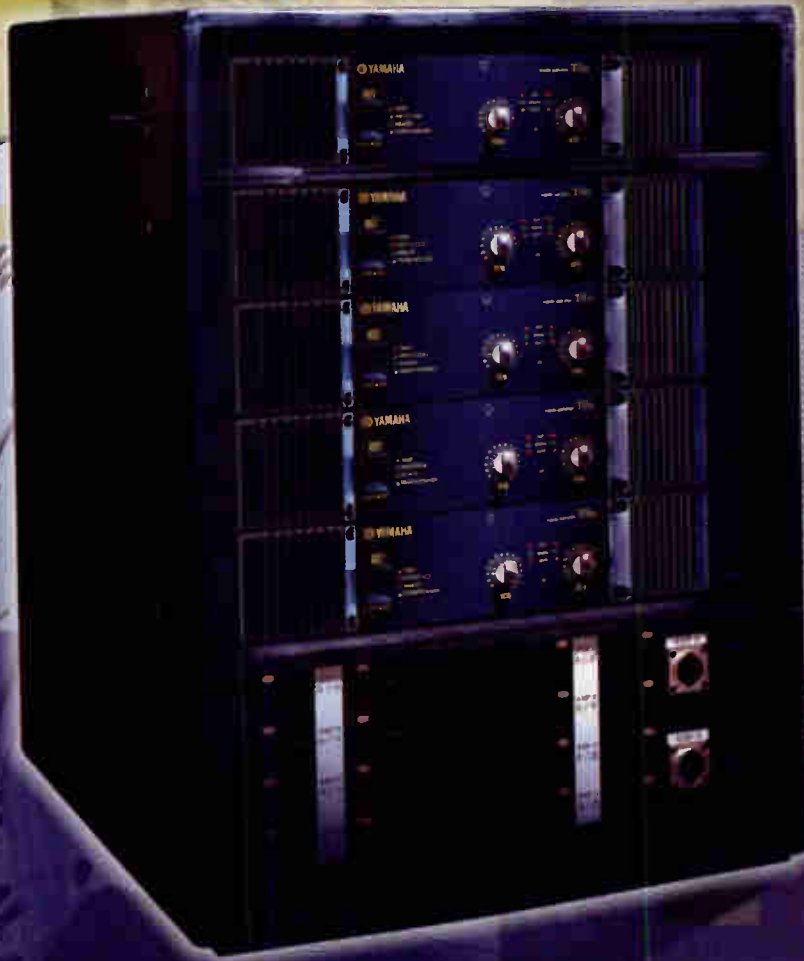


Monitor engineer Robert Miller chose the Digidesign VENUE digital console for its availability and plug-ins.

of the stage. "I've evened it out across the floor," Page says. "When you do that, if you create a true steered array, it not only sounds good on the floor, but it ends up sounding good in the high seats, as well."

To cover the expensive seats in the front rows, Page is using eight FF2 front-fill cabinets. "I'm a bit of a perfectionist, so I have the middle set on one delay and the outer set on another," the FOH engineer comments. "The idea with front-fill delays

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Stewart Sound

Covering North Carolina's Western Edge

It may not seem big-time compared to the high-profile regions (New York City, L.A. and such) that are locally contracted for top-name tours and installs, but Western North Carolina has long been a popular area for the arts and music. In addition to the vibey music scene of Asheville, area festivals and the more high-brow concert productions, there is plenty of work for Stewart Sound (Leicester, N.C.—just northwest of Asheville; www.stewartsound.net) and its sister company, Stewart Stageworks Inc.

"I unknowingly started my audio journey as a musician," says company founder Chad Stewart. "To this day, I still say I am a guitar player that happens to make my living being an audio guy or my other title in the theater world—sound designer. There are those times when the mix is just what I want and things are powerful, beautiful, and moving life stands still for me and I feel connected with the music. I take my mixes personally, and after 11 years in this industry, I feel very blessed to be doing something that I truly love.

"The bulk of our work comes from festivals and touring," he says, pointing out the Peter Dinklage Band and Christian pop/rockers Sonicflood as acts who regularly receive the company's production support. Stewart is also the sound designer for the Brevard Music Center in Brevard, N.C., a high-end, 1,800-seat shed set in the foothills of the Western North Carolina mountains.

"I think we do something like 72 shows in eight weeks," continues Stewart, who has been with Brevard for five years and just signed a five-year deal with the venue. "We typically load in three operas and two Broadway-style musicals, as well as many orchestral performances. This season, we are including Del McCoury, the Five Browns and Burt Bacharach."

Anyone who has negotiated the tight, winding curves of Western North Carolina's mountain highways and roads, as well as the unpredictable stormy micro-climates that can occasionally happen there, can understand that getting to a gig isn't always an easy undertaking. "The mountains of North Carolina do represent some challenges," says Stewart. "We have replaced a few transmissions due to the steep grades and mountainous terrain, and it rains at a moment's notice. Needless to say, we own a small mountain of tarps." Keeping inventory of this "essential" gear is Jimmy Stewart, who handles transportation and logistics. Additional company crew includes David Tate (production manager/audio engineer), Chris Mitchell (production manager/systems tech), Patrick Dashiell (shop manager/lighting designer/systems tech) and James Watt (engineer/lighting designer/system tech).

In addition to theater and festival work, Stewart Sound is also called to handle SR for touring and



Stewart Sound's Chad Stewart is on hand for any contracted event.

corporate work. Packed up for such events is a slew of top-end gear, including rider-friendly consoles from Midas, Yamaha, Soundcraft and Allen & Heath; a full mic closet; and an assortment of backline amenities.

But in particular, Stewart emphasizes a recent acquisition: In 2005, Stewart purchased a d&b audiotechnik line array speaker system and has been thrilled with the results, calling it the best purchasing decision he has made to date. "I thought the whole line array revolution was getting overused, but I have found with the d&b rig I can do everything, and it performs so much better than the conventional trap boxes I have owned in the past," enthuses Stewart. "The array calculator, Q-Calc, is dead-on and allows me to see how the system will behave in a given space, as well as make crucial aiming decisions. It is very conducive to the corporate environment and will just as easily get down and dirty for powerful rock 'n' roll-type gigs. The Q1 line array box is less than 50 pounds, and the d&b B2 is the most musical sub I have ever heard, as well as the most effective. I plan on doubling my d&b inventory by this time next year."

Stewart also recently purchased a Stageline SL100 stage system, an all-aluminum mobile unit that offers a fully hydraulic setup of stage, sound, lights, banners and sets, providing the company the ability to offer a turnkey concert package—all in-house. "We can fly 12 d&b Q1s from the Stageline and stack B2s and Q subs and handle several thousand people outside," says Stewart. "I felt like I was paying too much for stage rentals and I was not happy with the service or the stages I was renting. The Stageline adds a good production value to the events. It looks great and is solid as a rock. It is perfect for flying the d&b rig, as well. Overall, [a] good business move for me." ■

Rick Clark is Mix's Nashville editor.

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A-T UPDATES ARTIST SERIES MICS

The next generation of Audio-Technica's (www.audio-technica.com) Artist Series adds new models while upgrading existing mics. The \$299 ATM710 cardioid condenser, \$249 hypercardioid ATM610 and \$169 cardioid ATM410 dynamic vocal handhels all offer low handling noise. New instrument mics are the \$169 ATM650 hypercardioid dynamic, \$369

ATM450 side-address cardioid condenser and \$449 ATM350 cardioid clip-on condenser. The ATM350 comes with a violin mount and a flexible gooseneck mount; heavy-duty iso mounts are included with the ATM450 and ATM250/ATM250DE. Based on the AE2500, the \$549 ATM250DE is a dual-capsule (dynamic/condenser) kick mic, and the \$329 ATM250 is a single-element hypercardioid dynamic; both are suited for upright bass and high-SPL (kick, toms, guitar/bass cabs and brass) sources.

YAMAHA DSP5D

The DSP5D from Yamaha (www.yamahaproaudio.com) puts the functionality of its PM5D-RH digital live console—less the control surface—into a rack unit that's controllable from a PM5D. Priced at less than \$30,000, a single DSP5D doubles the mixer's I/O channels, with 96 mono and 16 stereo channels accessible via four fader layers—or add a second DSP5D unit for 144 mono/24 stereo capability. The DSP5D can reside next to the host PM5D or act as a remote stage box (with all I/O accessible on the front panel) using an optional digital cabling unit for communication up to 120 meters away over standard Cat-5 cable.



ALLEN & HEATH GL3800M CONSOLE

The GL3800M from Allen & Heath (www.allen-heath.com) analog monitor desk offers up to 16 monitor mixes, plus built-in mic splitting and a comprehensive, dual-output engineer's wedge/IEM monitoring system. It's available in 24, 32 and 40-channel frame sizes, and the 16 mixes can be globally assigned as mono or stereo. Each stereo mix provides level and pan control, as well as stereo AFL signal-checking. By assigning mixes as "wedge" or "IEM," AFL automatically routes to the engineer's speaker or in-ears, as appropriate. Other features include a built-in oscillator/pink-noise generator and independent talkback to/from the FOH console and to each performer.



HEAR TECHNOLOGIES MIX BACK MIXER

Hear Technologies (www.heartechnologies.com) is shipping its Mix Back monitor mixer. The \$2,495 unit is designed to reside at the stage, providing 16 inputs, a passive mic split, 4-band EQ and 16 channels of analog (two stereo, 12 mono), Hear Bus and ADAT output simultaneously. Ideal for in-ear monitor mixing and configured as 16x12x2x2, the rackmount unit features a talkback mic preamp for talking to any (or all) master outs and an intercom out. An optional \$139.95 16-button remote connects via a standard Cat-5e cable.



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Tony Shepperd – Engineer/Mixer/Producer

Recent Projects: *Michelle Williams, Kenny Loggins, Whitney Houston*
 “The Big Ben is hands down the best clocking source I have ever used! Since I mix entirely in the box my clocking source is extremely important. I recently upgraded my system to a Digidesign Pro Tools HD 3 Accel system. The cherry on top of that luscious Sundae is the Apogee Big Ben. Instantly my imaging improved and I could actually hear the tails of my reverb trails. It is now the clocking source for my entire studio.”

Eddie Kramer – Engineer/Producer/Writer/Musician

Recent Projects: *Remastering – “Voodoo Child: The Jimi Hendrix Collection, Experience Hendrix: The Best of Jimi Hendrix”*
 “With the advent of the Big Ben [going from analog to digital] has become a lot easier for me. The sonic clarity of my transfers from the analog world into the digital world were made a lot clearer, a lot cleaner and more transparent. Now I feel much more comfortable with digital.”

Steve Krause – Scoring Mixer

Recent Projects: *“Running Scared”, “Crash”, “In Her Shoes”, “Kicking & Screaming”*
 “The coolest thing about the Big Ben is what it does to your sound. I have six interfaces in my ProTools rig and have one clock output go to each interface which lines them up and makes them spot on. When I am mixing I am using the converters to go in and out to analog gear, eq’s, compressors, etc., so when the conversion is that precise and I am summing to a mix with at least 48 ins and outs, Big Ben makes the mix so much better.”



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Once Upon a Studer

Solving a Reel Motor Mystery

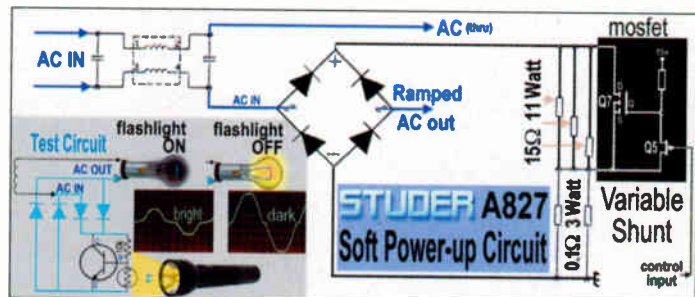
A few months ago, a Studer A827 multitrack came within my depth of field. During the troubleshooting process, one of my student assistants commented that the machine didn't seem very easy to service, to which I replied that our lack of familiarity was to blame. I then explained life in that now-rare environment, the multiroom facility.

The school where I now work part-time has two Studer A827 multitracks, one of which seemed to have a reel motor issue—the machine would play but not fast-wind. These motors are driven by a pair of amplifier cards; swapping may have moved the problem from one reel to another, but the machine would never fast-wind longer than a few seconds without stopping. All we got was an error message about a “Low Spooling Motor Voltage.”

Peter, my assistant, noticed that the rear panel of the power supply was getting very hot, which was not the case with the working machine. Another difference is that the problematic machine made a horrendous, transformer-honking sound when powered up. That, plus a faint whiff of “Cajun electronique,” was an invitation to pop open the power supply. We found a circuit board at the rear of the supply with three 15-ohm power resistors just behind the rear plate. That explained the heat source. Now the mystery was discovering why those parts were getting so hot.

The power supply for the A827 is quite the beast. Three identical power transformers have two secondary windings, each connected to a bridge rectifier feeding into a single pair of metal bus bars. Three 68,000 microFarads (μF) capacitors are connected across that bus! Studer's design goal was a rock-steady supply that could protect the microprocessors from power line spikes and momentary brownouts. And while these machines can be had on eBay for less than \$10k, I understand that the transformers are rather expensive when sold separately.

Charging 204,000 μF at the flick of a switch is a formidable obstacle, as the current required at that first instant is huge. Repeated power-ups would eventually take out a rectifier or a transformer winding. A Variac is one way of gradually applying the juice. The generic name is “auto-transformer”; it's often used as a light dimmer and, in fact, offers the best way of powering up questionable high-current devices (such as power amps).



A simplified version of Studer's soft power-up circuit. As the actual circuit is on the AC line side of the power transformers, the schematic at lower-left is a low-voltage version built for safe analysis.

SOFT CELL

The board where the three hot resistors are located is home to the soft power-up circuitry. Its job is to gently ramp up the power supply. That it does so on the AC mains side—one leg of the incoming line is sent through a full-wave bridge rectifier—certainly piqued my curiosity. (Follow the darker blue lines in the figure.) Most of the time, a rectifier is used to convert AC to DC, but in this case, it's a clever bit of electronic leverage.

To confirm that the circuit worked the way I thought it did, I built a low-voltage version for evaluation. (See the insert within the figure.) I chose a transformer with a 6.3VAC secondary driving a standard Type-47 lamp. The diodes in the test circuit (in turquoise) may look different from Studer's “bridge” configuration, but I made that choice to show variations in the schematic arts.

TESTING E-B-C

Diodes are semiconductors. They conduct in one direction only and must see a “load” to do so. Enter the transistor in the test circuit (also a semiconductor), a generic NPN in a TO-220 case. Clockwise from top, its C-B-E pinout is connected as follows: The collector-to-base resistor turns the transistor “on,” but when the flashlight is on, the photoresistor sees the light and pulls the base to ground. The current path is from the positive output of the bridge through the collector-emitter junction to the negative side of the bridge.

The transistor acts like a variable resistor, as determined by the way that the base (input) is biased. When the base is pulled toward the collector, current flows, the transistor is full “on” (saturated) and the collector-emitter junction looks like a short circuit (zero ohms, like a piece of wire). When the base is pulled toward the emitter, no current flows and the collector-emitter junction looks like an open circuit (no resistance). In a circuit designed for audio, the transistor is biased between these two states.

The test circuit was designed to turn the lamp on



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when the room is dark. The transistor is biased full-on and the full current flows through the bridge. When the flashlight is on—simulating a brightly lit room—no current flows through the bridge and the lamp is off. What you see on the 'scope is the portion of the sine wave through which the diodes are conducting. Because there is a 0.6-volt drop across a silicon-diode junction, there will always be a little glitch at the crossover point.

REALITY SHOW

In the Studer circuit, the DC side of the bridge can be divided into three networks: two that are passive and one active. Three 15-ohm resistors are in parallel (network 1) and in series with the two 0.1-ohm resistors (network 2). Their equivalent resistance is 5 ohms and 0.05 ohms, respectively. The total series resistance is 5.05 ohms.

Q7, the IRFP250 power MOSFET (shown on the right of the figure), is the active part of the network. Based on the signal applied to the control input, it acts as variable shunt. Under normal circumstances, the MOSFET should be off when powered up, and the 5-ohm network takes the heat during that very brief moment while the caps on the other side of the transformer are being charged for the first time. Then the MOSFET takes the load off the resistors. It has an "on" resistance of 0.085 ohms, a max current of 30 amps and dissipates 190 watts!

When the discolored area of the PCB was found, where the MOSFET and its FET driver are located, we didn't bother to test anything. We pulled the parts and contacted Studer to request a cross-reference for the obsolete Q5, the drive FET. As the reel motor and soft power boards had some common components, I compiled a parts

list and ordered everything through Mouser Electronics. When the parts arrived, we cleaned things up and installed Q5 and Q7, and replaced a capacitor that looked like it had been overheated. Not only was that horrible turn-on grunt gone, but now the reel motors worked.

HINDSIGHT

The information so far was collected before and after the fact. I say this because the damage was so obvious that we didn't bother to test the suspect components—or keep them. I don't know exactly what caused the failure, but now I suspect that the driver FET was shorted, causing the MOSFET to work in reverse. The three resistors valiantly allowed the machine to stay on, but it sagged during the high-current demand of fast-wind operation.

Meanwhile, if you own this machine or are thinking about it, be sure to reseat all of the ribbon connectors as there does not seem to be enough friction to keep them secure. When time permits, my plan is to replace them all, but in the meantime, hot glue works well and is easily removed.

CIRCUIT VARIATIONS

Surprisingly, other "audio appliances" find novel uses for the diode bridge. Studer-Revox used it early on as part of its capstan motor-speed control network. The EMT 156 and Neve 2254 dynamics processors use a diode bridge as a gain-control element, as does the Neve 33609. I'll be exploring these circuits in 2007. *Tout chaud!* ■

Eddie would like to thank Peter Bregman and Colin McCardell for their inspiration and assistance, plus Steve Price and Ron Bloomgren for the earplug tip.

'Tis the Season

Back-scratchers and slippers are nice gift ideas, but here's a stocking stuffer you can use year-round—and it will pay off in better hearing health. I now own a pair of custom -15dB earplugs from Earmold Design Inc. (www.800ediminn.com) that make my world a little more peaceful. The procedure began with a hearing test and some magic goop that dried in five minutes, creating exact molds of my ear canals. The molds were then replicated and "drilled" to accept acoustic attenuators or in-ear monitors drivers. Now I can grind coffee, mow the lawn and listen to my kids screaming without being driven out of my mind—all while saving my hearing for more critical jobs.

The earplugs really enhanced my enjoyment of a Lyle Lovett concert at the State Theater here in the Twin Cities. The EDI earplugs sounded way better than going "plug-less." Compared to the off-the-shelf variety (or a wad of tissue), these custom plugs let you hear everything, only softer. High frequencies are right there where they should be. There's none of that underwater, disconnected-from-reality feeling.

—Eddie Ciletti.

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Tools of the Trade



MOTU 8PRE INTERFACE

Field recordists will want to check out the single-rackspace 8pre FireWire audio interface from MOTU (www.motu.com, \$595). The unit offers eight mic preamps with up to 96kHz/24-bit conversion, MIDI I/O, two 400Mb FireWire ports and dual ADAT optical I/Os. The ADAT output can feed eight channels at 44.1/48 kHz, or both can be used at 88.2/96 kHz to feed a recorder that supports SMUX. The back panel has eight TRS/XLR combo inputs that accept mic- or instrument-level signals. Each mic input features 60 dB of gain, switchable phantom power and -20dB pad. The front panel has five-step LEDs for each channel's input level and a headphone output with volume control. Additionally, the included CueMix Console software works as a 16x8 digital mixer and built-in SMPTE synchronizer/generator.

A-DESIGNS EM-GOLD PREAMP

Add another color to your recordings with the EM-Gold preamp from A-Designs (www.adesignsaudio.com, \$859). Part of the 500 Series, this cousin to the EM-Red, EM-Blue and EM-Silver units combines the output transformer of the EM-Silver and the input transformer of the EM-Red. The vertical-mount unit offers 62 dB of gain, a ¼-inch hi-Z direct input, and switches for phantom power, -20dB pad and polarity. The EM-Gold can be quickly installed or swapped via twin thumbscrews.

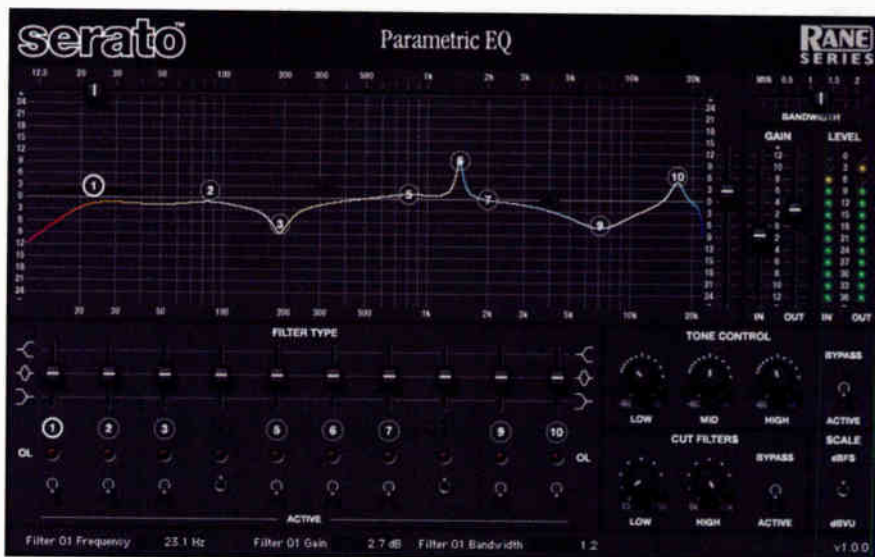


SERATO RANE SERIES PLUG-INS

Bringing Rane's live sound hardware to the virtual world, Serato's Rane Series TDM plug-ins (www.serato.com, \$699 each) feature a 31-band graphic EQ, 10-band parametric EQ, a gate/expander and a compressor/limiter. The plugs are fully compatible with Digidesign's ICON and VENUE consoles inside Pro Tools 7. The graphic EQ uses Rane's Perfect Q technology to eliminate band interaction, forcing the user's response curve to precisely follow the

AKG PERCEPTION 400 CONDENSER

Perception is reality with AKG's Perception 400 multipattern, large-diaphragm condenser mic (www.akeg.com/usa, \$599). Designed for studio and live use, the unit handles up to 145dB SPL and has a zinc/aluminum-alloy metal chassis and stainless-steel, dent-resistant grille to protect the capsules. The 400 features three switchable patterns (cardioid, omni and figure-8), switchable 10dB pad and bass roll-off (300 Hz at 12 dB/octave). The mic includes a shock-mount and case.



slider positions on the screen. The 10 parametric EQ bands can be moved through the entire frequency range; all are switchable between high/low-shelf and bell filters, and are all independently bypassable. The dynamics plug-in offers a compressor, limiter, gate, ducker, expander and de-esser. Download a free demo from Serato's Website.

DAKINGPLUS EQ500

The words Daking and digital have never crossed paths until now. DakingPlus (www.dakingplus.com), a joint venture between Geoff Daking and Dave Thibodeau, features a new line of digitally controlled, Class-A analog processors, aux bus modules and preamps from the mind of Daking. The entire product line

is designed so that it can be scaled to configure a 96-in/24-out console or can function simply as a 2-channel analog I/O processing package. The first product out of the gate is the EQ500. The 4-band unit will be available to fit in various existing rack modules to facilitate integration into existing setups. I played with the EQ500 interface at AES, and it packs a lot of operability into an intuitive package.



SOUNDFIELD DSF-2

SoundField (www.soundfield.com) has released a version of its B-format, multi-channel recording system that outputs signals digitally. Invented to overcome the problems associated with long cable runs at sporting events, the DSF-2 offers live decoding to stereo, stereo M/S and 4-channel B-format. The stereo signal can be output in analog or digital domains (48/96/192 kHz) via XLR or unbalanced BNC connectors, respectively, while the stereo M/S and B-format signals can only be output digitally. This signal can be transported over long distances and



then decoded using SoundField's SP451 hardware processor or Surround Zone plug-in.

DIGIDESIGN STRIKE

The latest release from Digidesign's (www.digidesign.com) Advanced Instrument Research (AIR) group is Strike (\$299), an RTAS virtual instrument for Pro Tools HD, LE and Pro Tools M-Powered. The company's groove machine allows the user to achieve the near-impossible, real-life task of telling a drummer how to play. Users can adjust the virtual drummer's playing intensity, complexity, timing, groove, dynamics and more in real time. The instrument features five drum kits, each containing 12 drum sounds with 300 samples per instrument. There are 1,500 preset patterns, which can be customized and saved, or Strike can be used as a drum module by triggering it directly from Pro Tools. A built-in software mixer lets users add mic leakage and room sound, or alter sounds via a 3-band EQ or two included insert effects per channel.

UA DCS REMOTE PREAMP

Universal Audio (www.uaudio.com) has combined its talents with the co-founders of Euphonix to devise the first in a new line of products under the DCS (Desktop Console System) banner. The DCS



Remote Preamp offers two mic pre/DIs, mid-side recording with decoded monitoring, a headphone amp with reverb and EQ, and a digitally controlled analog signal path. The two-piece unit can be placed close to the source and remotely operated from up to 300 feet away via Cat-5 cable.



ULTRASON EDITION 9

Aimed at the high end, the Edition 9 headphones from Ultrason (www.ultrasonusa.com, \$1,500) feature titanium-plated drivers, Ethiopian sheep-leather ear pads and headband pads, and they come in a metal attaché case. The cans incorporate Ultrason's S-Logic, which boasts natural surround technology and reduced SPLs. They also reduce electromagnetic field radiation by up to 98%.

TC ELECTRONIC KONNEKT 8

The stackable Konnekt 8 FireWire audio interface from TC Electronic (www.tcelectronic.com, \$375) has two preamps,

two hi-Z inputs, two aux line inputs, two balanced outs, stereo S/PDIF I/O and MIDI I/O. The unit can be used as a stand-alone mixer via the front panel light ring and encoder controls, and stacked units can be networked, allowing musicians to monitor each other in real time. Other features include two headphone outs (one with a speaker muting function) and low-latency drivers for Mac OS X (Intel-based Macs included), Windows XP, and applications supporting WDM, ASIO and Core Audio drivers.

WIREWOKS MMB8D

Interfacing DB25 analog and AES/EBU digital connections to XLR? The single-rackspace Wireworks MMB8D (www.wireworks.com) is available in various gender combinations with analog- or digital-wired DB25 connectors, or with a 4-foot tail for in-rack direct connections. The system includes



the MMB8D MiniStageBox and MMLD8D MiniLineBox, DB25 trunks and the MMBR rack adapter for the MMB8D and MMLD8D boxes. The units can be rackmounted, used as floor boxes or wall-mounted. The DB25 trunks can be made to order or purchased in 5/10/15/20/25-foot lengths featuring heavy-duty metal bodies with captive thumbscrews and gold contacts.

M-AUDIO PROFIRE LIGHTBRIDGE

The latest I/O box from M-Audio ([\[audio.com\]\(http://www.m-audio.com\), \\$499\) is capable of 32 channels of Lightpipe I/O, S/PDIF I/O and 2-channel analog output for a total of 34x36 channels at 44.1/48kHz sample rates. Users can also record 16 channels simultaneously in SMUX at 88.2- or 96kHz sample rates. Features include independent volume controls for the 1/4-inch balanced outs and front panel headphone out, word clock out and MIDI I/O. The box interfaces with any Lightpipe-capable preamp, including M-Audio's Octane 6.](http://www.m-</p>
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Upgrades and Updates

Eventide (www.eventide.com) releases Version 5.2 software for the H8000FW processor. The upgrade adds more than 100 new programs, including many from noted sound designer

Jay Rose...Cycling '74 (www.cycling74.com) releases Soundflower software upgrade V. 1.2, adding Intel-based Mac support for the free system extension that allows users to route audio between OS X Core Audio applications...Speaking of the new Macs, the URS (www.ursplugins.com) Everything EQ Bundle is now supporting the new Intel-based computers across the Audio Units and VST versions. All URS Universal Binary versions will require a minimum of Mac OS 10.3.9...Steinberg's (www.steinberg.net) ASIO 2.2 SDK provides software engineers with a complete set of tools for creating ASIO-ready host applications and drivers for 64-bit versions of Microsoft's Windows operating system...Kjaerhus Audio (www.kjaerhusaudio.com) is offering a free crossgrade from PC to Mac for its Golden Gate GAG-1 and MPL-1 Master Precision Limiter Pro Edition.



In addition, the company just released Mac Intel-based compatible software for the GAG-1, V. 1.02...Sound Devices (www.sounddevices.com) adds powerful new functions to the 7 Series recorders with the release of software V. 2. New features include real-time recording to external FireWire drives, programming and control of the CL-1 Remote Control and Keyboard Interface, faster FireWire transfer speeds, and file management and metadata additions...iZotope (www.izotope.com) releases major updates for Ozone 3, Spectron and Trash software. The updates offer Universal Binary support for Intel-based Macs, support for 64-bit Windows applications, an improved authorization system, improved delay-compensation support with Delay Freeze function and the ability to change "Alt-Solo" bandwidth with the mouse wheel...Ableton Live 5 buyers can educate

themselves via Ableton Live 101: Mastering Live (www.macprovideo.com), a set of 159 separate tutorial videos showing how songs are constructed using Live. Live 6 users who purchase the videos are eligible for a free upgrade to Ableton Live 101: Mastering Live 6, currently in production...Synthogy (www.synthogy.com) releases a Universal Binary version of Ivory for Audio Units. The update is essential for all Intel-based Macs and is highly recommended for all users with Mac PowerPC processors running OS 10.4 or higher. The download and installation is also the first release of the Ivory stand-alone version for Mac and is free to all registered Ivory users...Now available, IK Multimedia's (www.ikmultimedia.com) Mac-Intel versions of AmpliTube 1 Live and T-Racks 24 is a free update to users registered after April 1, 2006, and \$49 for those who purchased after April 1, 2006. ■

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Sonic Studio PreMaster CD Software

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Sonic Studio began as the audio division of workstation pioneer Sonic Solutions. Today, Sonic Studio makes hardware interfaces and Mac software for PCM and DSD production, as well as integrated mastering for CD, SACD and rich-media distribution. PreMaster CD (PMCD) is designed to trim and space your tracks, make edits, add gain changes, create fades, input text and add PQ codes.

GETTING STARTED

Installation on my Mac G5 Quad running OS 10.4 (PMCD uses Core Audio) was easy. Authorization is more involved due to challenge/response registration; this took about an hour, but the installation guide warns it can take up to three business days. PMCD creates a CD in six steps. However, if you want to do fine-tuning, then be prepared to have your nose in the manual. The program supports AIFF, BWF and SD2 stereo files, but only at 44.1 kHz. It supports 16 to 24-bit depths, and offers a proprietary dither that can be globally turned on or off.

Editing in PMCD is nondestructive. Gain can be adjusted for each song or by defining audio segments within the song. Gain can also be applied using breakpoint automation on the timeline. Sequencing is fast and easy, as is re-sequencing with the Trackbar feature. If you hold the Command key down as you drop a file in the Audio window, it automatically spaces the track and creates PQ codes for pro disc manufacturing. In the background, PMCD checks any created PQ codes against the Red Book standard. If there is a problem, PMCD tells you what it is, although it doesn't reveal which track has the problem. It also creates CD references in the background. One of PMCD's most important features is its ability to create Disc Description Protocol (DDP) file sets (later).

Sonic Studio's Smart Fade Tool is a thing of beauty. Fade-ins and fade-outs are color-coded. The cursor's icon and function change depending upon where it's placed near the edit. You can make an edit, crossfade it and then move the whole crossfade back and forward in time to hear where it sounds best. When you move the crossfade, the waveform beneath the fade is "live" and instantly adjusts to reflect your

changes. You can easily make very long crossfades by holding the Option key and mousing up the center of the crossfade. Crossfade beginning and end regions both expand while keeping the fade parameters that you just created. A small "bead" lets you adjust the fade curves without having to access another window.

However, the software won't record files. It can change polarity, reverse audio, normalize and make gain changes, but it doesn't support DSP processing.

There's no provision for scrubbing; only half-speed playback is available. PMCD only offers two vertical window sizes; the large size is certainly big enough, but it won't let you grab the window corner and pull down to the bottom of your screen. There's also no provision for copying and pasting timeline gain changes. PMCD also doesn't allow load back of DDP files, but this feature is promised with the next update.

DECISIONS, DECISIONS

When a CD-DA is sent to a manufacturing plant, the plant can either play the CD in real time directly onto a glass master or onto its server, or it can rip the audio using Digital Audio Extraction (DAE). Each method has its drawbacks: Real-time playback uses error correction for drop-outs and must be properly clocked, while DAE pulls small segments of the audio files off the CD and then reconstructs them back together on the server. Although DAE has greatly improved during the past few years, it can be susceptible to seek errors and jitter, especially at high speeds.

A better option is to deliver a DDP file set. DDPs can be delivered on any media that a plant will accept, such as CD-ROM, DVD-R, Iomega Jaz or hard drives. Manufacturing plants transfer the files onto a server the same way that you would copy any computer data; the difference is that the DDP files are transferred using data redundancy so that every bit is accounted for and there is no need for ripping, re-clocking or error correction.



PMCD is used as the last step before sending your CD for replication.

SURVEY SAYS

I wanted to see if I could hear a difference if I loaded 16-bit/44.1kHz files into two different Mac programs that both support DDP and then burned a CD from each. I was shocked by the difference—and I was not the only person who heard it; we all chose PMCD.

I repeated the test using more CDs and made it a blind test. I used three different Mac programs, and I was able to correctly identify each disc in each group. However, this time the results were less conclusive. I preferred the PMCD disc only twice. In the third group, the PMCD was my second favorite.

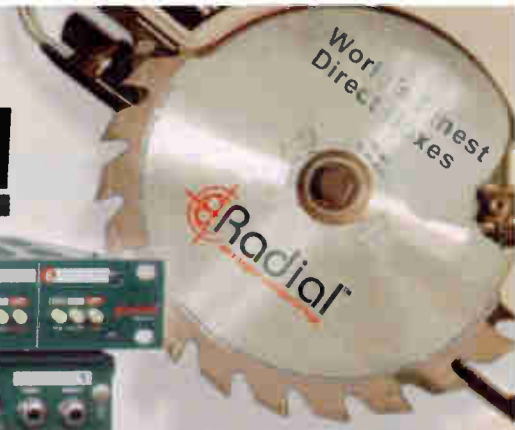
My tests didn't prove that brand "a" made a better-sounding CD than brand "b." If that were true, I'd have picked the PMCD disc each time. But I didn't because inconsistencies in CD-R media have a greater effect on the sound of a CD-R than the programs that use them. This point underscores the importance of using DDP as a delivery medium to the pressing plant. DDP is immune to jitter and guarantees audio integrity from your computer to the pressing plant's computer.

I'm sold on the benefits of PMCD as a highly evolved, powerful tool for audio CD preparation that delivers high-quality masters on a superior format at a very reasonable price (\$495, box; \$475, download).

Sonic Studio, 415/460-1201. www.sonicstudio.com.

Erik Zobler is a Los Angeles-based engineer/producer.

rackmount Power Tools! SM



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Mojave MA-200 Tube Condenser Microphone

Large-Capsule Fixed Cardioid From David Royer

A few trade shows ago, I had a meeting with David Royer and John Jennings in the Royer booth and saw a work in progress—the large-capsule MA-200 cardioid condenser soon to be released under the Mojave banner. Royer mentioned that he had been wrestling with a plant in China about getting it just right. Of course, if you know him, that means just right in 72-point bold type. About a year later, the MA-200 (\$995) was released.

The flat-black body and satin-finish grille conceals a 3-micron, gold-sputtered capsule; Jensen output transformer; and military-grade JAN 5840 vacuum tube wired for triode operation. The mic ships in a small carrying case inside a larger, sturdy carrying case housing the external (100/115/230VAC, 50/60Hz) power supply, shock-mount and mic cable. Frequency response is listed as 30 to 18k Hz, ± 2.5 dB, with A-weighted self-noise of 14 dB. Clipping is measured at various frequencies: 132 dB at 20 Hz; 135 dB at 32 Hz; 136 dB at 100 Hz; 136 dB at 1 kHz; and 136 dB at 10 kHz.

LET'S GET IT ON

I've had a chance to test a pair of the MA-200s in a number of situations, and the surprises were always pleasant. First off, I placed them in a spaced array over a drum kit with 10/14/16-inch toms, 18x22-inch kick and a 5x14 snare. The mic preamps were from a freshly recapped SSL 4000 G directly to a 2-inch Studer A827 recorder. The first thing I listen for in an overhead mic is how it handles cymbals and stark transients. The MA-200 imparted smoothness to the cymbal crashes and was never strident or washy.

Later that same day, the mics were used on the same kit in the room as knee-highs, about five feet back from the front of the drums. In this application, the kit was well-balanced and added a nice texture to the mix when added to the rest of the miked kit. On a later session, I heard the mics on a completely different drum kit recorded to an Otari RADAR at 48kHz/24-bit. The results were equally good. When the noise floor of the analog tape was removed, you could hear that the personality heard in the first application was not supplied by tape

compression, but from the mics.

On a third session, I had a remarkable experience when the overhead drum mics were sent through API's new A2D dual 312 mic preamps. I just used the analog stage of the unit and sent the mics directly to the RADAR. Later, I was able to grab the EQ on the SSL and dig out plenty of low- and top-end butter with very little gain. When paired with an excellent preamp, this mic is simply gorgeous.

Next, I heard the Mojave mics in an X/Y configuration in front of an acoustic guitar through a Neve VR console recorded directly to an Otari MTR-90 analog multitrack. The stereo image was very good, and the mics gave a very nice picture of the guitar without being boomy. They sat nicely in the track with a little help from some EQ at the top end.

Although I never expected it, the MA-200 did a fine job on a male vocal, imparting throaty warmth, a bit of transient crunch and an evenness that made the "ears" in the room smile at the results. When you have a mic that can cover instrumental and vocal duties in this price range, you're playing with house money.

The mics fared equally well when placed over the harp of a Yamaha C5 grand piano. From piano to forte, the MA-200s imparted a fine tone.

Last, the MA-200 was used on a screaming Fender Metal Head guitar amp. This particular tune needed various growling and otherwise annoying distortion as added ear candy and the Mojave stood

up very well under the strain. It was literally so loud that mere humans had to vacate the room, leaving all but the ear-plugged guitarist and the MA-200 to take the abuse. Once again, it did a journeyman's job and never buckled under the onslaught of abusive SPLs.

GIVE ME MO' MOJAVE

I really like this mic, but if you're looking for pristine reproduction of your selected source, look elsewhere, because the one word that defines the MA-200 is personality. Time and time again, I put the mic into varying situations and it shined. What I like most is that when you hit it hard, the MA-200 gives you back some crunch. The plate-loaded tube stage rounds out transients nicely, giving it an almost ribbon-like quality. I know that's counterintuitive—this is a condenser after all—but that's what I heard. The high end is not overly bright and the mids and

lows are well balanced and full.

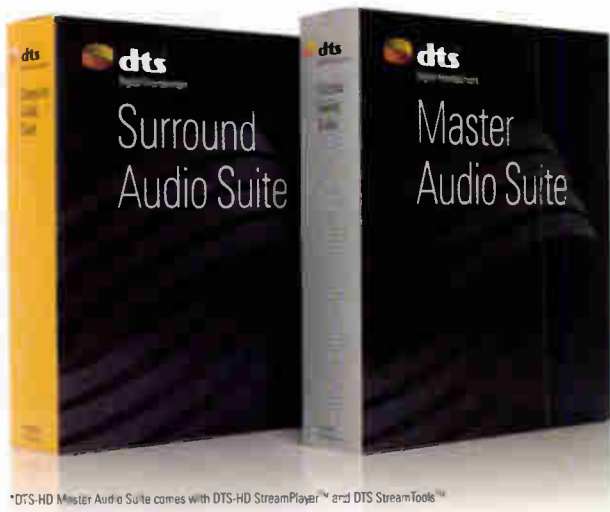
I would never expect a mic at this price range to be a decent vocal mic, but it reproduced the male voice nicely. In this application, with this singer, it was a bit lacking in the bottom end, but a bit of EQ at 100 Hz dressed it right up, making it an easy winner over other mics with the same pedigree. If you've got a kilo-buck to spend and you're looking for a mic, you've got to check out the MA-200.

Mojave Audio, 818/847-0222, www.mojaveaudio.com. ■

Kevin Becka is Mix's technical editor.



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Rupert Neve Portico 5032 Mic Pre/EQ

Latest in Line Offers Flexibility, Sublime Sound

One of the four half-rackspace modules offered in Rupert Neve's expanding Portico Series is the 5032 Mic Pre/EQ. Like all of the Portico gear, the 5032 comes either as a horizontally oriented desktop unit with rubber feet or as a vertically positioned module for mounting in the 5285-RM rack frame. The rack is capable of powering and housing up to eight Portico modules. Converting from a desktop unit to a vertical module is easy: Just swap out the panel and knobs.

A BEAUTY INSIDE AND OUT

This unit's construction and electronic layout are top-notch. The case is steel with a 0.2-inch aluminum plate front panel. The 5032 uses two DC-to-DC converters to generate ± 17.5 VDC power rails and +48V phantom power from the external +12VDC switching power supply (included); this will operate up to two Portico units using a "Y" cord. The 5032 will operate from any external DC voltage from 9 to 18 volts.

Rupert Neve calls the mic pre circuitry a "transformer-like amplifier," and it is identical to the Portico 5012 dual mic pre module. It includes a toroidal LPF to reject common mode signals above 150 kHz; i.e., no interference worries around wireless mics, radio transmitters or cell phones. An exclusive Rupert Neve-designed input transformer follows this stage. The unit's large output transformer (also a Rupert Neve design for the Portico line) has a frequency response out to 160 kHz (-3 dBu).

A positive-feeling, 12-position rotary control sets mic gain from 6 to 66 dB in 6dB steps, while a fine gain pot add/subtracts up to 6 dB for a total of 72dB maximum mic gain. The front panel also includes +48V phantom on/off, polarity invert, a handy output mute button, a balanced line input switch with separate rear panel XLR and an LED level meter that measures from -30 to +22 dBu. But there is no mic attenuation switch because the mic input will handle up to +24 dBu—an engineer can use the mic input for a second line input.

The 5032's front end finishes with a 12dB/octave highpass filter variable from 20 to 250 Hz; a bus switch for sending a pre-mute output signal to future modules in the Portico



Series; and the ear-friendly Silk switch. The Silk switch, via an internal relay, reduces negative feedback in the mic amplifier and adjusts the frequency response by adding second- and third-order harmonic content. The overall effect is both subtle and sublime; I found it most noticeable and desirable on sources rich in harmonic content, such as pianos, acoustic guitars and vocal tracks.

The 3-band equalizer is sweet-sounding and a good choice for recording any source. There is a 6dB/octave low shelf with a fixed 160Hz corner frequency and up to ± 15 dB of adjustment. The 6dB/octave high shelf is switchable between 8 and 16 kHz, with ± 15 dB of range. The midrange is fully parametric with ± 15 dB boost/cut, 80 to 8k Hz sweepable frequency range and adjustable Q from 0.7 to 5 that can exceed 6 dB/octave for surgically precise tone-carving.

ON THE JOB

I recorded a Yamaha FG-312 II acoustic guitar using an AKG C 451 EB, 42 dB of gain on the 5032 and, at the same time, about 40dB gain on a vintage (and no longer available) Neve 1073 mic pre/EQ module, also designed by Rupert Neve. I used a Jensen JT-MB-E mic-splitting transformer to split the mic's output to feed the 5032 and 1073 simultaneously. I used no other signal processing and recorded the audio outputs on two tracks in Pro Tools HD at 96 kHz.

The 1073 sounded similar to the 5032, with the latter being more natural-sounding with more openness and air than the 1073. I liked the sound of both Neve preamps.

When switching in the EQ on the 5032, there is a small change in the sound, even with all controls at 0 dB—it sounded even

better. The 5032's equalizer is smoother than the more aggressive-sounding 1073 EQ. The 5032 was better at carving an acoustic guitar's sound to fit within a big pop music production than the 1073; this is because of the variable Q in the midrange section.

Transients are sharper through the 5032, making a snare drum miked with an AKG D 190E slightly brighter. Again, the 1073 contributed a darker thickness and softer attack that might help a thin snare drum. Recording a high-tenor male vocalist with a vintage Neumann U67 required 44 dB of gain and sounded great. Using the Silk switch gave the effect of smoothing out the top end; "s" sounds became less biting and the preamp became more sensitive to the lower midrange. Boosting +2 dB at 160Hz shelf and +6 dB at 16kHz shelf helped to lessen the typical midrange "honky" quality of the U67.

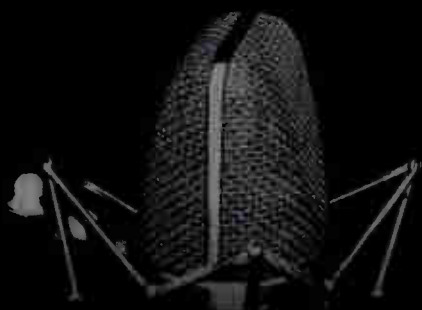
On baritone male vocals, I found the 5032 very clear and precise-sounding. The 1073 had a thicker sound that I would have to thin out later during mix. In other words, the 5032 sounds closer to the source than the 1073.

POSITIVELY PORTI-LICIOUS

The Neve Portico 5032 represents Rupert Neve's current thinking on superb mic preamplification and EQ. At \$1,895 MSRP, it is the best-sounding and most flexibly useful mic pre/EQ combo I've seen, and I can't wait to hear the 8-channel rack with mixer that's coming soon.

Rupert Neve Designs, 516/847-3013, www.rupertneve.com.

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



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Sony Cinescore Soundtrack Software

Professional Tool for License-Free, Made-to-Order Music

Cinescore from Sony Media Software helps both musicians and non-musicians quickly create music, stingers and effects for video and other projects. One way to think of it is as an on-demand music library: Cinescore builds custom tracks based on requirements such as length, mood and instrumentation, unlike a static music library where you have to search for fixed-length tracks that fit the piece or edit longer tracks to time. Cinescore builds custom tracks to match the length of the video or other media you're creating with single parameters, such as genre, tempo and instrumentation.

SETUP AND WORKFLOW

Cinescore will run by itself or as a plug-in with other Sony Media Software products. After installing Cinescore, I first attempted to use it as a plug-in while editing in Sony Vegas. I was greeted with an error message asking me to re-install the application. I downloaded an update from Sony, and on the second attempt, the plug-in launched but issued another warning that it couldn't initialize the Lynx sound card in my system. I found that strange because Vegas was running just fine before I attempted to "Insert Generated Music," the label of the menu pull-down item in Vegas for the Cinescore plug-in. I spent some time troubleshooting the plug-in issue and fired off a few e-mails to Sony, but decided to move on to stand-alone mode. I found that the results were better.

In stand-alone mode, the interface is immediately familiar to users of Vegas and ACID. Cinescore's layout is much simpler because the media elements being worked on in this environment will be much closer to their final form; i.e., a video that needs some music.

The workflow couldn't be much simpler. It's a drag-and-drop environment comprising one video track, three audio tracks, a timeline and basic editing controls. Assuming one of the audio tracks is locked to the video, this gives you two more stereo audio tracks to work with for music and effects. Cinescore also includes volume and pan envelopes for each audio track.

BUILDING A TRACK

Cinescore's musical building blocks are similar to what you would find in a typical loop-based production tool—mainly instrument and phrase samples. However, the process for assembling these building blocks is much different. In a typical loop-based production tool, you mostly have to do everything from scratch, choosing all the samples

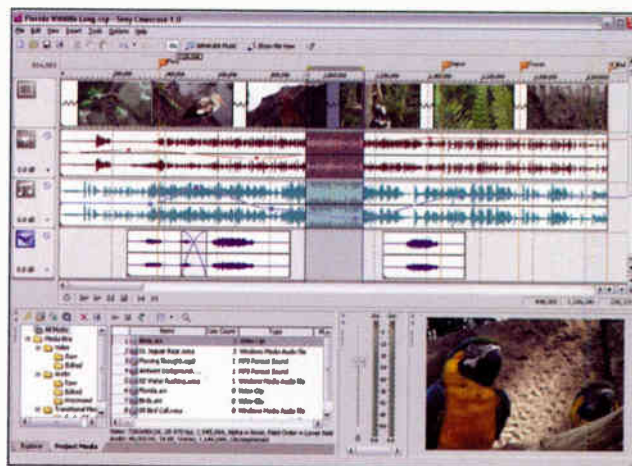
you need to create an intro, middle, close, verses, bridges, chorus, etc. In Cinescore, you define the piece's length, style, instrumentation and tempo, and the software does the rest.

Cinescore automatically creates the intro, verse, chorus, fills, bridges and endings based on the track's length. The track can be further tweaked if you decide you want more or less variation in the structure, mood, tempo and intensity. You can edit the generated piece of music by adding what Sony calls "hints" to make changes to each of the above musical characteristics.

THEME-BASED PRODUCTION

While working in Cinescore, you use themes rather than specific samples. The musical themes are located in folders with helpful descriptions. For example, "High Adrenaline," "Room Full of Tears" and "Night Clubbing" give a pretty clear indication of what each of these themes might sound like. In addition to the Cinescore-bundled themes, Sony plans to offer a variety of other theme packs.

I checked out two additional themes called "Pass the Ring" and "Incredible Vistas." "Pass the Ring" comprises a variety of themes geared toward editing—you guessed it—wedding videos. When I heard that title, the first thing I thought of was



Cinescore's main page offers interactive tutorials, track markers and regions, multiple media types per track, volume and pan envelopes, etc.

The Lord of the Rings, and I imagined some crazy hobbit trance music. "Incredible Vistas" is music that would work for beauty shots of a helicopter ride into the Grand Canyon.

IS IT A SCORE?

The theme packs are going to make or break Cinescore. Like its big brother ACID, Cinescore has plenty of samples and synths for creating electronic music. Where it needs to improve is with better-quality acoustic sounds. Of the two theme packs I used, "Incredible Vistas" was more inspiring than "Pass the Ring."

As a producer for an NBC affiliate, I spent many hours searching the original music and "soundalikes" in my music library, sometimes striking gold, sometimes not. If I had more time, I might make something custom, but that usually wasn't part of the budget. That's one of the reasons a product like Cinescore is so attractive: It's fast, affordable and easy. Overall, I found Cinescore especially useful for making short stings, bumpers, loops and audio transitions for video.

Price: \$174.95.

Sony Media Software, 608/204-7680, www.sonymediasoftware.com. ■

Rick Spence is the owner of AVT Pro, a production company in the Silicon Valley.



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LaChapell Audio Model 992 Tube Preamp

Robust Design With Optional Extended Gain

When inventor Scott LaChapell set out to design the LaChapell Audio Model 992 tube preamplifier, his primary goal was to highlight the sonic character of the rich-sounding 6072 vacuum tube as much as possible. In addition to the two 6072s placed in the input stage for each of the two channels, the company decided to use two 12AU7s in each channel's output stage because of the latter tube's transparency and resistance to overloading. That decision, along with choosing a transformerless mic input topology with very high-input impedance, really put the 6072's sound in the spotlight. LaChapell added Jensen JT-11 output transformers, instrument inputs and a host of other refinements—including breathtaking cosmetic touches—and the dual-channel, all-tube 992 was born.

The downside to using 6072s on the inputs without a transformer was less-than-spectacular gain range. A "standard" 992 (\$3,495 list) provides only about 50 to 53 dB of gain, which may not be enough for some applications. For these types of situations, LaChapell also offers an Extended-Gain 992 (\$3,895) that substitutes four ECC803/12AX7 tubes, along with a Jensen JT-115k input transformer for the Standard model's four 6072s. I chose the standard 992 for review.

PAINTING A PRETTY PICTURE

The 2U, rackmountable 992 is built like a tank and looks gorgeous. The front panel of its highly ventilated chassis has a deep-red, powder-coated finish and identical controls for each channel. Large, matte-gray aluminum knobs serve input and output gain pots. Large, backlit Sifam VU meters show output levels. Sturdy toggle switches activate the following functions independently for each channel: meter on/off, 48-volt phantom power, 20dB pad, polarity reversal and mute. An additional toggle turns on the power. All toggle switches have red LEDs on their tips that light when their associated functions are active.



The reason for the meter on/off switches is to prolong the meters' life—0 VU is calibrated to +4 dBu. The meters use isolation amplifiers to preclude adding inter-modulation distortion to the audio signals. The channel-mute switches prevent speakers from popping when you flip phantom power on or off.

High-impedance instrument inputs on ¼-inch jacks are also accessible from the front. This input stage is placed before that for mic signals and uses a Jensen JT-DB-EPC transformer. It has up to 33 dB of available gain and cannot make use of the 20dB pad. All mic input and line output connections are via rear panel XLRs. A channel's XLR input is automatically shut off by a relay whenever a plug is inserted into its corresponding instrument jack.

TEST POSITIVE

My first test of the 992 was recording a strummed Santa Cruz OM acoustic guitar captured with a spaced pair of DPA 4011 condensers. The sound was stunning: sparkly, rich, big and clear, with a tightly controlled bottom end. Compared to the sound of my Millennia HV-3D preamp, the 992 gave a slightly understated reproduction of low-midrange frequencies that enhanced this instrument's clarity; no EQ was needed.

The 992's subtle low-midrange scoop proved to be inappropriate for a female vocalist who had a natural peak in the 3 to 5kHz range. For her, a darker-sounding preamp was needed. On an electric guitar cabinet miked with a Royer R-122 (and adding an LA-2A to the audio path), the 992 sounded wonderfully full-bodied and brimming with subtle nuances. I also got stellar results using the 992 with an R-122 on large wind chimes and Native American wood flutes.

On a rock session, the 992 was used on snare drum (miked with a Shure SM57) with an SPL Transient Designer TD4 placed downstream. The track had lots of body and sizzle, and a deep bottom end that provided the necessary punch.

The 992 sounded killer on male background vocals. On a particular country song, I needed an especially lush texture from only one backing vocal. A Lawson L251 (in omni mode) routed through the 992 and my LA-2A gave me the colorful, sweet, bigger-than-life sound I was after.

The 992's instrument inputs provided plenty of gain for DI'd Strat and passive electric bass, as long as the trims on my downstream Apogee Rosetta were maxed. Both tracks sounded clear, yet had rich overtones that added interesting character. However, the standard 992 didn't provide enough gain for me to get the bass guitar to burp. For an aggressive, overdriven bass track, the Extended-Gain 992 would probably be a better choice.

CLEAR WINNER

I have just a few gripes: My review unit sported a confusing mirror-image control layout, but LaChapell noted that, as of the next production run, all units would present toggle switches for channel 2 in the same left-to-right order as for channel 1. Titles for the I/O gain knobs will also be moved to more easily viewed positions; my review unit had this screening placed underneath the knobs, where it was hard to read. The 992 is expensive, but its opulent sound, robust build quality and breathtaking cosmetic touches justify the price. This is not just another me-too tube preamp; it's the real deal.

LaChapell Audio, 209/383-3486, www.lachapellaudio.com. ■

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TC Electronic VSS3 Stereo Source Reverb

Natural-Space Ambience Plug-In Based on the System 6000

Although my TC Electronic System 6000 remains one of my favorite audio toys, it's sometimes maxed out in a film mix. Other times, I want to get sounds quickly, and that usually means turning to plug-ins rather than hardware. Either way, the TC Electronic VSS3 Stereo Source Reverb plug-in comes in handy for creating System 6000-style, stereo-sourced reverberation on the fly. Like the System 6000, VSS3 supports sample rates from 44.1 to 96 kHz.

FAMILIAR INTERFACE

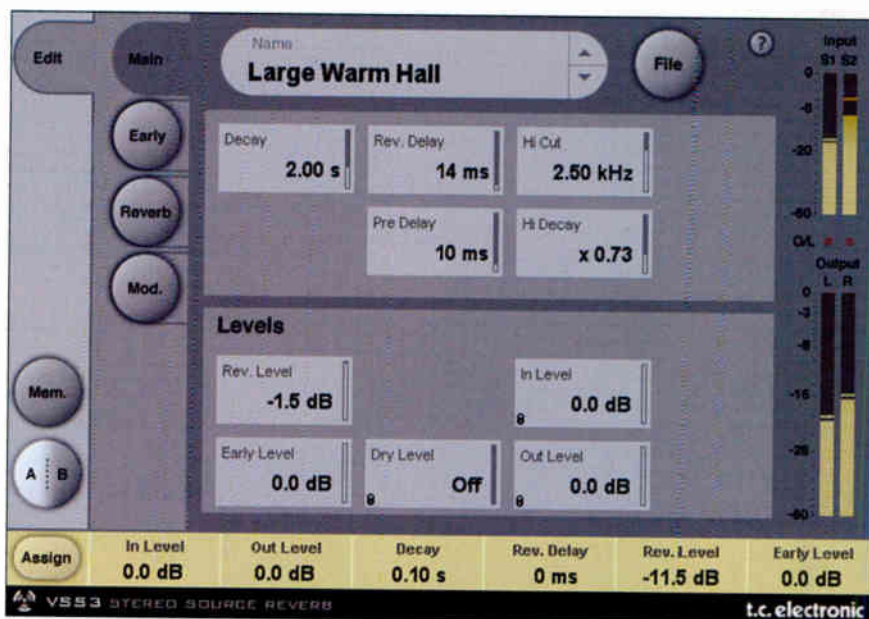
I found the iLok setup to be incredibly quick as I initially installed VSS3 on my Pro Tools Accel rig with Pro Tools HD Version 6.9 (the VSS3's minimum software requirement) on a 2GB Mac G5 with two PowerPC chips running OS 10.4. I later upgraded to Pro Tools HD V. 7.2 and OS 10.4.7.

VSS3 combines algorithms ported from the System 6000 with 38 user-editable parameters, and works with TC Electronic's PowerCore and Digidesign's Pro Tools HD, ICON and VENUE systems. The VSS3 plug-in comprises four pages: Main, Early Reflection, Reverb Tail and Modulation. It ships with more than 200 film and music presets, and if you own a System 6000 (or Reverb 4000), you can quickly import and convert presets with the VSS3's built-in preset converter.

As in the System 6000, the VSS3's user interface incorporates Focus Fields, or context-sensitive groupings of the most important parameters, at the bottom of the window. You can assign any parameter to a Focus Field and save Focus Fields with sessions. It also offers a roll-over Tool Tips feature that you can turn off when it becomes unnecessary.

THE MAIN PAGE

The most important parameters reside on the Main page, and here you'll also find the access to preset management (more later). Parameters include Decay (ranging from 0.1 to 20 seconds, functions as the master decay for the 4-band decay parameters in the Reverb section), Rev Delay (adds time between early reflections and the beginning of the reverb's "diffuse field"),



TC Electronic VSS3 main page, which provides access to preset management and numerous parameters

Pre-Delay (adjusts the time elapsed before the early reflections and diffuse field begin), Hi-Cut (used with Hi-Soften in the Reverb page and Hi-Decay to roll-off the high end of the input to the reverb) and Hi-Decay (controls the decay time for the diffuse field high-end frequencies).

The Main page's lower half shows multiple level controls. Ranges for all levels are -97 dBfs to 0 dBfs, with "off" as an option. Levels include Rev Level (level of the diffuse field), Early Level (early reflections), Dry Level (can be locked so that it is not affected by preset changes), and In and Out Levels. If you see an overload indicating internal distortion in the plug-in, then check the In Level and pull it down.

PARAMETER PAGES

The Early page contains the parameters for early reflections. Here you can set Early Type (spaces and chambers, sometimes fixed for the preset), Early Color (spectral balance in the high-end frequencies), Early Pos (or position, close vs. far for the distance between the source and listening position), Early Size (unless fixed for the preset), Early Lo-Cut (low-cut frequency

for the early reflections) and Early Balance (a pan control that offsets early reflections from the center by attenuating the right or left channel).

The Reverb page comprises two sections, Reverb and Decay/Crossover, with parameters related to the reverb tail. In the Reverb area, you can choose Rev Type (which is hard to describe, but settings include Alive, Fast and other colorful tags), Rev Width (mono to wide), Rev Balance, Lo-Cut, Lo-Damp (works with Lo-Cut to control low frequencies), Hi-Cut, Hi-Soften (scaled and linked to Hi-Cut and Hi-Decay for softening frequencies that tend to make a reverb brittle and unnatural) and Diffuse.

The Decay/Crossover area is a 4-band decay control with three thresholds. Decay controls here are *multipliers* for the main Decay found on the Main page.

With the Reverb and Space Modulation sections on this page, you can either realize your dreams or make a mess in a hurry. If you're comfortable with low-frequency oscillators and know their strengths and pitfalls, then you'll be delighted. Otherwise, stick to the presets at first. The deceptively simple RevMod Type, RevMod

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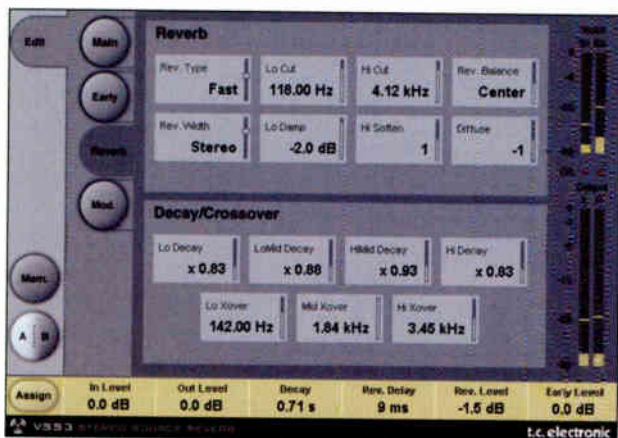
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Rate and RevMod Width can emulate the random response of certain spaces in the real world, or they can take the reverb "out of this world."

Similarly, SpaceMod Type, Rate, Width and Depth can emulate the air movement of a natural room or create a decidedly unnatural room. Again, presets are a good thing to study when opting to vary these parameters.



On the Reverb page, users will find all of the important parameters of the reverb, including setup of the crossover frequencies and decay time multipliers for the individual frequency bands.

MANAGING PRESETS

If most of your System 6000 presets reside inside the unit rather than on a memory card or disk, you will find that easily converting presets happens only *after* you have saved your System 6000 presets. The easiest way to do this is to run the TC Icon software editor on your computer and on the same disk where Pro Tools resides. Although the manual mentions using the System 6000's "Export to File" function, I used the Copy Bank function in the 6000's Library/Bank area to save a user bank to "kktcpreset." This wrote a sys ex file (kktcpreset_S6E.sysx) in the Users/kkscomputer/Documents/TC Icon Data/S6000 Presets folder.

When I switched to Pro Tools, the file was waiting under the File button on the main page in the TC Icon area. I selected it, and it immediately appeared in the "My Presets" pop-up window accessed by the File button. At the same time, it created "kktcpreset_S6E_reg" in the same area as the original sys ex file. It also created a folder named "kktcpreset_S6E" in kkscomputer/Library/Application Support/TC Electronic/VSS3/Presets/0. I believe "0" in this case has to do with the fact that my user bank was "User Engine Bank 1." This is a bit more complex than the manual would suggest, but once you get it working, it is amazingly useful.

IN SOUND DESIGN MODE

I spend a lot of time working on sculpting sounds for picture. Currently, I'm prepping for a short that will include several "other worldly" gunshots, so I've compiled a few multilayered ones. For example, there's a 12-gauge shotgun, plus an explosion with a 57 Magnum and 49 Hz, all stacked with separate envelopes and reverbs. Several of the VSS3's Public Places presets came in handy as starting points for these, especially Long Swimming Pool and Scissorhands Parlor. If I want to create shredding sounds that twist off the initial transient and shatter it into the envelope, then I'll often start with vocal presets that have minimum pre-delay and extrapolate from there. The plates for the VSS3 are especially good for adding that icy shimmer and gloss that work well with modern architectural shots.

The VSS3 is an excellent choice for natural sounds like piano, guitar and voice. It's neither grainy nor harsh, and many parameters in the midrange help to fine-tune the area where human hearing is most acute. I was impressed by the utility of the presets right out of the box and even more impressed by the Focus Fields. Even if you're not familiar with the System 6000, you'll be able to get good sounds quickly. On the main page is an A/B function with a memory switch, allowing for fast comparisons.

Now that I have VSS3 on my system, I find myself creating sounds in stereo with it and relegating the System 6000 to surround mixes and sound design. Clients are impressed by the results and immediate gratification. VSS3 is a great addition to a System 6000 and Pro Tools HD system. If you don't have a System 6000, VSS3 is a top-shelf reverb for Pro Tools HD. With its clear interface and excellent presets, it's a natural.

Price: \$875.

TC Electronic, 818/665-4900, www.tcelectronic.com. ■

K.K. Proffitt is chief audio engineer of JamSync, a Nashville facility specializing in multichannel mixing and DVD authoring.

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like combining a limited stream and an unlimited stream, and doing a little reverb-return combining in the analog summing bus rather than somewhere in the digital stage. I'm finding I can keep things a little bigger-sounding doing it that way and the sound has a little more depth."

THE FUTURE LOOKS BRIGHT

Our featured engineers were both philosophical and optimistic when examining the big picture of the state of mastering.

"What I am trying to do in the mastering process is to create a product that will sound great in most environments, and somewhat consistent from the start of the album to the finish, keeping the sonic integrity of the original mix," says Gastwirt. "I want the client to end up with a final product that resembles the mix that they brought in—very much like putting the icing on a cake."

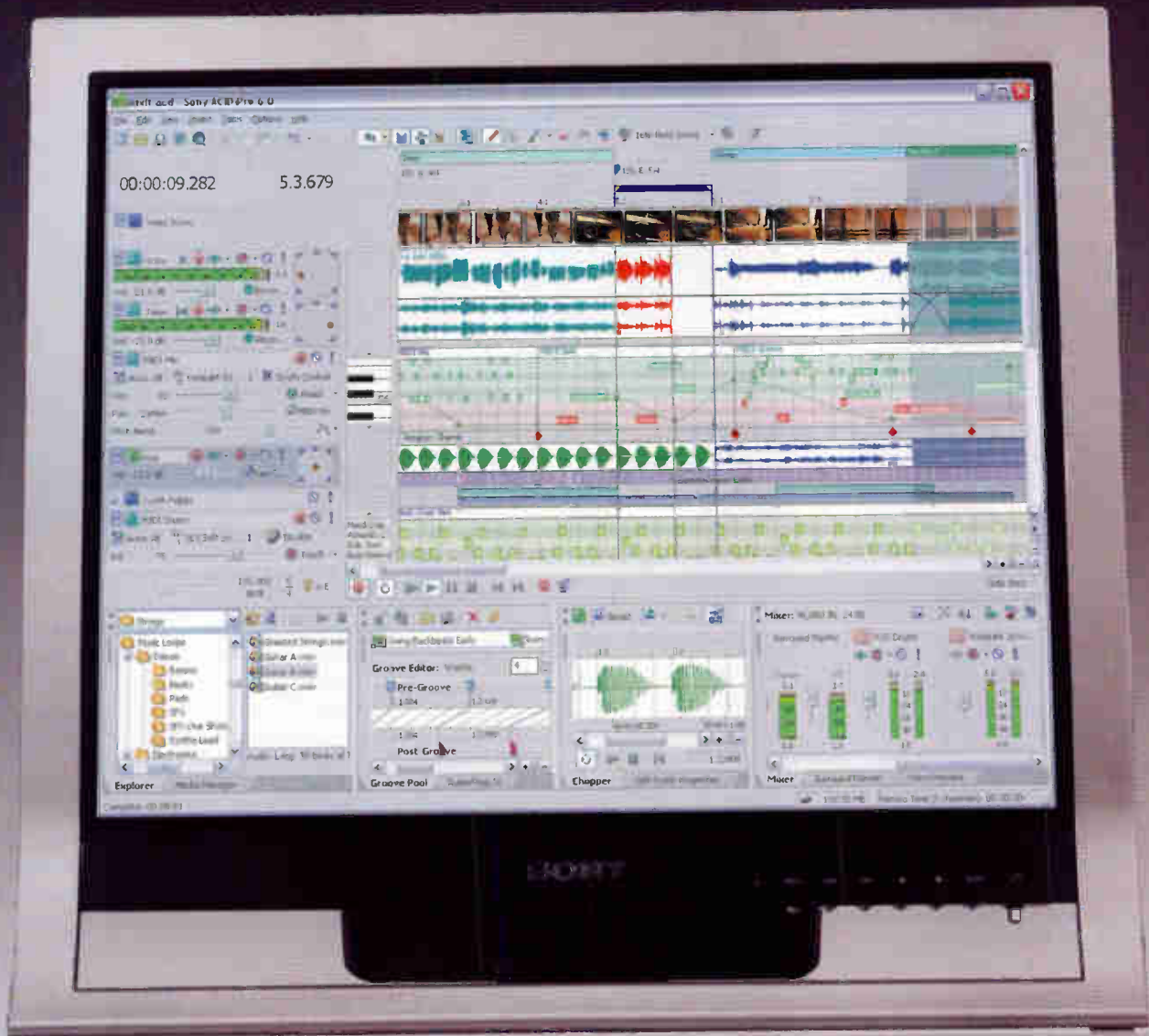
Mendelson is encouraged by the surge in home theater: "We've been doing more surround and stereo audio for video recently, and with more people getting into home theaters and surround, I'm hoping maybe that might be the path back to people actively listening on high-end systems again. Then again, the new video iPods don't require that, so who knows what will happen?"

Douches believes that there is presently a greater general understanding of both recording and mastering, which is good for the entire mastering community. "We don't have to go through and explain what it's all about; they get it. They come in knowing we can make it loud, but now they also want to know how can we make it sound great? The learning curve during that first hour of the session where people are asking all those questions has subsided."

Stubblebine wants to emphasize the importance of everyone in the production chain treating the audio material with utmost care. "Occasionally, I'll have someone bring in a CD and it really sounds crappy, and I say, 'Is that the original mix?' 'No, I put them all in iTunes and sequenced them.' Well, somewhere there was an engineer who should have said, 'This is your listening copy, do whatever you want with it. These are the files, take these to mastering.' Also, preserve everything possible, because once it goes away, we can't get it back. Work in hi-res if possible: work in 24-bit, work at higher sample rates if you can. Keep it at the highest resolution you can get as long as you can." ■

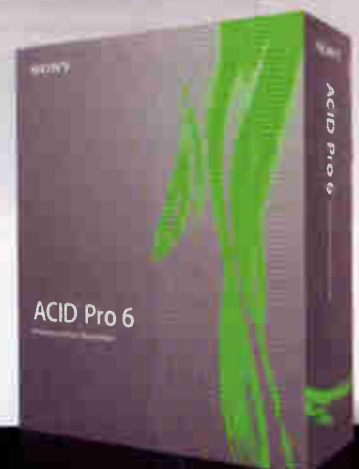
Blair Jackson is a senior editor at Mix.

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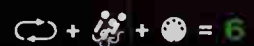
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Steinberg Virtual Bassist, Virtual Guitarist 2

Performance and Groove-Based Instruments for Mac or PC

Steinberg's Virtual Bassist and Virtual Guitarist II plug-ins are useful tools if you've got a musical blueprint in your head, want some inspiration to fill in the details, and you're not the 'perfect' guitar or bass player. Both packages build their functionality not on presequenced MIDI data triggering a sample library, but on real bass and guitar tracks modeled after actual performances. MIDI is used merely to let you quickly choose variations and tailor the performances to your liking.

The instruments are sold separately, but since their approach and operation are nearly identical, both are reviewed here. They're Mac- and PC-compatible, and operate as ReWire capable standalone programs or Audio Units/VST/DXi2 plug-ins. Virtual Bassist uses a little less than 600 megabytes of space on your drive, but Virtual Guitarist II will need nearly 7 GB to accommodate its massive amount of variety. Copy protection is handled by a separately sold dongle, unless you're using Cubase or Nuendo.

STYLES, RIFFS AND FX

I found the nearly identical interfaces easy to use. Three primary pages are selected by clicking tabs near the top of the interface. The Play tab focuses on selecting musical genres and corresponding variations called Styles and Parts. Styles are selected from a list on the interface's right side. This list can be changed to a Part display, where you can choose a specific variation of the Style by clicking or by playing mapped keys on an



Virtual Bassist GUI, showing tone-shaping controls, including dynamics, tone and feel settings



Virtual Guitarist 2 offers 87 styles (partial list on right), including Reggae Chops, Brit Pop and many more.

area of your MIDI controller, referred to as the Remote Range. Another two-octave range of your controller is used to play chords in real time so your virtual musicians know which notes to play.

The second tab—Riff in Virtual Guitarist 2 and Groove Match in Virtual Bassist—tailors any Part to your liking. The editor is laid out like a piano-roll editor. This is perfect for when the bass part's accents aren't quite matching the kick drum.

The FX tab provides a variety of virtual processing capabilities using what looks like a custom pedal board. This includes amp and cabinet emulators, compressors, wah pedal, tremolo and, for the bassist, an octaver. Presets for the effects are selected automatically to suit the type of style you're using, or you can choose your own presets independently. A nice feature is that these virtual effects can be used as a separate plug-in.

GET UP AND GO

Installing and authorizing both programs took about 20 minutes and went off without a hitch. While installing them, I perused the manual and was delighted to find a well-thought-out guide that provided technical details and useful suggestions.

Using Apple Logic Pro 7 as my host software, I brought up a groovin' drum loop. On another track loaded with the Virtual Bassist Audio Units plug-in, I browsed through the roughly 30 Styles available. Using the Listen

button, I was able to audition the various Styles quickly, with great-sounding pre-programmed examples. I found a Style called Slappy that had the feel I was looking for. I was still skeptical about how well things would work over my drum loop with my chords, but I hit Play in Logic and tried playing the chords with my right hand while triggering the various Part variations with my left. Through no fault of the software, this didn't work well; I needed more time to get comfortable with this approach and to memorize the 19 Part and Fill variations. What worked best for me was to play the chords on another track with a basic piano sound. This track became the chord chart from which my virtual players could follow.

I then copied my "chart" to the bass track. This freed me to listen to the Virtual Bassist play the chords while I focused on choosing the various Parts by pressing keys in the remote range. To make it even more lifelike, I turned up the Variance control, which allows for timing randomization. Within minutes, I had an extremely natural-sounding line that grooved hard and, most importantly, did not sound programmed.

The FX tab gave me tools to tweak the bass sound, but for me, some of the most important tone-shaping controls are found back on the Play page. Just like asking the bassist to switch pickups, the left side of the bass interface screen allows you to slide the pickup position closer to the neck or bridge.

There's even a control to model vintage or modern basses. One of my favorite features is the dampening knob, which provides an open or muted sound.

Because Virtual Guitarist 2 works the same way as Virtual Bassist, getting up to speed went much more quickly. Whereas a lot of guitarists tend to specialize in a musical genre, Virtual Guitarist 2 comes with 87 styles, including names such as Reggae Chops, Brit Pop 2, Folk Picking and 12-String Strumming. There are acoustic, electric, and even mandolin and dobro Parts, but because these are played with real players, you cannot use an acoustic guitar style with an electric sound. With almost too many options, I quickly had the Audition button working overtime.

Although it wasn't what I originally had in mind, I stumbled across a great-sounding nylon-string guitar Style called Gypsy Grooves. I decided to see how that might sit in the song, so I copied the original chord sequence from the piano into the nylon guitar track and was instantly impressed. After a quick pass to lay down the Part variations, I was astounded by how quickly the track came together and sounded great. Another great feature is the ability to double the track. Clicking this switch made it sound like there was an actual second pass on the guitar line; this is much more convincing than typical doubling effects.

Although I loved the nylon guitar, literally a click of the mouse in the Style list is all it took to change everything to the clean funk sound I originally had in mind. All of the Part variations I had selected for the nylon guitar translated perfectly to the new electric part. Using a clever Inversion control, I was able to raise the part to a higher register, just like asking a real guitarist to play a different inversion of a chord.

GET YOUR GROOVE ON

Virtual Bassist and Virtual Guitarist 2 are easy to use, and once you learn one, the learning curve when jumping to the other is minimal. Because the collection's sample base is built on real performances, the sounds are easy to pass as the real deal. The doubling effect is great, as is the ability to quickly audition your Part with a different Style or instrument. This collection is great for the pro looking to dress up demos or give an extra edge of real feel to any track.

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Robert Brock is an educator, author, MIDI guru and father of 2-year-old rock star Sebastian Brock.




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American Hardcore director Paul Rachman, left, and writer Steven Blush

American Hardcore

—FROM PAGE 60

mic at these live shows," he explains. "I had about eight channels of sound in the Avid, and I'd just keep my CD or vinyl sources on certain channels, just so I knew where the audio was coming from originally. That way, when I created the OMF, I could tell Robert Fernandez, the mixer at Sound One, what he was dealing with."

Once he'd locked picture for Sundance, Rachman did online using Symphony at Sony Music Studios in New York, and Fernandez then took the eight channels of sound and imported them to Pro Tools. "Again, we kept it simple," he adds. "I told Robert, 'We're dealing with a lot of very raw sounds here. All the formats sound different, and nothing was ever engineered and mastered to any recognized specs. There are no industry standards here at all. So let's preserve that rawness and visceral roar in the final mix.'"

Rachman also stressed the importance of "the sheer volume" of the music. "I'd go to all these punk shows in the early '80s, and they'd be in some weird hall or basement club, where the acoustics were pretty bad and the bands always played at an ear-piercing level," he notes. "It was always so loud and intense, and I felt it was crucial to maintain that in the film. I wanted people in the audience to feel what I'd felt in those clubs—the sheer assault of the music. So I told Robert, 'Keep it loud and try to balance it enough to keep that intensity.'"

Sound editor and re-recording mixer Fernandez, a 16-year veteran at Sound One,

says that he had his work cut out for him: "We only had four days to do the mix, and I had to edit and mix at the same time. It was all done using Pro Tools 6.94 and ProControl, and I set up about six dial-up tracks with a Focusrite compressor on each one as an insert. Then I found settings that would work."

Because of the raw sound and audio problems with a lot of the interview segments, Fernandez relied heavily on the Waves Restoration package. "with a lot of EQ'ing and filtering. As for all the music, I tried to make it all sound as good as I could, so I listened to the first 10 cues and tried to find the best recording quality."

He then went back and matched the rest of the music to those cues, using some outboard gear in a few instances. "There's a great old analog box, the AN2, which I used to make a stereo image out of some of the old mono recordings," Fernandez explains. "There was also a lot of distortion on some tracks, so I used the Waves De-Crackle plug-in, which really helped, and I also used a lot of the C4 plug-in, which is a very nice noise-reduction program. So by using

all those little tricks, I was able to keep the sheer power and raw quality to the audio that Paul had discussed with me."

After his pep talk and during the mix, the director checked in with his sound mixer "a couple of times and gave him minor notes," Rachman remembers. "He was on the right track right away, and it was very simple—although sometimes simpler is harder. He didn't have a lot to work with. There is no layering or effects. There is no ambience. There's not even any crowd footage mixed in to dress it up. It's just pure, simple sound."

For the Sundance cut, Fernandez made an Lt-Rt mix. "It's not a Dolby mix, but basically a stereo mix for film because at Sundance we screened on HDCAM," adds Rachman, "and at Sundance they only play back Lt-Rt off HD. There's no Dolby decoding there."

After the film was well-received at Sundance and got picked up by Sony, the team went back to Studio One and did the final 5.1 Dolby mix, "with hardly any changes to the original mix—maybe two cues," says Rachman.

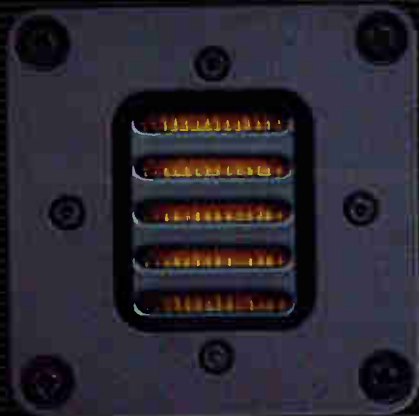
"When I set out to make this film, I wanted to make more than just a rock documentary," Rachman says. "Hardcore punk in America was also a social movement, and so I also wanted to give the music that context. That's why it starts with a minute of newsreel footage from the '80s. All those images take you back to that era, and then the music kicks in and takes no prisoners." ■

Iain Blair is a freelance writer in L.A.

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A flyer for a Bad Brains (guitarist Dr. Know, vocalist H.R., bassist Darryl Aaron Jenifer and drummer Earl Hudson) gig.



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JANET JACKSON

BACK IN CONTROL WITH
DUPRI, JAM AND LEWIS

By Matt Gallagher

As Janet Jackson and her longtime collaborators, star producers Jimmy Jam and Terry Lewis, were recording Jackson's latest release, *20 Y.O.* (Virgin Records), they wanted to celebrate the 20-year milestone of the artist's breakthrough third album, *Control*, which began their association and showed the public that the youngest sibling in the world-famous Jackson family was ready for stardom on her own terms.

Control also served as a declaration of independence for Jam and Lewis. They were up-and-coming studio sensations striking out on their own after hitting the big time under Prince's tutelage as members of Morris Day and The Time. Jam and Lewis spent the mid-'80s honing their production skills in their then-new Flyte Tyme studio in Minneapolis and took Jackson under their wing in 1985, believing that her greatest talents had not yet been tapped.

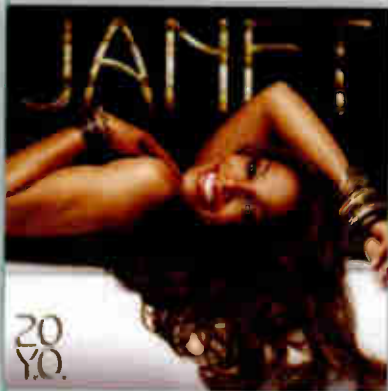
Together, they cultivated an energetic and ultimately classic pop/R&B album—with plenty of attitude—that established Jackson's artistic identity and launched her world tours, and heightened Jam and Lewis' visibility as first-call producers with a Midas touch. *Control* spawned the memorable hits "What Have You Done for Me Lately," "Nasty" and the title track, and was followed by the even more successful and visionary *Rhythm Nation 1814* (1989).

The three continued to produce albums together, expanding on *Rhythm Nation's* successful formula through the 1990s and into the 2000s, releasing *All for You* (2001) and *Damita Jo* (2004). Along the way, Jackson earned Grammy recognition, worked in combination with other songwriters and producers, and received mixed reviews from the critics.

Jam says that after the release of *Damita Jo*, Jackson experienced "sort of a rebirth, a rejuvenation of her passion for music and where she was in life." He notes that production of *20 Y.O.* "felt very much the way the *Control* album felt." *20 Y.O.* acknowledges Jackson's traditional sound while pushing forward with edgier hip hop and dance-oriented beats.

"Janet was ready to make a record," Jam says. "There wasn't a clear direction on what that record was going to be, but she wanted it to be a little more up-tempo [with] more dance songs. The idea was

—CONTINUED ON PAGE 112



STING WITH EDIN KARAMAZOV

POP ICON EXPLORES
ELIZABETHAN LUTE MUSIC

By Heather Johnson

During the course of nine Top 10 solo albums and nearly a dozen Grammys, Sting has proven himself a consummate artist, one who crafts winning pop melodies, pens intelligent lyrics and continually challenges both himself and his listeners by exploring a wide musical spectrum. Jazz, world beat, Celtic, classical and rock 'n' roll have all taken their turn in his sophisticated compositions, which have ranged from romantic to mournful to pure AC pop. All of this, combined with his previous success with The Police, has led Sting (born Gordon Matthew Sumner) to become one of the most celebrated English songwriters of the rock era. Considering his wide range of interests and a few common bonds, it's not a complete surprise that Sting would



resonate with the music of John Dowland, a premier composer, singer and lutenist of the late-16th century. Dowland was a complex man, now regarded as the most celebrated English songwriter of the Elizabethan era.

Born out of a 20-year fascination with Dowland's alternately melancholic and lively songs, Sting recently teamed with renowned Bosnian guitarist/lutenist Edin Karamazov to release *Songs From the Labyrinth* (Deutsche Grammophon), a quiet celebration of Dowland's life and music—traditionally performed, but with subtle 21st-century embellishments.



PHOTO: © VASSILIOVIC

British actor John Bird introduced Sting to Dowland's music in 1982. Sting was intrigued enough to seek out Dowland's work on his own, but at the time, The Police were at their peak, and performing music that was hundreds of years old didn't appeal to the emerging rock star. His next Dowland encounter came more than a decade later, when pianist Katia Labèque suggested that Dowland's songs might suit Sting's tenor. They rehearsed a couple of Dowland's songs, but no serious project ensued.

Many years passed before Dowland reappeared in Sting's life; this time, through his guitarist, Dominic Miller. Miller commissioned a lute, built by Klaus Jacobsen, as a gift for Sting, with an unusual labyrinthine pattern at the center of the fretboard. An experienced guitarist, Sting became equally fascinated and frustrated with the instrument. "[It's] near enough to the guitar to feel familiar, but different enough to really mess with your mind," Sting said in an earlier interview. All the while, Dowland's music haunted him.

Miller also introduced him to Karamazov, one of Europe's most highly regarded classical guitarists and lutenists—or rather, reintroduced him. It turns out the two had met briefly many years before at a circus in Hamburg, Germany, where Karamazov was performing with a trio. Sting and his wife, Trudie, caught a performance and later asked if the trio would play a birthday party they were throwing. Karamazov re-

fused, stating that they were not performing monkeys! "I had just bought my lute and was very serious about practicing," Karamazov recalls during a 4 p.m. "lunch break" between interviews and a TV taping with Sting. "I was never much into Sting's career; I hardly knew his songs but his voice was always there. I was just discovering his music two years ago when we met again."

The two met on better terms two years ago in Frankfurt before one of Sting's concerts. In the liner notes to *Songs From the Labyrinth*, Sting writes that Karamazov removed his archlute from its case and began to play Bach's Toccata and Fugue in A minor. "His performance was delivered with such passion and commitment that Bach's music seemed to wrench us violently from our time to his."

Their backstage conversation naturally turned to Dowland, and Karamazov suggested Sting should learn his songs. He agreed, and they made plans to perform them together. To prepare, the pop celebrity sought direction from vocal teacher Richard Levitt from the Schola Cantorum Basiliensis in Basel, Switzerland. Levitt advised Sting on breathing techniques, how to sing a diphthong properly and other vocal practices particular to Elizabethan singing. Sting also learned how to read tablature and fervently practiced his lute. Despite his 30-plus-year career in modern music, Sting again was a novice.

—CONTINUED ON PAGE 116

THE ROMANTICS' "WHAT I LIKE ABOUT YOU"

By Gary Eskow

Sometimes the rock 'n' roll myth—you know, a group of working-class kids harness their passion for music and use it to escape factory jobs, Popov Vodka and eviction notices—actually comes to pass. Today, when each tossed mane seems market-tested, it may be hard to recall a time when everything about a band was an honest reflection of the environment that spawned them, the territory they were staking out, or both. In fact, by the late 1970s, when a small herd of misfits formed a group in their hometown of Detroit, those days were already numbered. But The Romantics, strongly influenced by both the British Invasion and the hard rock that sprang from the streets of Motor City, were able to summon some coming-of-age magic of their own and contribute to the era's soundtrack with songs like "Talking in Your Sleep," "One in a Million" and this month's "Classic Tracks," "What I Like About You."

Valentine's Day, 1977. You might not remember what you were doing at the time, but Wally Palmar, Jimmy Marinos, Mike Skill and Richie Cole certainly do. They were becoming The Romantics. Skill—who churned out the catchy guitar refrain that's one of the handful of hooks that makes "What I Like About You" as engaging to members of Generation X-plus as it was to the band's contemporaries when it was released in 1979—remembers those days well.

"People always make The Beatles comparison—the shouts, the harmonica solos, the catchy but not virtuoso guitar playing—but we were equally influenced by The Kinks and The Yardbirds," Skill says. "There were a lot of high-end, top-notch guitar players in Detroit at the time who could cover every lick that Jimmy Page recorded for Led Zeppelin. The way we saw it, those guys were overqualified for the sound we were looking to create.

"I played guitar and bass, and Wally was another simple, straight-ahead guitar player. With us, it was more of an attitude. We liked simple guitar chords and fewer solos, more attack and melody in the playing. George Harrison was definitely an influence in that way, but so was Chuck Berry."

Their first recording was a single—both sides penned by the group—that The Romantics leveraged into an East Coast tour. As they built a following, the band drew mostly positive notices from the press, who shepherded them into the burgeoning "new wave" category they were never completely comfortable with. After signing a contract with CBS offshoot Nemperor Records, The Romantics headed down to Miami to record their eponymously titled debut album.

"Everyone wanted to record in Criteria at the time, but we couldn't get in there," Skill says. "I don't remember who had it locked out. We were really excited about the record, though. We'd done pre-production for a month in Detroit and were ready to go. Peter Solley, who was working out of Australia,



produced that album. We wanted to have the pop edge covered and felt that Peter, who orchestrated television commercials and was a good piano player, could help us refine our harmonies. Growing up with the music of Detroit—The MC5 and Bob Seger, among others—in our ears, we had the raw side, the high-energy attack down. We knew that Peter could add something to the arrangements and make sure that the melodies and harmonies were right.

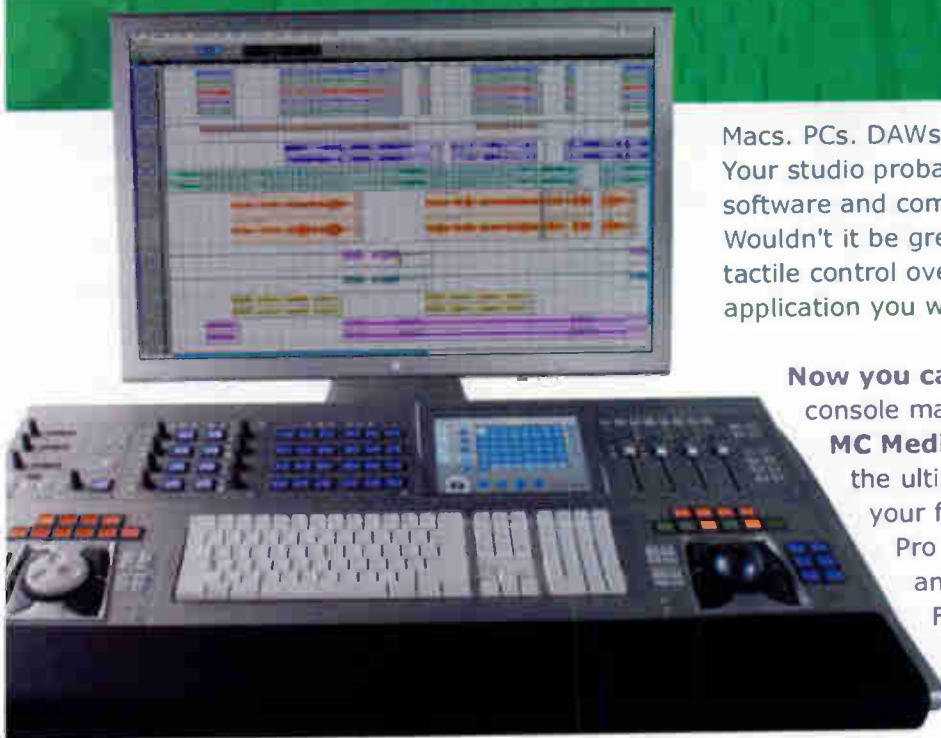
"'What I Like About You' was an idea that we developed as a band. I came up with the guitar part," Skill continues. "We usually wrote songs using just three or four chords in a sparse, straight-ahead, MC5 way. I wanted a guitar hook that was along the lines of [Van Morrison/Them's] 'Gloria' or [The Kingsmen's] 'Louie, Louie.' I could always come up with something when Jimmy was playing the drums. We grew up together and started the group. Jimmy also sang the lead vocal on 'What I Like About You.'

"We wanted to convey the simplicity of '50s music and also throw in the influence of The Animals, The Beatles and the Stones. We were one of the first bands [of the new wave era]—along with Tom Petty—to use Rickenbacker and Gretsch guitars over here. When we got signed, we switched to Hiwatt amplifiers, which have a sound that's similar to Fenders.

"After we developed the groove and I added the guitar intro, Jimmy came up with some lyrics. I wanted to add a few 'Heys!' along the lines of The MC5, and as The Yardbirds had done in 'Over, Under, Sideways, Down.' I also liked the way Chuck Berry used 'Uh, huh!' in 'Back in the U.S.A.,' so we threw that in there, as well.

"By the time we went into Coconuts—the Miami Beach studio we booked when we couldn't get into Criteria—we were ready to go. The entire album took about six weeks to track and mix. Studios were much simpler in 1979. Coconuts had an MCI board, an MCI 16-track recorder, the usual Neumann microphones and a few reverb units. We eventu-

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ally did work at Criteria when we recorded 'Talking in Your Sleep' several years later, and they had a similar setup.

"We tracked the band together, with Steve Brown at the board, in a large room. We all used 4x12, 100-watt Hiwatt amps, including our bass player. The drums were set up on a platform, and I remember that we made a drum booth out of 4x8 panels using gaffer tape to hold them together. Jimmy had to climb in and out to get to his drum set, but the sound was great.

"I was influenced by Pete Townshend, and since I only heard one guitar on Who records, I didn't want to record any overdubs. I tracked with a John Lennon Rickenbacker, and the sound was thin so we tripled it. Before we knew it, the album was out and 'What I Like About You' was a huge hit."

Brown was mixing an album by the new British rock band Vibration White Finger when he took some time to reminisce about The Romantics. "I was engineering quite a lot of cool stuff in London at the time, mainly guitar bands, which got me noticed," Brown remembers. "One day, I received a call from the newly recruited Romantics producer Pete Solley, who wanted me to fly to Miami to record and work on their first album.

"The guys were a great deal of fun to work with and had a great sense of verve, style, commercialism and professionalism," he continues. "Coconuts was run by Shirley Kaye. As per usual, the whole band was stuck in the same room with the drums separated by a custom-built Plexiglas booth, as Mike described. I think Wally did guide vocals, although Jimmy did the finals. We recorded into an MCI desk. Not a great deal of overdub work on this one, if I remember rightly—the mix was pretty straightforward. We used compression, of course, and pushed as much level onto 30 ips quarter-inch tape as possible. 'What I Like About You' stood out as being a hit instantly."

After The Romantics project, Brown went on to produce some very pop projects before returning to harder-edged bands. "I was offered the job of producing the British band ABC," he says, "and this attracted the attention of George Michael, who asked me to produce the first Wham! album, which hit the British album charts at Number Two and stayed there for quite a while. That record went on to be very successful worldwide, and for a very long time, it kept me from working with my beloved guitar bands. I took a short break to record and then dis-

covered a band called the Southern Death Cult. We changed their name to The Cult, released 'She Sells Sanctuary,' recorded the *Love* album and—bingo—I was back in the band market again."

Although the members of The Romantics are spread across the country now—Skill moved to Portland in 1997 so that his wife, a dancer who was working with The Tubes when they met, could be closer to her family—the group still comes together to make records and tour. "We do 250 to 300 shows a year," says Skill. "Stevie Van Zandt has a new label that we're working with, and we're also traveling with his Underground Garage tour."

Skill has a Pro Tools studio in his home that he uses to develop new material. He's also a parent who shoulders the responsibilities that come with that gig. But given the magic they were able to capture, and the evidence of the continuing spell of "What I Like About You," which has been used in numerous commercials, soundtracks and, for four years, a television show of the same name on the WB network, it's easy for The Romantics to shed a quarter-century and travel back to a time when a three-chord song catapulted them out of Detroit and into the hearts of millions of rock 'n' roll fans. ■

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JANET JACKSON

FROM PAGE 106

to listen to tracks from different hip hop producers, try to marry some of the hip hop beats, write songs to them and then record them."

Virgin Records charged the president of its urban-music department, Jermaine Dupri—the hit-making hip hop/R&B producer/songwriter who founded Atlanta's premier urban-music record label, So So Def Records, and whose credits include projects for Mariah Carey, Alicia Keys, Usher and many more—with overseeing Jackson's new album project as its executive producer.

"I think the last album [*Damita Jo*] didn't have enough Jimmy and Terry on it," Dupri says. "I was talking to them about things that I listened to them do that I wanted them to bring back for this record." The artist and producers understood that while Jackson's fans harbor certain expectations from her body of work, her new music must also compete for attention alongside today's urban hits. "With an artist like Janet, it's hard to make her records because the fans are really serious—they don't want you to mess with their artist," Dupri says. "So it's hard to address the fans and address today's music, but I think we figured it out."

Songwriting and pre-production commenced in February 2005 at The Village (West Los Angeles), where Jam and Lewis held court while awaiting completion of their new Flyte Tyme Productions facility in nearby Santa Monica. They also visited Hit Factory's Miami location and Dupri's South-Side Studios in Atlanta. "Even though the mandate at that point in time was to try to come up with up-tempo songs," Jam says, "we kept coming up with ballads and mid-tempo songs." The project then returned to The Village. "We recorded about 30 songs that we finished, and probably another 10 or 15 that got pushed aside."

Dupri then decided that he ought to become directly involved with the songwriting and production to realize his original idea. "I was hearing people [say], 'Jermaine, it's crazy how you're not going to be part of this record,'" Dupri recalls. "Then I called Jimmy and Terry, and told them, 'Let's reconstruct the project and create this album together.' It was almost like a start-over process."

20 Y.O. marks Dupri's first artistic collaboration with Jackson, Jam and Lewis. In Jam's words, it was a "convergence of creativity" among the producers that melded Jam and Lewis' distinctively funky grooves and lush orchestrations with Dupri's

earthier, stripped-down style that features heavier, more aggressive beats.

The producers turned to their own trusted circles of songwriters and musicians, who further influenced the album's direction. Jam and Lewis included keyboardist/programmers Bobby Ross Avila and Issiah "IZ" Avila (aka The Avila Brothers), and guitarist Paul Jackson Jr. while Dupri incorporated his top collaborators from Atlanta: Johnta Austin, L-Roc and Manuel Seal Jr. He also invited Nelly to sing with Jackson on the album's first single, "Call on



PHOTO: LIONEL DELUY

Executive producer for Jackson's latest, Jermaine Dupri

Me." Technically, the producers relied upon their veteran recording engineers to capture each session: Los Angeles-based Ian Cross for Jam and Lewis, and Atlanta-based John Horesco IV for Dupri.

As construction continued on Flyte Tyme, the entire group rented the two rooms in Studio Atlantis in Hollywood so they could all work together. Jam and Lewis set up shop in Studio A, which has an SSL 9080 J Series console and a Pro Tools HD3 system, while Dupri and his crew occupied Studio C, with its Yamaha 02R96 (which they used only for monitoring) and Pro Tools HD2 system. The parties also moved some of their most essential gear into the rooms.

The rooms are connected by a hallway, which enabled Jackson and the producers to visit each other's sessions and the engineers to exchange Pro Tools files on CDs, DVDs and hard drives. According to Dupri, "I would create music and come up with songs, and then Jam and Lewis would cut

the vocals and add more instrumentation to what I did."

"He's always looking for new sounds, and he doesn't deal with sample CDs," Horesco says. "Jermaine is more interested in a vibe than in absolute perfection. What fits the song is what's more important. It makes it a little bit more real."

Dupri's primary songwriting tool is a 1991 model Akai MPC60II sampling drum machine, the unit he used to teach himself to produce music. "He's blazing-fast on the MPC," Horesco says. "I've seen him create whole new melody lines." Dupri often samples patches from his synth modules and soft synths into the MPC; these include a Clavia Nord Rack 3, E-mu Vintage Keys Plus, Korg MS2000 and Triton, Moog Music Voyager, Roland Fantom-XR, Yamaha Motif and more. Dupri also uses iTunes to research and download songs, and a Pioneer CDJ-1000 as a turntable instrument that also stores songs and samples. He plays back vintage vinyl breakbeat records from the '80s on a Technics turntable.

In keeping with tradition, Jam produced all of Jackson's vocal sessions. With *20 Y.O.*, however, he had to find a way to enable Jackson's typically breathy and percussive vocals to sit comfortably in the mix with harder, heavier drum and bass patterns. "We want Janet to be heard, but she's a very rhythmic vocalist, so her vocals almost become part of the percussiveness of the track," Jam says. "You don't want her too far in front because you obviously want the track to hit hard and you don't want her to be buried."

Cross notes that he rarely compresses or equalizes Jackson's vocals, and that he hit upon a winning signal chain for *20 Y.O.*: the Brauner VM1 KHE (Klaus Heyne Edition) tube condenser mic through a Chandler Limited TG Channel mic preamp and equalizer. "We wanted that big, open vocal sound," Cross says. "She liked that the top end of the Brauner was clear and hyped in the way that her voice would be normally EQ'd. The VM1 also has a huge dynamic range, so there's a little bit of roll-off that needs to happen so it doesn't compete with those kick drums. The Chandler has a nice bit of punch to it, too."

"Usually, the vocals for each song take a couple of days," Jam adds. "We'll do all or most of the backgrounds in one day because Janet does all of her own backgrounds. That usually involves 30-some tracks of vocals. To me, Janet is a singer you sing along with, much in the way I think of her as a parallel to Diana Ross. I think Janet possesses that same quality, so we always wanted her to

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do her own backgrounds."

"On the next day, Jimmy cuts the leads and then he comps them," Cross says. "Jimmy is really a master of comping vocals. Even though we're working in Pro Tools, he comps vocals the old-fashioned way, where I actually set him up and I bus all the vocals to a track, and then he punches in all the parts. He listens to every breath and every vowel of every track and picks the ones he likes."

Cross adds that Jackson's vocals require little processing after the fact. "We're getting plenty of aggressiveness and spit from the microphones," he says. He used Waves' IR Parametric Convolution Reverb, Renaissance Compressor and Renaissance EQ on the vocals. "They do what you need them to do without really mashing up the sound in that digital way." He also used "a little bit of [Metric Halo] Channel Strip 2 every once in a while to help bring out that SSL sound."

In February 2006, three of the five rooms in Jam and Lewis' new Flyte Tyme Productions facility—each equipped with SSL AWS 900 consoles, Pro Tools HD systems and Apogee converters—finally opened. The last tracking sessions, as well

as some mixing sessions, took place there. Flyte Tyme engineer Matt Marrin joined the production team for those tracking dates. Jam notes that Jackson was instantly comfortable at Flyte Tyme and delivered inspired performances.

Atlanta-based engineer Phil Tan mixed *20 Y.O.* in Flyte Tyme, SouthSide and his own studio, Soap Box. "Because of the nature of this project and having to do a lot of recalls and revisits to the mixes, I pretty much stayed in the box the whole time," Tan says. "Everything became audio and got imported into a Pro Tools session." Tan used a range of plug-ins from Bomb Factory, Waves, McDSP, Unique Recording Software and SoundToys. "I'm not one of those guys who thinks too much about what I use," he says. "I'll use whatever works, and if I can't find it in software form, then I'll go [to] hardware and just bring everything back and print it as audio."

Tan sometimes determined the nuances in his mixes by referring to Jackson's previous albums. "She is an established artist and has a history of sounding a certain way," Tam continues. "So that signature still has to be there in some form. For me, it was a matter of sometimes taking a break and

listening to some of their older records to be able to establish a reference. For example, back in '86, [Jam and Lewis] used this predelayed reverb on the handclaps, and we did that on a couple of songs to give it that same feel where people would be reminded about how certain things sounded back then."

Jam credits engineer Steve Hodge with helping to shape Jackson's essential sound. "We took a lot of our EQ ideas from what Steve Hodge did on all the Janet albums that he mixed," Jam says. "We kept all of those notes, and it's one of those things that works."

Perhaps the most notable aspect of the production of *20 Y.O.* is the manner in which a superstar artist, three superproducers with distinct styles and experienced teams of engineers and contributors successfully collaborated to achieve a common goal. "It was a very democratic process, and we fought for the things that we were passionate about," Jam says. "There wasn't any ego involved. Terry and I always say the best idea wins. I think that the public will judge whether it works musically, but I can certainly say that on a personal level, it worked very well. I wouldn't hesitate to work together again." ■

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STING WITH EDIN KARAMAZOV

FROM PAGE 107

When Sting and Karamazov met at Sting's home in Il Palagio, Italy, to rehearse Dowland's work, they played purely for pleasure, never intending to record an album. "I wanted to learn these songs, and out of curiosity we just kept going," Sting said. During four separate visits, the unlikely duo immersed themselves in Dowland's work, Karamazov patiently guiding his famous apprentice, who closely listened, learned and soon became familiar enough with the material to contribute his own arrangement ideas.

During the fourth meeting, Sting brought forth a letter Dowland had written to Sir Robert Cecil, Queen Elizabeth I's secretary of state at the time. When Sting decided to read excerpts of the letter—a tome that reveals much about Dowland's life and career—they realized they were building an album. After that point, they recorded everything.

Donal Hodgson, Sting's engineer since 2001, recorded what would become *Songs From the Labyrinth* mostly at Sting's Tuscan home, using his fully portable studio, Steerpike. The completely flight-cased operation comprises an SSL 4000 G Series console with Ultimotion, a 64 I/O Pro Tools HD4 Accel workstation with Version 7.2 software, and an ample assortment of plug-ins, mic pre's, digital effects, mics and monitors. For 14 months, Steerpike remained parked in Italy in Sting's spacious two-room studio (a control room and live room, with a separate space for flight case storage) overlooking the Tuscan countryside, a working farm and a nearby chapel.

The duo initially planned to record live in that chapel to evoke a traditional Dowland performance; however, the old chapel had soundproofing issues, which resulted in cicadas and farm tractors humming in the background. "I said, 'Well, let's just try it in the studio,'" Hodgson says. "We got the most intimate vocal sound that way. Sting is so used to being in the studio from the pop world, so he was much happier."

To record Sting's vocals, Hodgson employed the one-two punch of a BLUE Bottle 9612 microphone and Manley SLAM! stereo limiter/mic pre. He recorded straight into Pro Tools using Prism ADA-8 converters, and used a UREI 1176 when monitoring Sting's voice. Throughout the recording process, the veteran engineer listened through his own ATC T16s.

Hodgson miked Karamazov's delicate lute with two DPA 4006s in A/B stereo placement, positioned about a meter and a half off the ground and tilted at a 30-degree angle. He then placed a Neumann U87 on the sound hole and an AKG 414 at the 12th fret. The DPAs ran into a Focusrite ISA428 4-channel mic pre, and then into a UREI 1178 to Pro Tools. The U87 ran into a Focusrite 439 Producer Pack, and the AKG went into a Focusrite ISA220 and then into Pro Tools. "I wasn't trying to enhance anything," says Hodgson. "I wanted a cleaner, more natural sound that was totally representative of the music being played."



Sting's engineer, Donal Hodgson, recorded mostly at the artist's home.

Hodgson discovered that the lute could have easily sounded *too* natural. "The lute is a very quiet instrument," says Hodgson. "When it's played properly, it sounds beautiful, but recording it and making it sound clean at the pop level is quite challenging. As soon as you turn up the gain, you turn up the noise floor. You can't compress. The frets are made of sheep's gut—they're pieces of twine, really. It moves and it creaks and it makes its own sounds, and the frets move and make funny noises. You try to get rid of some of that, but it's difficult when there's nothing to disguise it."

Separated by booths built from Taytrix StackIt gobos, with Plexiglas windows to maintain full visibility, the vocalist and lutenist could perform naturally together with minimal bleed. The challenge, Hodgson discovered, was to capture the lute's inherent nuances while downplaying Karamazov's. "Part of Edin's sound is his breathing," says Hodgson. "As good as that is, I was trying to avoid recording it because it overtook the sound of the lute. With so many tracks at our disposal, I would take as many as I could and then hit the Mute button."

Karamazov agrees that he gives himself fully to the performance, whether onstage or in the studio. "When I record, it's giving everything to the microphone—as if I'm seducing the mic. Then I feel more comfortable. You could hear everything, which is good, because that's what I hear when I'm close to the instrument."

Nearly all of the album's 23 tracks were recorded live, with Sting and Karamazov playing together. Occasionally, they would run through a song a few times and Hodgson would edit together the best parts. Sometimes the team would then challenge each other by saying, "All right, let's try and better that in one take." Sting overdubbed his lute parts for the duet "My Lord Willoughby's Welcome Home," and later added four-part harmonies to three songs. "I really enjoyed singing in my own choir, if you like," Sting said in an earlier interview. "Edin helped me a great deal in reading some of the counterpoint because it was quite different, some of it. I think it gives a different color to the record, a sense of relief in that there's the lute and suddenly a choir appears at pertinent moments."

When Sting recited excerpts from Dowland's letter, they brought in Kipper Eldridge, Sting's keyboardist and frequent co-producer, to add some moody synth parts in the background, which gives the tracks a modern edge.

Hodgson mixed the majority of the album at Steerpike, and then took the project to Metropolis Studios in London to add Sting's harmony parts and mix a couple tracks. Working in Studio B, which offers an SSL 4064 identical to Steerpike's, Hodgson used only a subtle amount of the board's EQ and compression, and a touch of Alan Smart C2 compressor on the stereo mix before giving it to Metropolis' Ian Cooper for mastering.

Sting's tribute to one of Europe's first traveling pop stars, if you will, may take fans of his full-blown pop productions by surprise. At the same time, the care with which he treats Dowland's words, combined with Karamazov's commanding performance, may also win the approval of the classical community.

"It's wonderful to share this music with someone who feels the same as you," says Karamazov. "I always try to stay as humble as I can and be honest with the music—to keep the fascination I had the first time. And so does Sting. Working together, looking to each other and seeing the music develop was just a wonderful experience." ■



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World Radio History

Weather Report

Forecast: Tomorrow
(Columbia/Legacy)

Jazz/rock/world music fusion pioneers Weather Report were so forward-looking in their approach and sound that 35 years after their debut album, and more than 20 years after they disbanded, they still seem remarkably fresh and innovative. This long-overdue career-spanning box set treats the group with both respect and affection. The three CDs chart the band's course from the year before keyboardist Joe Zawinul and saxophonist Wayne Shorter started the group (including selections from a Shorter solo LP, Zawinul's tenure with Cannonball Adderley and their stint together in Miles Davis' group), up through their final album in 1985. At least one, and usually more tunes from each of their regular releases, are included, plus a few treats: an exciting 13-minute live version of "Nubian Sundance" from 1974; a fine, previously unreleased take of Zawinul's "Directions" from a 1971 session; and a solid contemporary remix of "125th Street Congress" by DJ Logic. The set is careful to give nearly equal consideration to all the group's different phases, and though the period with bass phenom Jaco Pastorius and drummer Peter Erskine was their commercial apex, each lineup was stellar in its own way. Passionate fans will no doubt complain about certain omissions (No "Jungle Book"? Where's "Volcano for Hire"?), but mostly they've gotten it right. And perhaps best of all is the inclusion of a full two-hour DVD of a concert from Offenbach, Germany, in 1978, with the Pastorius/Erskine lineup in full flower, captured in magnificent audio and crystal-clear video. There will never be another band like Weather Report!

Producers: Bob Belden, Wayne Shorter, Joe Zawinul. Many different engineers and studios. Mastering: Mark Wilder, Maria Triana, Woody Pornpitakuk/Sony N.Y.

—Blair Jackson



Switchfoot

Oh, Gravity!
(Columbia Records)

I have to admit, I was shocked to read that Switchfoot's latest release is actually their sixth studio album—seems like only yesterday I first saw them performing their melodic hard rock/punk-tinged material onstage. The band hasn't swayed much from its signature sound, yet has ramped up its rock leanings: vocal inflections reminiscent of Foo Fighters, lyrics that scream and punch out of the somewhat dreary landscape of guitar lines, and a much-needed tighter drum track. Some of this can probably be attributed to working with producer Tim Palmer (The Cure, Pearl Jam, Mother Love Bone and U2) for the first time. Intrigued? Though this fabulous album doesn't drop until December 26, you can whet your appetite with a free digital download of "Dirty Second Hands," now available on the band's site and any of your fave digital music stores.

Producers: Tim Palmer, Switchfoot. Executive producer: Steve Lillywhite. Studio: Big Fish Recording (Encinitas, Calif.).

—Sarah Benzuly



Various Artists

Friends of Old Time Music: The Folk Arrival 1961-1965
(Smithsonian Folkways)

Friends of Old Time Music was the simple name of some American folk-music champions who staged a series of concerts in New York City in the early 1960s. Dozens of influential blues, mountain music, country and bluegrass musicians performed. For Doc Watson, Mississippi John Hurt and others, FOTM arranged concert debuts. Established artists, such as Mother Maybelle Carter and Bill Monroe, exposed the East Coast crowd to songs of the rural South. This year, Smithsonian Folkways has released a three-CD box of FOTM performances, respectfully restored and accompanied by extensive liner notes that include Alan Lomax's artist photos. In addition to serving as a historical document, this set is packed with stellar roots music.

Producer/recording/mastering engineer: Peter K. Siegel (exceptions noted in booklet). Mastering studio: Henry Street Folklore Studio (New York City).

—Barbara Schultz



World Party

Dumbing Up
(Seaview)

This is the best World Party album since *Egyptology* in 1997.

Guiding light Karl Wallinger has lost none of his knack for writing catchy pop, rock and soul-inflected tunes that get into your head and stay there. He wears some of his influences (The Beatles, the Rolling Stones) on his sleeve, but he's always playful about it, and he certainly has his own sound, too. A few of these songs are clearly in the tradition of World Party's classic *Goodbye Jumbo* album; others continue to break into new and interesting areas, as on the searing closer, "Always on My Mind." A fantastic bonus DVD offers more than a dozen strange and wonderful music videos and acts as a sort of *World Party Greatest Hits* album at the same time, from "Ship of Fools" to the present. Very cool indeed!

Producer/engineer: Karl Wallinger. Studios: Seaview (London), and on location in Antigua and St. Paul de Vence, France. Mastering: Tim Young/Metropolis (London).

—Blair Jackson



Darol Anger's Republic of Strings

Generation Nation
(Compass)

One of the founders of the eclectic "new acoustic" music movement with David Grisman 30 years ago (and as part of the Turtle Island String Quartet later), violinist/mandolinist Anger has never stopped making strong, vital music. His current group includes the acclaimed guitarist Scott Nygaard and various others on string bass, cello, fiddle and more, and they cover typically broad stylistic terrain, from old-time fiddle music to jazz to rock and soul, sometimes including vocals. You might not think that versions of Aretha Franklin's "Chain of Fools" and Buffalo Springfield's "Bluebird" would sit comfortably with tunes by the Swedish group Vasen, The Yellowjackets and Ornette Coleman, but you'd be wrong. The Republic of Strings pulls it off and makes it all feel completely natural. A wonderful disc.

Produced, recorded and mixed by Darol Anger at Fiddlistics (Oakland, Calif.). Mastering: Dave Sinko/Nashville.

—Blair Jackson




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L.A. GRAPEVINE

by Bud Scoppa

No matter where one stands on the controversy surrounding the hit album *Ray Sings, Basie Swings*, which marries vocals from a 1973 Ray Charles live performance with newly arranged and recorded charts by the Count Basie Orchestra, there's no questioning the technical and musical wizardry that went into its creation.

When *Genius Loves Company* producer John Burk came up with the concept after discovering the now-famous tape box misleadingly marked "Ray Charles/Count

Basie" be a five-month project involved bringing in sax player Tom Scott and pianist Shelly Berg to retool the uneven arrangements that Charles' big band had played on the tapes. When the updated charts were ready, Field brought Basie's 17-piece band into the big room at Conway Recording Studios (L.A.), with engineer Don Murray at the board.

"The first challenge," Field says, "was how were we going to get the band to play with these tapes? If I were using studio musicians, I could have put a variable click on Ray and have them play along, but Basie's band is a different animal. Instead, I played them the tapes so that they knew what his vibe was, then had them put on headphones and play along, just to see how the parts worked with Ray's vocals. I turned off the tape, and we already knew the median tempos, so I'd count it off and have them play it unencumbered by having to follow anything."

After three days of sessions, Field had big band recordings of the 12 tracks they'd be tackling. The next, even trickier step was to replace Charles' piano. After working up verbatim transcriptions of the parts, Berg and fellow pianist Jim Cox divvied up the songs and started playing with the aim of not just hitting the notes, but also replicating Charles' feel. "It was a huge challenge for these guys," Field acknowledges, "but when they got it right, it sounded *exactly* like Ray was playing." Field did the recording in MIDI so that he'd be able to make the needed minute adjustments.

For the third and final stage of recording—re-creating The Raelettes' backing vocals—Field turned to a very willing Patti Austin, who grabbed the five singers best equipped for the task and then contemporized the arrangements. These parts were laid down at Capitol Studio B, with Bill Smith engineering.

Field and Murray then headed to G Studio Digital, the producer's Studio City, Calif., facility, and using Pro Tools 24/96,

—CONTINUED ON PAGE 124

NASHVILLE SKYLINE

by Rick Clark

Recently, I was at a pub called Bosco's in Nashville's Hillsboro Village area with Neal Cappellino, a friend who is also a highly regarded engineer (Joan Osborne, Mindy Smith, Vince Gill). We talked about the balance of our work and our personal lives, and it dawned on me I could probably fill a book with input from engineers, producers and others in the local industry on this topic.

We devote so much energy to our studios, gear and productions to serve this potentially transcendent thing called music, yet it is so easy to neglect to nurture the very priceless human relationships and experiences that inspire some of the greatest music.

Ever since I first rolled into Nashville, I've heard people in the music industry say, "It's a great place to raise a family," or, "The quality of life here is so much better than L.A. or New York." I've also heard Nashville called "L.A. with religion," but I can attest to the fact that Nashville is a great place to raise a family and enjoy a good quality of life. I also believe that no matter where you live, you're who you are, and in our line of work, it is just as easy to be consumed by the cave culture of studio life in Nashville as it is anywhere else.

"It seems to me that mainstream country really does understand the needs of personal life and family more than other genres," says Cappellino. "Any time when I do mainstream country, I'm usually home at a reasonable hour, because most of the people are in the same situation and they respect it. Frank Rogers [Brad Paisley, Daryl Worley] is a producer I work with all the time. He's got two kids and he's got to get home, so he structures his day in a way so those gigs will honor that. Since he is the producer, he makes that call, which I appreciate."

However, plenty of other sessions fall into the trap of being all-consuming. "We love music and we care, no matter what kind of music we are recording, and it's hard to let stuff go if you think it can be better," Cappellino offers. "The sacrifice



Ray Sings, Basie Swings producer Gregg Field

Basie," he realized there was only one individual with the prerequisites to oversee the project. Concord staff producer Gregg Field had done stints as the drummer in both Charles' and Basie's bands between 1977 and 1983, additionally writing arrangements for the *Genius*. "The job called for someone who had worked with both bands and could run Pro Tools, and I guess I was the only one," says Field with a laugh, admitting he had no idea if he could pull it off.

What he was faced with was a poorly recorded mono tape made off the soundboard mix of Charles' vocal mic, with his piano, The Raelettes and the big band bleeding through. "It sounded like you were hearing it through a small transistor radio from the '60s," says Field. (A snippet of the original audio can be heard on www.youtube.com/watch?v=Sf0Qqr85CgE.)

The first step in what would turn out to

NEW YORK METRO

by David Weiss

we make isn't always acknowledged, but we do it because we want to. It is almost a compulsion or obsession. Your clients will love you for it while you are there because this is their project and they want to burn the midnight oil. But we do this day in and day out, and something has to give, and often, if we aren't careful, it is our personal lives and our health."

I called up a couple more friends whose opinions I respect on things personal and musical. Richard Dodd, a producer/engineer/mixer/masterer who has amassed a huge list of credits, including Tom Petty, the Traveling Wilburys, Clannad, the Dixie Chicks, Wilco and many more, is a devoted husband who, over the years, figured out a balance of home and work life that dignifies both.

"Separating work from personal life isn't easy," he says. "They are so interrelated. The first 10 years of my career, I wasn't married; I was married to my work. When you are not married, it's easy. The next 10 years, I was married in my first marriage, but my work was much more important than the marital relationship, and ultimately [was as much] an influence on the ending

—CONTINUED ON PAGE 124

Sometimes when you listen to the music on a kids' show, you wonder if kids were in charge of making it, too. While there are always a few gems for the 2 to 6-year-old set, anyone with kids can attest to the relative weakness of child-centric broadcast music production.

A new show coming out of New York City with big ambitions and extremely high audio standards is set to drop a bomb on all of that. Spearheaded by Trackmasters, the successful New York City hip hop team of Samuel "Tone" Barnes and Jean Claude "Poke"

Olivier (Will Smith, LL Cool J, Mary J. Blige, Mariah Carey), *The Kids Block (TKB)* is set to be a uniquely satisfying, music-first learning experience for kids and their parents.

Inspiration for the show came from Sisqó's notorious "Thong Song," of all places. "One day I got an epiphany," recalls Poke, owner and chairman of *TKB*, in their Manhattan offices, where production for the first season's 56 30-minute episodes is well under way. "I was driving my young daughter to the babysitter, the 'Thong Song' was on and she was singing it. I was like, 'I don't want you singing that song,' but then I realized it was the melody and the beat that she liked, not the words. So I said, 'Let's make a show that's character- and music-driven—something original.'

The cornerstone of *TKB*'s approach is the same Platinum music production that Tone and Poke wielded as Trackmasters: Keep it real. "Coming from the music world, I didn't want to cheat the children out of real records," Poke says.

PHOTO: DAVID WEISS



"Poke" Olivier (left) and Jason Goldstein of The Kids Block

"The music is the driving force here, and we wanted to build the whole show to be very authentic and true to what hip hop is—the dancing, the clothing, the style, the attitude. I'm trying to make records that stand the test of time, so when we take the kids from baby to toddler to pre-teen to teen, the music stays in their head. You want some continuity with their enjoyment of the music so the educational aspect stays with it."

TKB's on-screen visuals are a highly engaging mix of puppets, animation and live-capture footage that make up the show's fictional, urban-inspired world, where math, science, reading and geography take center stage. The audio production is an even more tightly controlled environment—in addition to the vocal mics and preamps, 100 percent of the music production takes place in the box.

The decision to keep everything sound-related in the computer at all times stems from Tone and Poke's experience working with *TKB* senior VP of music production Jason Goldstein. A longtime go-to mixer in their stable, with heavy credits ranging from The Roots to Beyoncé Knowles and Keith Murray, Goldstein feels lucky to be tackling the daunting responsibilities of soundtracking a full TV season with the

—CONTINUED ON PAGE 126



Producer/engineer/mixer/masterer Richard Dodd, pictured with his wife, Carolyn, feels home studios are detrimental to family life.

ONE-STOP MASTER HOUSE MIAMI STUDIO EARNS 10 LATIN GRAMMY NOMINATIONS

Jose Blanco's Pilchner Schoustal-designed Master House Studios (www.masterhousestudios.com) appeared on our cover when it opened in 2000, and since then, the facility has become a significant force in Miami's hot Latin music scene. With a dedicated mastering studio and a recording/mix room, Master House has had a hand in 10 of the albums nominated for Latin Grammys this year.

"It works out great, because a lot of the projects we do, we mix here and master here," Blanco says. "It's really cool to have that flexibility to be able to fix anything when you need to, make small changes in the mix, and the clients love that they don't need to go from one studio to another. They can do everything in-house, start to finish."

Master House handles a lot of projects recorded in Florida, but many projects come to the studio from Latin American clients, such as Argentine producer Cachorro López, who is nominated for the Latin Grammy for Producer of the Year. "I love working with Cachorro because he is a very musical guy and an excellent person," Blanco says. Blanco is especially proud of the Best Alternative Music Album nominee they worked on together, *Limón y Sal* by Julieta Venegas. Parts of the album were recorded in Master House Studio B, which is centered around Pro Tools HD3 and a Sony DMX-R100 console. The entire release was mixed in B by staff engineer Cesar Sogbe and mastered by Blanco in Studio A.

"The three of us [Lopez, Sogbe and Blanco] do so much work together, we know each other very well," Blanco says. "We know what to expect and what the other person is expecting." When Blanco opened his facility six years ago, he mainly used Sonic Solutions, but he has since changed to Cube-Tec AudioCube. "It sounds great," Blanco says. "It's so flexible and so user-friendly, and if you're switching from project to project, that's so easy to do." Blanco continues to monitor on Dunlavy SC-Vs: "The whole system was designed with those speakers in mind," he says.



Mixing engineer Cesar Sogbe (left) and mastering engineer/studio owner Jose Blanco in Master House Studio A with the Dunlavy monitors behind them

Blanco has carved a real niche for himself and his facility. He says about 85 percent of his music clients are Hispanic, and Master House is rare in the combination of services offered. "We have one of the few facilities in Florida, or probably in the Eastern U.S., where we have a recording, mixing and mastering room all under the same roof, aside from maybe Sony New York and those kinds of places. As a privately owned studio, I don't know of many other professional places where people can do projects from beginning to end [in one space]."

—Barbara Schultz

BEHIND THE GLASS

KEVORKIAN AT AVATAR MASTERING NEW RELEASES



Fred Kevorkian at work in his mastering room at Avatar Studios

Avatar Studios' (New York City) resident mastering veteran, Fred Kevorkian, has put the finishing touches on many of the season's significant new releases, including Willie Nelson's *Songbird* and Sonny Rollins' *Sonny, Please*. Kevorkian's room is centered around the Cube-Tec AudioCube 5 and Sonic Solutions HD workstations, Prism and Lavry converters, and Dunlavy SC-IV monitors.

CUTTING ROOM MASTERING MOVE MEANS NEW SERVICE



Mastering engineer Dave McNair at work in his new Cutting Room studio in New York City

After 10 years on Broadway, The Cutting Room (New York City) moved into the Silk Building in the NoHo area of Manhattan. The move allowed the facility to add dedicated mastering facilities, run by chief mastering engineer Dave McNair. He has already used the new room to work on tracks by Jakob Dylan, Switchfoot and others.

ALL AGES

ATHERTON AT A440 YOUNG SINGER'S NEW MIX



Mixing engineer James Harley (left) with assistant Nathaniel Smasal

Engineer James Harley visited A440 Studios (Minneapolis) to mix an album by 17-year-old pop singer Alyssa Atherton. A440 is equipped with Pro Tools HD3 (with Version 7), an SSL 4072 E/G+ console and Yamaha NS-10 near-fields.

TIMELESS POETRY JAXSN IN HARTFORD



L-R: Reverend Benjamin Martin with engineer Jaxsn and producer Delray Baker

Bass player, producer and engineer Jaxsn engineered songs by Reverend Benjamin Martin in his Jaxsn Music studio (Hartford, Conn.). Delray Baker produced the project, which features Martin's poetry about the history of the U.S. civil rights movement.

SOUTHEAST

At Doppler Studios (Atlanta), Destiny's Child's Kelly Rowland recorded vocals for an upcoming CD on Sony/BMG. Jazze Pha produced, Nico Solis engineered and Rick DeVarona assisted. Pha also took some time in the studio to work on his own material for Sho' Nuff Records and track with Island Def Jam artist Nas. Jimmy Buffett was also in to record ukulele player Jake Shimabukuro for Buffett's latest RCA release. Mac McAnally produced, Alan Schulman engineered and Aaron Holton assisted...The new Bobby Bare Jr. album (Bloodshot Records) was recorded in one marathon 11-hour session at Ocean Way Nashville. Brad Jones co-produced and mixed the tracks with Bare Jr....Saint Claire Recording Company (Lexington, KY) hosted rockers Raposo.

The band, producer Erik Steinert and engineer Zach McNeas stayed at the studio while they tracked and mixed...Paragon Studios (Franklin, TN) hosted sound production sessions for a VeggieTales PlayStation 2 game called *Larryboy and the Bad Apple*. Studio owner Fred Paragano served as engineer/dialog editor and Eric Elwell was production coordinator.

NORTHEAST

Sensational '60s singer Darlene Love, who's currently appearing on Broadway in *Hairspray*, was in John Kilgore Sound & Recording (NYC) in October to record "It's All About Tonight," which was played during her appearance at this year's Macy's Thanksgiving Day Parade. Kilgore engineered, and Patrick Ford assisted...At Loho Studios (NYC), They Might Be Giants worked on their upcoming album with producers The Dust Brothers. Pat Dillet engineered and Patrick Billard assisted. Also at Loho, Gov't Mule recorded a song for an upcoming tribute to The Band. Gordie Johnson produced, Gus Oberg engineered and Ari Halbert assisted...Engineer/producer George Petit completed a mix for the band ok1ok at The Cutting Room (NYC)...In Avatar Studios (NYC), Chris Potter Tentet tracked with producer Dave Holland, engineer James Farber and assistant Brian Montgomery in Studio A. Avatar's Studio B hosted overdub sessions for Roberta Flack. Montgomery engineered, Ricky Jordan produced and Chad Lupo assisted...CSP Mobile Productions (Saco, ME) supplied audio and video remote services to Yahoo! Music to record live performances by Fergie and the Pussycat Dolls at the Cumberland County Civic Center (Portland, ME).

MIDWEST

Engineer/producer Brad McGrath worked on the debut albums of Chicago band Lunchtime and punk band Long Shot in his Brick City Sound (Highland



Former Pixies frontman Frank Black recorded two new tracks at SugarHill Studios (Houston) with engineer Ben Mumfrey, who was assisted by Heba Kodry and SugarHill's senior staff engineer Steve Christensen. Above, Block faces drummer Billy Block in SugarHill Studio A.

Park, IL)...At E Labs Multimedia (Madison, WI), Milwaukee group Fever Marlene tracked, mixed and mastered their upcoming CD, *Civil War*, with producer Jack LeTourneau and engineer Perry Blanchard; and the Eugene Smile Project finished their debut CD, *Welcome to the New World*, also recorded, mixed and mastered by Blanchard and LeTourneau.

NORTHWEST

Wayne Wallace recorded a new jazz album at Bay Records Recording Studios (Berkeley, CA) with engineer Gary Mankin. Also at Bay, Tin Hat spent five days tracking their album with engineers Mark Orton and James Frazier...Brad Keeler completed a solo CD, *Wildflower of the Palouse*, with Steve Izzi engineering and mixing at Sound Solutions (Spirit Lake, ID).

SOUTHWEST

Synth pop band Maypops finished tracking and mixing a full-length release at Full Well Recording (Phoenix) with engineer Mike Bolenbach. The project was then mastered by Roger Seibel at SAE Mastering (Phoenix)...At Maximedia Recording Studios (Dallas), chief engineer Hal Fitzgerald mixed tracks for Columbia Records artist Frankie J and Universal's Baby Bash.

SOUTHERN CALIFORNIA

My Chemical Romance finished mixing a new album for Warner Bros. in Studio A at Resonate Music (Burbank) with producer Rob Cavallo and engineer Chris Lord-Alge; Keith Armstrong assisted. Also in Studio A, Lord-Alge mixed a release for *American Idol* rocker Chris Daughtry with producer Howard Benson; Armstrong and Nik Karpen served as assistants. ■

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

began what turned out to be the most laborious part of the project: getting Charles' lo-fi vocals to the state-of-the-art level of the newly recorded backings. It was this stage in particular that has caused Field to liken making the record to "painting the ceiling of the Sistine Chapel with a Q-Tip."

"First of all," says Murray, "anything from the original recording that wasn't vocal had to be lost. Then the old drums had to be lined up with the new drums, or the other way around, so that you didn't hear slamming drums in the background. And because Ray's vocal had to be a certain way, the Basie track had to be moved around so that it was in sync with Ray." One at a time, Murray started assembling mixes of Charles' vocals and the new Basie band performances. "At first, you could tell a big difference, and then I got into manipulating Ray's vocals, bringing out certain qualities and losing others, experimenting with different plug-ins and hardware. I would go through every song, line by line, evening it out, bringing out presence, doing whatever needed to be done."

Then, at long last, they were ready for mastering legend Doug Sax to do his inimitable thing.

"I was skeptical at first," Sax says of the project. "But Don and Gregg did an incredible job. It's got a ton of information and a big dynamic range, and if you squeeze it in a normal type of digital way, it'll get small—it won't blossom. So it was basically a matter of level-riding; instead of using limiters, I had to sort of hand-mix it."

Inevitably, the album, released October 3, 2006, has had a polarizing effect, enchanting some reviewers while causing others to complain that Charles wouldn't have approved of this sort of mash-up. "From working extensively with Ray, I can tell you he loved technology," Field counters. "Ray would've been the first guy to be in there with Pro Tools messing with it. He would've loved this record because it sounds great and it's musically valid. It's not like we tried to stick Green Day in there with him! I think Ray Charles would stand up and cheer if he heard this record."

Field may be doing it again next year with some just-discovered studio recordings of Ella Fitzgerald. He and Burk are considering putting Fitzgerald in front of the London Symphony—in a manner of speaking. ■

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

of that marriage as anything else.

"This time I've got it right," says Dodd, who's been married to his second wife, Carolyn, for 15 years. "I'm at a stage in my career where I do turn down work because it is the right thing to do. I don't go places because it is the right thing to stay with my family. Nowadays, it is becoming less and less necessary to travel because much of the work can come to us electronically."

I mention that some engineers and producers try to solve the problem with home studios, but Dodd cautions, "Don't do it! Now you are in that other part of the house that you call the studio and you effectively have the doors locked and are a million miles away. Having a studio in your house is for lonely people or soon-to-be-lonely people.

"Engineers, producers and artists can create something out of nothing, and then the real thing comes along, like a child," Dodd continues. "We then realize that we have done something incredible, but the child doesn't go off to mastering and get presented to the public and you make your money. It takes a lot of work to help that child be all it can be.

Memphis-based producer/artist and

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musician Jim Dickinson (Ry Cooder, The Replacements, Big Star, the Rolling Stones, Bob Dylan and John Hiatt) has been married for 42 years to Mary Lindsay. I've always found their devotion and personal chemistry inspiring. Dickinson is proof that uncompromising commitment to music and to your family is not unattainable.

"When you're not at the studio," Dickinson explains, "you've got to really not be at the studio. You can't let it follow you home. You've got to make the most of the time you do have. Privacy is crucial to me. In my own situation, I poured the money that I made during my periods of success into my family rather than into my career.

"My wife, Mary, is the first person in my life who accepted me the way I was. She wasn't trying to fix me. She didn't think I was broke, and I was. And she actually defended me to other people. Her half-brother was a musician and, in fact, he was one of my inspirations. She watched him stop doing it and go off into straight life. She told me one day, 'I'm determined that's not going to happen to you.' Now that is a special person. I couldn't have gotten nearly this far without her." ■

Send Nashville news to MrBlurge@mac.com.

NEW YORK METRO FROM PAGE 121

tools available. "Doing a show's audio 100 percent in the box is economically, logistically and ergonomically more feasible now than ever," observes Goldstein. "It makes total sense, and it's fortunate that you can do this now.

"In the planning stage," he continues, "we were discussing how we're going to approach making these records, and the reason we're going into the box is out of necessity. There's so much content that has to be done in a short amount of time, and it's completely open to change. Our approach is that from the minute the first element is tracked, the song is being mixed, so when you get to the end, there's less work needed to put the polish on the record. Instead, we have Instant Recall and we can make changes on the fly."

The tune "Electricity" explains the basics of electric energy with spirited, top-quality hip hop production straight from New York City's Hot 97 radio station, where not a single note or hook is a throwaway. And how about the call-and-response gang choruses of "Gravity," where they chant addictively, "Dinky dink/What's the problem kids?/Can you please teach us what gravity is?"

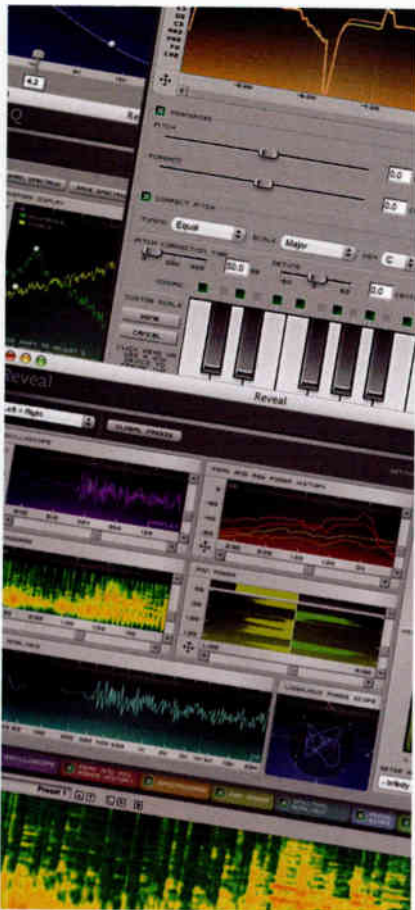
At present, Goldstein heads up the

mixing duties from a Mac Quad G5-equipped suite, outfitted with a Pro Tools PCI HD Accel system, a Dangerous 2-Bus analog summing mixer and JBL LSR6328 monitors. "I've noticed that summing outside the box makes my life easier from a signal-to-noise perspective," Goldstein says. "I don't have to worry about the summing bus being hit too hard, so I can make level adjustments outside the box—but still be in the box. I like the JBLs because they get loud, they're accurate and they don't compress like other powered monitors do. Plus, they have handles!"

By staying in the box, whether it's on Goldstein's current setup or the next planned round of *TKB* suites, which will be built around Euphonix System 5 consoles and 5-MC controllers, Goldstein and his staff will be able to stay organized.

"We're all into the cutting edge and doing something that no one else has done before," Goldstein says, "but it's also important for me to do something that I'm proud of and give back. Plus, I've known these guys for eight years, and I'd like nothing more than to spend all day working with my friends. You can't beat that." ■

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—FROM PAGE 24, ALL I REALLY, REALLY WANT

of both of these from which to choose. And then I found myself pining for a way to mix and match plug-ins from many manufacturers on multiple platforms—and along came Audio Units and VST Wrapper.

I never liked looping samples and longed for the day when I could somehow play full-length piano and string notes from an electronic keyboard. But how could sounds like this exist without an infinite amount of RAM, not to mention who would be patient (and foolish) enough to create them in the first place? “Ho-ho-ho,” said GigaSampler as it streamed samples from disk in real time. Now everyone’s doing it and the libraries are getting more humongous every day. And because this holiday season you can pick up a 250-gig hard disk for less than a cheap seat at Radio City Music Hall, who cares?

I yearned for a way to be able to digitize any videotape or DVD anyone might send me so I could work with picture right within my computer and forget about all the awful sync problems of the past. Canopus replied by stuffing an ADV-C100 FireWire bridge in my stocking. But then I wanted to layback my finished audio to a video file. QuickTime, Pro Tools and Digital Performer arrived tied up with ribbons. I wished for a way to send video and audio to collaborators and clients thousands of miles away without blowing my budget on FedEx—and once again, QuickTime, along with MP3 and www.yousendit.com, made that wish come true. And then I thought about being able to edit video to give me more flexibility in putting together my soundtracks, and those elves in Cupertino, Calif., came up with QuickTime Pro and iMovie. And when that company introduced its SuperDrive (the optical one, not the old one that could handle 1.4-meg floppies), I could even spend Christmas morning burning my own DVDs.

And all along, ever since I was old enough to hold a guitar, I have been writing the jolly fellow at the North Pole asking for a way to sell my music that didn’t require me to get on my hands and knees and beg some huge international media conglomerate for a record contract. And he responded with CD Baby, Amazon, PayPal and e-mail so that I can let thousands of people know when I’ve got something new to offer—for free.

Today I have the studio I’ve always wanted. I have 400 MIDI channels, 20 analog and 32 digital gazintas and gazoutas, six high-end and 16 pretty-good mics (even though I almost never record more than one instrument or vocalist at a time), four computers, three

keyboards, percussion, wind and breath controllers, four Gigabytes of RAM, two terabytes of online storage, five LCD monitors, four CD/DVD burners and the latest and greatest software hosts and plug-ins. So what’s left to ask Santa for this year?

Only one thing: time.

Time to absorb and create. Time to think about the music I want to make, instead of how to maintain and upgrade my stuff (or, as happened while I was writing this column, waste two days repairing my system drive). Time to work on the sound to get it really, really right, not just good enough to meet the next deadline.

Time to get out of the studio and listen to other people’s music, stage shows and films, the sounds of the world, conversation and silence.

Time to learn all of the amazing tools I have. It’s almost criminal how much power and creative capacity I have in my studio that I have never had a chance to explore or exploit. I spend a whole year teaching Digital Performer and Reason to students, and yet I am probably really proficient with less than a third of either of those programs’ capabilities. I have software instruments and studio gadgets sitting in boxes that have been waiting for me to install them for months. I have other instruments and plug-ins that have made it onto my computer, but when it comes to understanding all they can do, I have just scratched the surface. I even—no kidding—have an entire Pro Tools system that I bought last spring that I haven’t yet had time to hook up.

My updates aren’t up-to-date and my software library is a mess. My hard disks are full of junk and badly need backups. There are CDs and DVDs falling off my shelves and hanging out of file cabinets. And yet I must plow ahead, doing what I can with what I know how to use.

I love this job, and I love this business, and I love all the cool stuff we all get to use. But please, Santa, or Le Père Noël, or Siôn Corn, or Qor Bobo, or whoever is your favorite giver of gifts during this dark but hopeful time of year: Give me a break. Just this once, stop bringing me all this stuff and let me get back to the reason why we bothered to create all of these wonderful things in the first place: to make music. And let me spend more time with my family and my friends, and appreciate what life has to offer outside of the silicon simulations we’re all surrounded by. Next year, you can bring me a new operating system. ■

Paul D. Lehrman has plugged his new book in the past few months, but in case you missed it, get the details at www.insideraudio.com.



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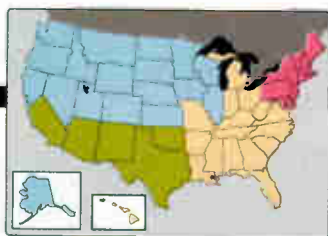
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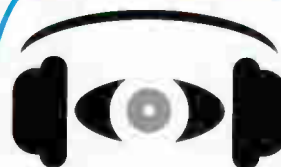
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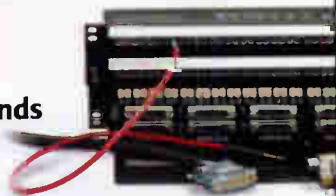
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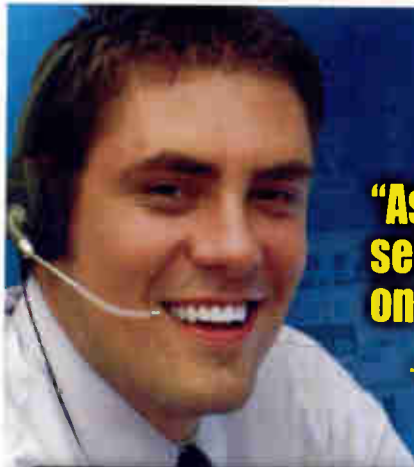
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Waves native processing

With 24 State-of-the-art sound processors, **Waves Gold Bundle** is a comprehensive set of audio processing tools for DP5. Now fully compatible with the new Intel-Based Macs, the **new Gold Bundle** is bigger and better than ever, including IR-L Convolution Reverb, Waves Tune LT, Doubler, and RenAxx. IR-L Convolution Reverb: The world's best rooms at your fingertips. Grand Ole Opry. Sydney Opera House. Birdland. Trinity Church. Want to record in the world's greatest venues? Now you can. IR-L puts the meticulously-captured sound of these and many other renowned spaces and hardware devices in your hands. Waves Tune LT: Advanced dynamic pitch correction with formant correction, natural vibrato detection, MIDI and ReWire compatibility, and ultra-powerful real-time editing capabilities. Doubler: Fat tracks with richness and texture. RenAxx: The ultimate compressor for guitar. For tracking, mixing, and mastering, the Gold Bundle is an ideal DP5 companion.



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Legendary drummers

Submersible Music **Drumcore** delivers access to twelve world-class drummers, such as Terry Bozzio, Matt Sorum, Sly Dunbar and Zoro. The perfect tool for songwriters and composers who need drums quickly in a multitude of styles. Features include an Audio and MIDI librarian (quickly find that perfect groove), "GrooveSets" (for easier songwriting), MIDI instrument (loaded with each drummer's MIDI drumkits) and the "Gabrielizer" (groove generator). Simply drag-and-drop from Drumcore to your Digital Performer 5 tracks or Clippings window.



Exquisite grand pianos

Synthogy's **Ivory** set a soaring new standard for virtual pianos. Now, you can expand Ivory's three-piano repertoire with the **Italian Grand expansion pack**, a 16 GB, 12 velocity masterpiece of exquisite playability. Load up the Italian Grand, and Ivory becomes far and away the most powerful virtual piano for Digital Performer 5. Once you lay your hands on Ivory, you'll agree with the pros at Sweetwater: "Ivory isn't just a virtual instrument... it's an experience."



Advanced waveform editing

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Universal plug-in control

As a Universal Sound Platform, **Native Instruments KORE** operates not only as a plug-in within Digital Performer but also as an instrument host application. It allows you to integrate all your VST- and Audio Units-based software instruments and effects into a single, unified interface. KORE provides greatly increased control, overview and ease of use in all creative situations. Both Native Instrument's own range of instruments and effects as well as third-party products are supported. The seamless integration with KORE's advanced hardware controller gives hands-on control with unprecedented analog feel, finally turning today's software synthesizers and samplers from applications into true instruments.



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Advanced compact controller

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 new **M-Audio Axiom 25**, which kicks off the more advanced Axiom line of MIDI controllers. Built around an even more rugged chassis, the Axiom 25 includes 25 semi-weighted velocity-sensitive keys with assignable aftertouch, eight MIDI trigger pads, six reassignable transport buttons, 20 non-volatile memory locations and more. And if you need more keys and controller options, the 49-key **Axiom 49** and the 61-key **Axiom 61** complete the new line. Don't let the compact size of the Axiom 25 fool you. This advanced 25-key-USB mobile MIDI controller features both semi-weighted action and assignable aftertouch, plus eight rubberized trigger pads that put digital programming and performance at your fingertips.



Rich Lexicon reverbs with plug-in convenience

Lexicon is noted for reverbs, and now the new **MX400** and **MX400XL** dual stereo/surround reverb processors bring that classic Lexicon sound to your MOTU desktop studio, without the taxing CPU overhead associated with high-end software-only reverb plug-ins. The new single-rackspace, 4-in, 4-out MX400 combines an intuitive front-panel design with Lexicon's "Hardware Plug-in" technology,

a unique USB connection and AU plug-in interface that lets you control and save your MX400 reverb settings directly from within your Digital Performer projects, just like your other plug-ins, while offloading the intensive reverb processing the MX400 hardware. Featuring a wide array of rich, complex reverb algorithms, delays, effects and dbx dynamics, the MX400 series also offers

4-channel surround algorithms that dovetail perfectly with Digital Performer's state-of-the-art surround mixing. A 4-in, 4-out design, the MX400 series offer pro connectivity through XLR balanced I/D (MX400XL), or TRS I/D (MX400). Both products also offer . In any application, the MX400 series products provide versatility and sound that is unmistakably Lexicon.



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 process and ease mixing and music production.



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Automated mixing & control

Imagine the feeling of touch-sensitive, automated Penny & Giles faders under your hands, and the fine-tuned twist of a V-Pot™ between your fingers. You adjust plug-in settings, automate filter sweeps in real-time, and trim individual track levels. Your hands fly over responsive controls, perfecting your mix — free from the solitary confinement of your mouse. Mackie Control delivers all this in an expandable, compact, desktop-style design forged by the combined talents of Mackie manufacturing and the MOTU Digital Performer engineering team. **Mackie Control Universal** brings large-console, Studio A prowess to your Digital Performer desktop studio, with a wide range of customized control features that go well beyond mixing. It's like putting your hands on DP itself.

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.

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When it comes to building your Intel-based MOTU recording system, nobody does it better than Sweetwater. Whether you're building a simple portable recording rig with an UltraLite and a new MacBook or a 200+ track powerhouse Digital Performer studio centered around the latest Quad Mac Pro tower, Sweetwater can help you select the perfect components for your MOTU system, from the specific MOTU audio interface model, to control surfaces and hard drives, to plug-ins and studio monitors. Even better, we can install, configure, test and ship a turnkey system straight to your door — all you'll need to do is plug in the system and start making music. Why shop anywhere else? **Call the experts at Sweetwater today!**



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Apple DVD Studio Pro

Timing Tweaks, Compression Changes and More

Now that DVD Studio Pro is part of Apple's Final Cut Studio bundle, professional DVD authoring is available to most production pros. Having worked with DVD Studio Pro for several years, I have discovered some useful techniques that may help you with authoring DVDs.

WORKING IN SURROUND

If you plan to create a 5.1 surround audio track or if you're working in stereo but your project is large—say, two hours or so—then you'll need to process the uncompressed audio track using a Dolby Digital (AC3) conversion tool. Once your picture content has been converted to MPEG-2, your two-hour movie/concert file may be close to 4 Gigabytes, depending on the compression settings used. Uncompressed stereo audio for this project might be about 1.2 GB. Requiring more than 5 GB, your project won't fit on a standard DVD-R, and compressing the audio track to AC3 yields an audio file of about 200 Kb, enabling a project build onto a 4.7GB DVD-R.

The Final Cut Studio bundle includes the Compressor video and audio compression application, and its default settings are set for use with professional film encoders. However, users can tweak these parameters to their taste. To make my AC3 file sound like the original uncompressed PCM track, I changed several values. Within Compressor's Inspector window, where these settings live, I selected the Audio tab and increased the data rate to 256 kbps (rather than the 192kbps default) for improved response with stereo tracks. Under the Preprocessing tab, I set the compression preset to none and de-selected the lowpass filter and DC filter boxes.

These same changes to the settings also work for surround applications, but in that instance, I increased the data rate to 448 kbps. These tweaks typically result in an AC3 file that sounds like the original, but doing some experimentation to find the settings that work best with your program material will really pay off.

TIMING IS EVERYTHING

If you're creating a video and audio track in DVD Studio Pro by assembling several

short clips together sequentially on the same timeline, then be aware of potential differences in the length of the audio file as compared to the video file after the audio is converted to AC3.

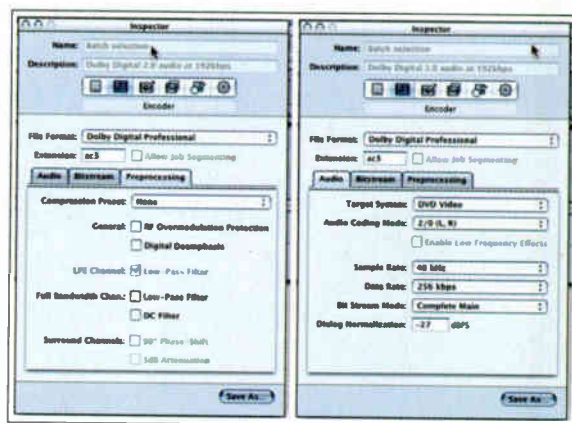
As an example, I have a movie file called "events.mov" with a duration of 00:03:27:09. After converting the video to MPEG-2, the video and uncompressed AIFF audio file are still the same length. But after converting the AIFF file to "events.ac3," the duration may change to 00:03:27:08. The AC3 file is now one frame shorter. By itself, this is not a big deal. However, if your track contains several clips like this, then you'll introduce an offset between the audio and video that increases with each clip added to the timeline, putting your audio out of sync with the video.

To solve this problem, leave DVD Studio Pro's Inspector window open and compare the AC3 file to the M2V file each time you bring a new A/V pair onto the timeline. Inspector lets you make adjustments to the start and duration of audio files. DVD Studio Pro does not allow gaps between video segments, but it does allow them between audio segments. So if your audio file is a frame shorter than the video, then you can compensate for the difference when you bring the next A/V pair onto the timeline and adjust the start time (not clip start trim) of the audio clip by +1 frame.

The key here is that each A/V pair must have the same start time and you must verify this as you bring them in one pair at a time. If you bring in all of the audio and video clips and then try to make adjustments, you may not be able to do so if the next segment on the timeline blocks the necessary adjustment.

REFERENCES REQUIRED

Most people use DVD Studio Pro as an authoring tool, but the program is highly useful in the studio during production for



Modifying DVD Studio Pro's default audio compression settings (increasing the data rate, for example) optimizes AC3 conversion.

writing multichannel stems as pass-around references for music, dialog and effects elements and/or pre-mixes. In DVD form, these stems can be easily screened or auditioned (and inexpensively duplicated) without the need for elaborate audio playback setups.

And DVD Studio Pro is equally useful at the other end of the production: presenting multiple reference mixes to clients, producers, directors, etc. Reducing the normal 5 to 8Mb/sec video bit rate to a low-res "workprint" setting of 3 or 4 Mb/sec will allow plenty of bandwidth to accommodate the bitstreams of three or four simultaneous audio soundtracks—all in picture sync and easily switched for instantaneous A/B/C comparisons via the audio select button on any DVD player remote.

UPDATES

Running the current software is a must. New audio features in DVD Studio Pro 4 include support for DTS file imports, 96kHz audio import and support for the new HDVD format. More information about upgrades, crossgrades and the latest version of DVD Studio Pro, Compressor and the Final Cut Studio package can be found at www.apple.com. ■

Now the co-owner of Video 4, a video/DVD production studio in Corralitos, Calif., Kevin Monahan spent 20 years doing sound design and product development for E-mu Systems.

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Expansion card provides up to 16 channels of ADAT Lightpipe I/O at 48 kHz. Higher sample rates supported using S/MUX. Permits format conversion between ADAT, AES/EBU and analog I/O.

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Expansion card provides digital input and output in a format that is recognizable by Digidesign® ProTools | HD®. Operates with all HD-compatible ProTools. Supports up to 32 I/O channels at sample rates to 192kHz.

LT-FW

Expansion card available Fall 2006. LT-FW provides a 16 channel cross platform FireWire® interface.

LYNX TWO-AURORA INTERFACE

Cabling kit gives LynxTWO and Lynx L22 owners direct connectivity for up to 16 channels of Aurora I/O.

1824 AURORA TRIM OPTION

Aurora 16/1824 and Aurora 8/1824 models feature +18 dBu and +24 dBu full scale trim settings, which replace the +6 dBV and +20 dBu full scale trim settings of standard models.

Aurora Converters from Lynx. Okay, let's review...

"Aurora offers superb converter quality and small footprint for such a powerful piece of gear. Imaging was so pin-point sharp that I could almost reach out and touch each instrument, and I have never been able to listen so far into reverb tails before. To my ears, Aurora offers something special, and can compete on audio quality with converters from other companies, but often at a significantly lower price per channel."

Sound on Sound, June 2006

"Aurora has amazing high and low frequency definition and a notable sonic depth. After using the Lynx Aurora for several weeks, I can say that it is one of the finest sounding A/D and D/A boxes in existence today. It is the perfect solution for stereo or multichannel music production or mastering or simply as the front end for digital audio work stations, digital mixers, or modular recording devices."

Pro Audio Review, March, 2006

"Lynx Studio Technology scores another hit with Aurora. Aurora has the necessities for audio acquisition / playback without some of the pricey extras that mastering facilities and careful audio engineers tend not to use, such as soft distortion or soft clipping limiters. It's no surprise that the Aurora provides superior sound for less than other converters with similar features."

Mix, June 2006

"Lynx offers a new standard in high end AD/DA conversion. The sound is very impressive. Aurora delivers a clear, transparent sound that is completely free of digital 'roughness'. Its stereo image is stable, with remarkable width and realistic depth. The highs are brilliant and shiny, the bass is punchy and solid."

**Beat, Germany,
November 2005**



Any questions?

For more information, go to:
www.lynxstudio.com/aurora1

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