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World Radio History

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The Review Resource for Sound Professionals

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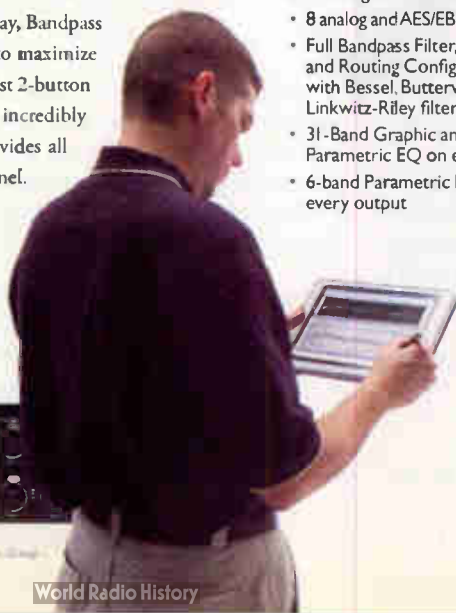


control backbone along with HiQnet System Architect™ control software take the DriveRack to the next level of integration capability. Digital I/O and 96 kHz operation provides extended frequency response and ultra low-latency. Processing includes a large roster of selectable DSP inserts and a wealth of EQ, Delay, Bandpass and Crossover Filters, all designed to maximize system performance. A built-in 1/4 VGA color screen, ultra-fast 2-button navigation and seamless tablet integration make the 4800 incredibly quick and easy to use. For fixed installation the 4820 provides all the same processing features with a tamper-proof front panel. From control to flexibility to processing capability, the new DriveRack 4800 and 4820 are everything you want in a system processor. For more information, contact your dbx representative or visit us at www.dbxpro.com; to download System Architect please visit www.harmanpro.com.



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PROFESSIONAL PRODUCTS

Analog Ain't Dead!

Judging by our 2006 PAR Excellence Awards at AES last month, development of analog products has not waned. Yes, there were plenty of new, advanced digital products, but I was stunned to see so much new analog gear.

From SSL's Duality console for high-end recording to Lab Gruppen's new live sound amps, audio professionals still want analog. Take a closer look at some of the winners: API's new 550 analog EQ, AEA TRP Ribbon Mic Preamp, Crown CDi amplifiers, DACS Eightch surround volume controller, Groove Tubes SuPre mic preamp, John Oram and David Manley's new series of rackmount products, Rupert Neve Designs 5088 analog console and True Systems Solo Ribbon preamp. (In fact, ribbon microphone products were three winners this year).

Despite the continuing advances in digital audio design, analog continues to thrive. Why? My hunch is that engineers still feel that the analog sound is more "human." Noted PAR contributor and early digital recording proponent Tom Jung said that the analog electronic sound has a simplicity and naturalness, albeit with some color, that just sounds right to the human ear. I agree.

And despite all the convenience and power of digital, use of analog products in the signal chain is the result of the engineers wanting to maintain the best part of analog in their sound. One company spokesman said that despite the proliferation of digital workstations and plug-ins, analog imparts "soul" to the music. I'll buy that.

EXCELLENT IS EXCELLENCE

Speaking of the PAR Excellence Awards,

we celebrated our 10th anniversary of the award at the San Francisco AES.

We originally developed the award to recognize new products that our audio professional judges believed had potential in our little world.

The judges' criteria are: the product must be new at the U.S. AES show (it could have debuted at another show, but not shown at a previous U.S. AES), and must be an innovation of a new technology, or improvement of existing technology at a lower price.

After selecting about 350 award-winning products over 10 years, I am proud to say that most of them have been successful in the market. Sure, we picked a few duds that died a quick market death, and a few that never made it into production (where is that new Stephen Paul microphone?), but not that many. Although there are flashier awards than ours, the PAR Excellence Award is considered an annual, reliable indicator of the "hot" new products.

WHO'S ZOOMIN' WHO?

Speaking of interesting products, we are reviewing a product by Zoom (Samson), the H4, in this issue. This product looks similar to Sony's PCM-D1 flash recorder with built-in mics, records two tracks of 24-bit/96 kHz audio or four tracks at 44.1 kHz onto an SD card, has balanced inputs — and sells for \$299 on the street! And guess what? The Zoom recorder works pretty well and the converters are decent. If it proves durable for pro use, they got a winner. It could make a low-cost, spare back up to your PCM-D1.

John Gatski, publisher and executive editor of PAR, recently moved from the motorcycle technology of the 1920s to the modern age by trading in his "airhead" BMW for a water-cooled, 16-valve "brick" BMW. The new one gets him from point A to B quicker and has a gas gauge, but the old one still has more "soul."



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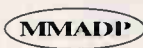
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Letters

ON THE ONE HAND...

The magazine looks great, and the online-viewing software is outstanding! It's much better than the Zinio Reader.

Thanks for saving space in my magazine rack!

Eduardo Ponsdomenech
Composer/Music Editor/Producer
Ed Pons Music, Inc.
www.edpons.net

ON THE OTHER HAND...

Well, pat yourself and your art director on the back for alienating yet another long time

Correction

From our October issue:

Russ Long was the author of the JBL LSR4328P Studio Monitors and the Apple Mac Book Pro reviews. The bench test for the API A21 mic preamp/converter repeated the same graph repeated. A corrected bench test is in this issue on page 75. You might wish to cut it out.

reader. I read your editorial page and got excited about your explaining the new design and PAR layout. (And, yes, your tease of the Dr Fred M-Audio mic was pretty inviting too, and there was no way I was gonna miss that!).

After reading, er, ah, rather TRYING to read the magazine leading up to page 52 (his review) my eyes were so tired from the sub-mini type face, I said screw it and tossed the magazine aside.

No way am I gonna struggle with that for another 11 years till the next "New Look." Sure, I'll probably scan the mag each month, but I'm not going to waste my precious eye power on that miniature crap you call a type face.

I gotta go, I'm late for my optometrist appointment!

Tom O'Toole

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LETTERS Continued On Page 65



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LIVE

The latest news and products

NEW PRODUCTS

AUDIX VX-5 Handheld Condenser Microphone



'Tis the season for handheld condenser live microphones! Audix's VX-5 is the latest in a much-desired turn-of-events – bringing studio-quality condenser microphones to the stage. The VX-5 features a 14mm gold-vaporized diaphragm with a supercardioid polar pattern. A 10 dB pad and bass rolloff filter are also included. To handle the abuse of the stage a steel mesh grille rounds out the feature set.

PRICE: \$299.

CONTACT: Audix | ☎ 800-966-8261 ↻ www.audixusa.com.

ARRIBA CASES AS-175 Rolling Speaker Bag



Your speakers are where the pedal meets the metal so shouldn't they travel in style? Arriba Cases thinks so. Their AS-175 Speaker Bags are soft cases designed to handle standard 15-inch live speakers. Features include wheels, telescoping handle and a wide-mouth for easy encasing. Really cool feature – an attached bag for the speaker's stands.

PRICE: \$99.

CONTACT: Arriba Cases | ☎ 626-217-6710
↻ www.arribacase.com.

PEAVEY Kosmos V2 Processor

Peavey's original Kosmos processor proved so popular in the studio and on the road they decided to create a Version 2. The Kosmos V2 picks up where the old Kosmos and Kosmos Pro left off and pushes performance up a notch. The result is an even deeper bass processing box. Included are



subharmonics, low and high frequency, output and sub output level controls.

PRICE: \$299.

CONTACT: Peavey | ☎ 601-483-5365 ↻ www.peavey.com.

APB-DYNASONICS MixSwitch

The APB-DynaSonics MixSwitch is one of those products that solves a problem that people didn't realize they had or could have – using multiple consoles at a single event. The MixSwitch is simply



designed to facilitate switching from one console to another - whether it be for a set change, act change or equipment failure. Multiple MixSwitches (MixSwitch Expander) can be linked for large jobs.

PRICE: \$2,400, Expander - \$2,100.

CONTACT: APB-DynaSonics | ☎ 975-785-1101 ↻ www.apb-dynasonics.com.

Those Red Hot Chili Peppers are using **L-Acoustics** amps and speakers on their current tour. Rat Sound is handling the work with LA48 amps and V-DOSC and dV DOSC speakers. New Jersey-based Big Mo Pro used L-Acoustics KUDO speakers along with 112XT and 115XT stage monitors for the LibertyJAM concert this summer. See picture of KUDO array about to ascend.



Texas-based Sound Services has purchased a 48-channel **APB-DynaSonics** Spectra-T console.

The Rock 'n Roll Fantasy Camp at the old Hit Factory Studios premises in New York used **TC Electronic** M300 and M-One X processors in its workshops.

The AthFest, a jumbo local music festival in Athens, Georgia used **Peavey** Versarray speakers. Power was provided by Crest Audio 5200 and 9200 amps.

At the Umbria Jazz festival in Italy, **Radian Audio** 12 RMW-1122 and four RMW-1152 MicroWedge stage monitors were used. See picture of Herbie Hancock and the MicroWedge at his feet.



Turbosound Aspect TA 890H speakers and HiLight THL-828 subwoofers were used to handle audio duties at Victoria, Canada's famed Butchart Gardens during its summer evening shows. **XTA** DP224 processors were used also. Imogen Heap's recent tour used Turbosound TA 890H, TA-890L and TQ-440 speakers along with TSW-718 subwoofers. Turbosound-badged MC2 T-25 and T-45 amps were used along with XTA DP224 processors.



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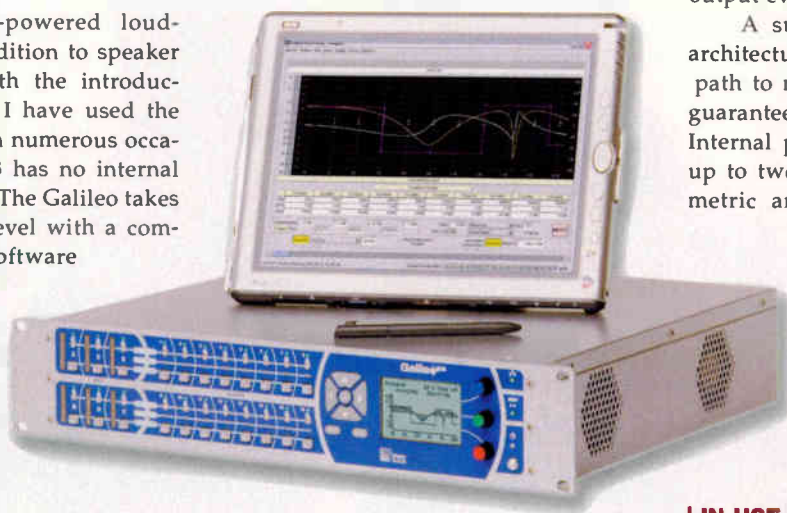
 **CREST
AUDIO**
The Sound of Experience

by Tom Young

Meyer Sound Galileo Loudspeaker Management System

A live sound/installation digital system processor/router that doesn't scrimp.

Meyer Sound's self-powered loudspeakers have a new addition to speaker system management with the introduction of the Galileo 616. I have used the Meyer LD-3 processor on numerous occasions, however the LD-3 has no internal delay or EQ capabilities. The Galileo takes processing to the next level with a comprehensive hardware/software system that provides all of the facilities necessary to drive and align Meyer Sound sound reinforcement speaker systems employing multiple zones.



| FEATURES

The system consists of the Galileo 616, a six-input/16-output, 2RU, fully digital

FAST FACTS

APPLICATIONS

Live sound, installation

KEY FEATURES

Six inputs, 16 outputs; 32-bit/96 kHz internal processing; EQ; delay; atmospheric compensation; Compass control software; Ethernet

PRICE

\$7,500

CONTACT

Meyer Sound | ☎ 510-486-1166
 ☞ www.meyersound.com

matrix processor that uses Meyer Sound's Compass control software for operation. The unit has a retail list price of \$7,500. The Galileo 616 can be interfaced via its Ethernet connection for ease of use to a remote computer or wireless tablet running under either the Macintosh or Windows platform. It can also be controlled directly from its front panel for maximum flexibility.

The Galileo system includes array compensation for M Series line array products, presets for Meyer Sound systems of all sizes and types, and digital implementations of popular features developed over the years by Meyer Sound for its acclaimed analog processors (CP-10, VX-1, LD-3) and includes air absorption compensation.

The six analog inputs are terminated via balanced XLR connectors on the rear panel. The unit uses high quality A/D converters operating at 24-bit resolution and a 96 kHz sample rate. The inputs can be individually switched to operate as

standard stereo AES/EBU digital audio inputs, accepting sample rates up to 96 kHz. Since all internal processing is performed at 96 kHz (32-bit vector floating point), any signals entering at a lower sample rate are upsampled using sample rate converters. The six input channels can be a combination of analog and digital inputs. With full matrix operation capabilities, the Galileo allows any combination of mixing and routing of inputs to outputs.

The 16 outputs use high-quality D/A converters and share the same line driving capabilities as those of Meyer Sound's analog line driver products, up to +26 dBu permitting the Galileo 616 to drive Meyer Sound self-powered loudspeakers to full output even over long lines.

A substantial, 1 GHz vector DSP architecture employs a direct DMA audio path to maximize processing power and guarantee fixed low-latency performance. Internal processing in this unit includes up to two seconds of delay, CP-10 parametric and patent-pending TruShaping program filters, with subwoofer and DX 2 or 4 crossover and atmospheric correction filters. Even when applying all available processing to every channel, Galileo 616's DSP engine retains substantial processing headroom.

| IN USE

I recently used the Galileo 616 at the Mann Music Center in Philadelphia with Tony Bennett and his quartet. The inside pavilion of this outdoor amphitheater seats 7,500 people. A Meyer Sound Milo self-powered line array was employed using a left/right configuration of 10 boxes per side. Using the Galileo, the arrays were zoned with control of the top two boxes, then a zone for the next six, and a separate zone for the bottom two boxes of each array. The show was mixed using a Midas Heritage H-3000 console. The sound system was supplied by Masque Sound from New Jersey.

Upon inspection of the processor, I was impressed with its ability to directly interface to Meyer Sound's SIM 3 audio analyzer system. It allows Galileo to act as a line switcher for the SIM 3 analyzer. Also, a locking AC connector on the rear is well designed, eliminating the chance of it accidentally being unplugged during a show. Trust me: I had that happen once during a show with an XTA processor and

PRODUCTPOINTS

- Intuitive, flexible, comprehensive processing
- Quality A/D converters
- Internal 96 kHz, 32-bit processing
- Excellent sounding EQ filters
- Programmed presets



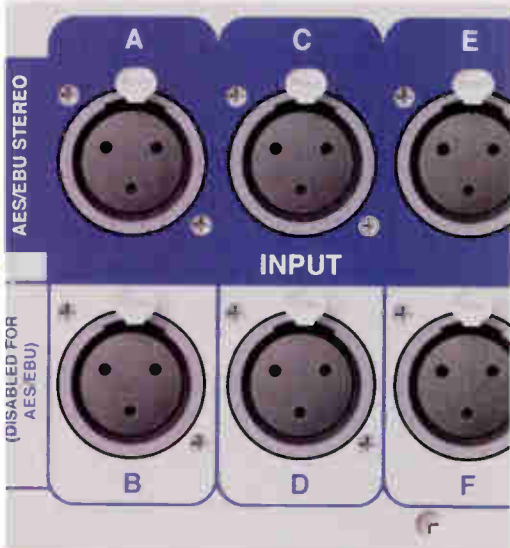
- Unit too comprehensive for front panel control

SCORE

Meyer Sound packed a lot of goodies into this powerful box - with software, too!

it was no fun.

Using a wireless tablet I found it easier to see and configure when using the front panel controls, which seemed a little cumbersome. However, since all adjustments can be made from the front panel, it is nice to have both available when needed. I found the Compass control software very intuitive and comprehensive and, with the library of presets, set up time was very fast. Having used the Lake Contour on several occasions with a similar tablet setup, Compass affords you the same type of results as you walk the venue and make adjustments.



The Composite EQ in the Galileo provides a unique approach to system equalization. It yields appropriate correction with the least impact on phase response. Composite EQ combines complementary phase filters for correcting amplitude and phase artifacts from cancellation-based

effects such as low-frequency resonances, with TruShaping EQ low-order filters, which enable correction of more broadly-shaped phenomena such as buildup artifacts and subjective shaping while keeping phase shifts to a minimum. In this venue using the array compensation within the Galileo, the amount of EQ required was minimal.

| SUMMARY

The Galileo 616 is another product

from Meyer Sound that gives sound engineers the opportunity to perform their job better. For anyone using Meyer Sound self-powered loudspeakers, the Galileo is an addition engineers have been waiting for to optimize sound setup to achieve excellent sounding results for concerts and sound system installations.

Tom Young is the live sound engineer for Tony Bennett.

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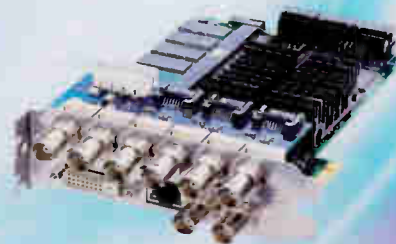
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- Integrated Video track in SD or HD format



FAIRLIGHT

www.fairlightau.com

by Tom Young

Tony Bennett: An American Classic TV Special



Sennheiser/Neumann who was a great asset in providing support to procure various microphones on short notice. Our goal was to have all working microphones on hand that might be used to record the vocals live.

Sennheiser was also

instrumental in providing wireless lavaliers that were used as backups to all hand-held microphones.

The various scenes of the show in chronological order are as follows with microphones used. Originally Neumann KM 53 and KM 66s were chosen for 1960s period. However, once viewed on camera the director chose to stay with the look of the Neumann KK105.

For production audio and monitoring, I used The Show Factory from Palm Springs, Calif.

Upon doing a site survey of the theatre I decided on bringing in Meyer self-powered UPAs for audio playback and monitoring on Ultimate Support stands. Being that speakers were not to be seen in the camera shot, the speakers were easily moved and

FROM THE ROAD Continued On Page 76

Celebrating his 80th birthday in August, Tony Bennett is "an American Classic." With a career spanning 60 years, recording over 100 albums and receiving 13 Grammy awards, his recent album released in September is a tribute to songs he introduced in his illustrious career and recorded as duets with some of the most popular contemporary artists of today. Featured artists on the CD entitled *Duets: An American Classic* include Bono, Elton John, James Taylor, Barbra Streisand, Billy Joel, Paul McCartney. I recently had the opportunity to work on

(LA), Abbey Road (London), and Bennett Studios (Englewood, NJ). All of the tracks were recorded live in the studio with no prior knowledge or plan to use them for the television special. Tony Bennett prefers to record live with the band and since 1999, I have provided speakers in the studio for him to hear himself, as he prefers not wear headphones while recording.

Since no real isolation is achieved outside of some minimal baffling when recording a Tony Bennett project, the tracks were a challenge at best for Dae Bennett to clean up so they could be used for the TV special. Each track on every song needed to be isolated and certain microphones or tracks removed from the original mix. The songs were then remixed to provide clean tracks (no vocal ghosting) that could be used for the singers as we taped the TV special.

I don't believe I have ever worked on a TV special as comprehensive and time consuming as this TV special. The LA Theater in downtown Los Angeles was rented for the entire month of July to accommodate the shooting schedule for the special. Again, during the meeting with the director, it was decided that each period segment from the 1940s until present day would be shot using period microphones whenever possible. Certain segments included elaborate dance numbers with the featured performers and Rob Marshall did not want to see any microphones in the shot. We only had a couple of weeks to put the tracks together and rent any equipment that may be required.

Marshall had a clear vision of certain microphones he wanted to see for various period shots. Tony Bennett's microphone of choice for live performing is a Sennheiser SKM5000 wireless, with a Neumann KK105 capsule. When the director and head prop master, Kirk Corwin, presented me pictures of period microphones they preferred, Neumanns would be represented for most of the scenes. I contacted Joe Ciaudelli from

the taping of a television special directed by Rob Marshall (*Chicago*, *Memoirs of a Geisha*) airing in November that highlights Mr. Bennett's career by taking you through a chronological journey of his musical life.

HIGH-END PRODUCTION

From my initial production meetings with the director and production staff, it was determined that the show would be shot in HDTV and mixed in 5.1 surround. All of the performers involved in the show would sing to the recorded tracks that were available from the album released. Well-known engineer (and Tony's son) Dae Bennett recorded the tracks earlier this year at Capitol Studios



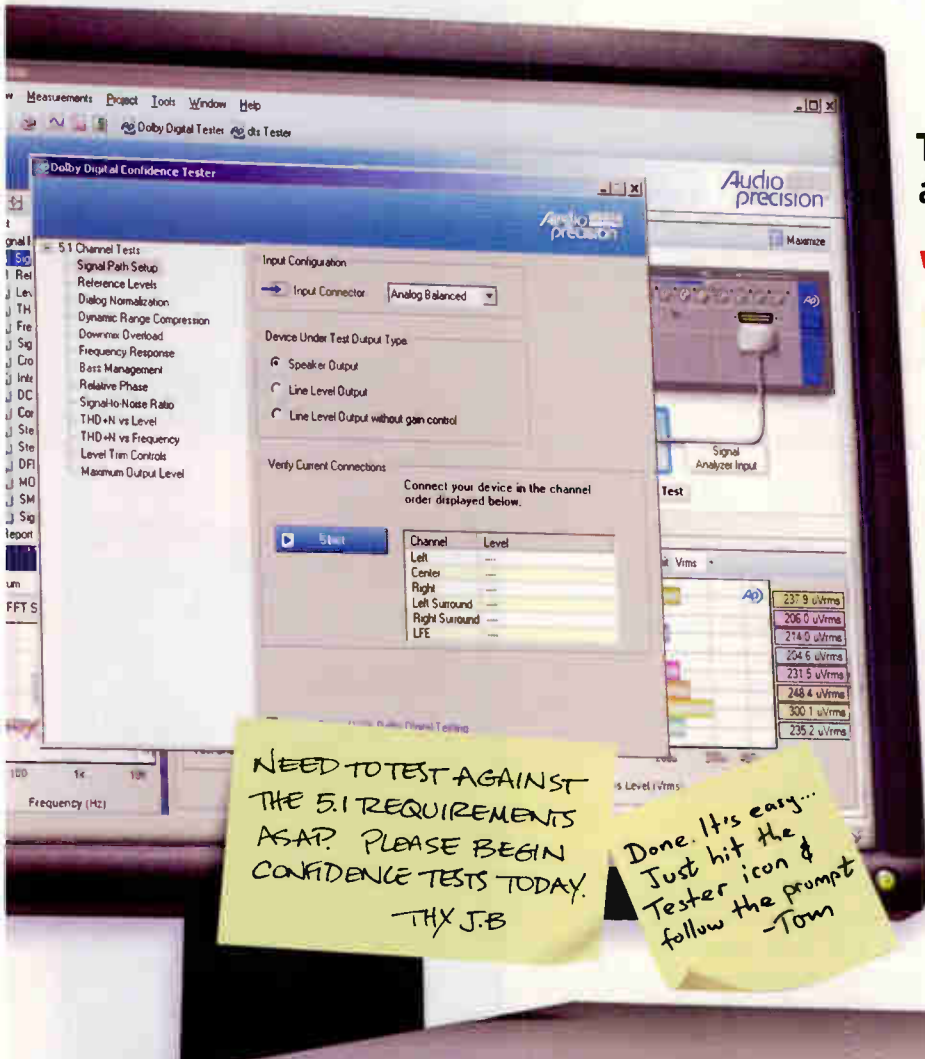
| SONG LIST/MIC SELECTION

- Scene 1** 52nd Street Jazz Club, Swing Street 1940s
wireless lavaliers
Tony Bennett/John Legend
- Scene 2** Columbia Recording Studio 1950s
Neumann U 47/RCA 44
Tony Bennett/k.d. Lang/Chris Botti
wireless lavaliers
- Scene 3** 1960s TV Studio
wireless lavaliers/RCA boom
Tony Bennett/Diana Krall/Juanes
Neumann KMS 105
- Scene 4** Sahara Hotel, Las Vegas Showroom
Neumann KMS 85
Tony Bennett/Elton John/
Michael Bubl 
- Scene 5** Carnegie Hall
Neumann KMS 105-black
Tony Bennett/Stevie Wonder
- Scene 6** MTV Unplugged
Sennheiser 5000 wireless
Tony Bennett/Christina Aguilera
- Scene 7** Cold opening- song "Smile"
Sennheiser 5000 wireless
Tony Bennett/Barbra Streisand
- Scene 8** Closing Song - "I Left My Heart in San Francisco"
Neumann KMS 105
Tony Bennett

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CONTRACTING

The latest news and products

NEW PRODUCTS

ELECTRO-VOICE ZX1i Speaker



The ZX1i from Electro-Voice is an indoor/outdoor speaker designed for installation and sound reinforcement work. A weatherized EV8L 8-inch woofer is the low-frequency driver while a DH2005 1-inch compression driver with a rotatable horn handles the high end. The ZX1i uses EV's QuickSAM mounting system for simple and adjustable mounting. The cabinet and grille are fully weatherized. An optional "t" model adds an Automatic Saturation Compensation filter to improve sound performance when speakers are daisy-chained.

PRICE: starts at \$430.

CONTACT: Electro-Voice | ☎ 800-392-3497 ☞ www.electrovoice.com.

QSC WL218-sw Subwoofer



If you're in the market for elephantine sound then maybe QSC's WL218-sw subwoofer might be of interest. Part of QSC's WideLine enclosure family, the WL218-sw is a dual 18-inch sub suitable for touring or installation duties; flown or stacked. A welded aluminum frame supports a birch plywood cabinet with a 14-gauge steel grille. Bonus - a dolly is included.

PRICE: \$4,999.

CONTACT: QSC Audio | ☎ 800-854-4079
☞ www.qscaudio.com.

AVOCENT Emerge MPX1000 A/V Extension System



Avocent's Emerge MPX1000 A/V extender products have multiple applications for audio professionals. The Emerge system takes high definition video and its accompanying audio and allows it to be distributed, without being compressed or downsampled, to multiple points - wirelessly or wired via Ethernet. Hi-Def content output is via an HDMI connector. Large post production studios with numerous possible destinations for high-def product should be interested.

PRICE: Each MPX1000T transmitter (\$895) can service eight MPX1000R receivers (\$795). Particular transmit and receive modules - HDMI or VGA are \$195 each.

CONTACT: Avocent | ☎ 800-275-3500 ☞ www.avocent.com.

CREST AUDIO Ci 20x4 and Ci 20x8 Amplifiers



The Ci series from Crest Audio is currently available in a four-channel model, Ci 20x4, and an eight-channel model, Ci 20x8. Both units are fully compatible with Crest's NexSys and Peavey's MediaMatrix systems when the proper interface card is installed. Both units also perform identically at power:

150W @ four ohms, 220W @ 8 ohms or 200W @ 70V per channel at four channels or eight channels, respectively. If you need a bit more power bridging is easily handled. Both amps have protection circuitry such as Automatic Clip Limiting and Sequential Turn-On.

CONTACT: Crest Audio | ☎ 866-812-7378 ☞ www.crestaudio.com.

The Audio Visual Factory, an event staging company based in Kent, Washington, recently added two **McCauley Sound** MS3 subwoofers to its extensive list of McCauley speakers. On order are almost a dozen of the new McCauley M-LINE speakers. Cincinnati's Greater Temple Bethlehem Apostolic Church worked with local Loud and Clear to install over two dozen McCauley boxes in arrays and along walls. **Crown** CE2000 amplifiers and a **Midas** Verona console were also installed. See picture of Temple Bethlehem and the McCauley arrays.



Shure hit a home run at San Francisco's AT&T Park with the installation of a UHF-R wireless microphone system as part of the permanent audio system.

Community Loudspeakers went back to college with the installation of almost 200 speakers (WET 2W8, WET 920H, R.25 and R.5) in Boston College's Alumni Stadium. A **Midas** Venice handles the mixing and **Crown** CTS amps provide power with a **Peavey** MediaMatrix handling the distribution duties. At UNLV Community placed I/O5, SLS960 and SBS25 speakers were scattered throughout the new Moyer Student Union building.

The Stanley Theatre/Benedum Center in Pittsburgh has added a **Sennheiser** IR assisted listening system as an upgrade to an earlier Sennheiser system. New emitters, and modulators were part of the package. See picture of Sennheiser SZI 1029 emitters hanging from the Benedum Center's ceiling.



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Hear the Power of Technology

by Will James

Community R.25 Indoor/Outdoor Speakers

A contractor speaker that sounds great!

The contractor/installer sound business typically conjures up images of narrow bandwidth and re-entrant, tan horns that sound terrible. That mentality has changed thanks to several leaders in the contractor field, Community Loudspeakers being one of those leaders. They now offer full range outdoor/indoor speakers called the R-Series. The model sent to us was the Community R.25-94X.

| FEATURES

The Community R.25-94X is classed as an outdoor/indoor speaker with the components housed in a textured UV-resistant/weatherproof enclosure constructed of polyethylene. The enclosure is light gray with a 12-foot SJOW cable exiting the rear bottom of the box via a waterproof seal. The cabinet is an exceedingly rugged box, rounded on the rear side, but appears square from the front. It has a matching stainless steel expanded grille. The dimensions are 11 inches square on the front surface and 13 inches deep, and weighs in at

20 pounds. A stainless steel yoke is supplied with the R.25-94X, as well as a stand receiver slot at the rear of the box to allow for placement and aiming at any location.

The actual speaker components are a coaxial pair, consisting of an 8-inch cone mounted to a 3/4-inch exit compression driver. The crossover is at 2 kHz. The pair is rated at a full range spectrum of 100 Hz to 16 kHz and a combined impedance of 8 ohms. The R.25 is rated to function in either 70V or 100V distributed operation or conventional mixer/power amplifier mode. In either case, the unit is rated at 200 watts continuous capability and a sensitivity of 95 dB at 1 watt/1 meter of speech spectrum energy.

| IN USE

My company does concert audio, lighting, stage and roof, so we have little to no installation opportunities, but we thought that this review would be more aimed at the sound quality of the R.25, while also highlighting its hardware capabilities. My initial thought of reviewing an outdoor/indoor installation-intended speaker system was one of narrow banded, thin-sounding paging horns. We all know that sound.

When I opened the shipping boxes, my opinion was that they actually look like little concert speaker boxes that can be yoke-mounted to a wall.

We opted to employ them as center fill speakers (I know, this sounds ridiculous, but hang in here), thus testing the fidelity and range of these speakers. We were doing full concert production (sound, lights, stage, roof and power) for country music star Craig Morgan. We had to jump the two speaker box leads together into an NL4 connector, which was a tight fit.

The speakers were placed on top of our cardioid subwoofer array, such that the R.25s were at a 90-degree angle to each other and 45 degrees to the downstage edge. They were placed on a small patch of stage carpet to keep them from walking or vibrating off the subs. They were wired to a single amplifier channel,

driving them in passive mode directly off a matrix master of our Soundcraft Series Five, inserting a Klark-Teknik Square One EQ and BSS MiniDrive to act as a high-pass, pre inserted EQ filter.

I know what you are thinking - these won't sound very good in a concert application. You know what? I thought the same thing.

Well, we were both wrong. These little gems sounded quite good. They required a little EQ, as do all speakers, but they truly held their own in keeping up with a concert speaker system. In fact, they sounded very good. The angle at which we placed the R.25s was perfect, as their own dispersion is about 90 degrees horizontally.



Now, I am not saying that this is the perfect application for these speakers, but I was pretty impressed with the full range sound quality from speakers that are intended for the installation market. We hit the R.25s pretty hard with vocals, guitars, keys and drums, and they sounded damn good. The bandwidth was surprisingly wide, enunciation was perfectly clear and the dispersion was perfect for this occasion.

| SUMMARY

I believe that a concert application is a real workout for any speaker system, but also a truly good test of what something like the R.25 is capable. We found the R.25 to be of superb construction quality and excellent audio quality. The R.25 would be right at home in a stadium, theme park, zoo, or anywhere you are considering full range, installed, outdoor sound. If they can survive a rock 'n roll show, they'll work great in a skating rink.

Will James, owner and chief engineer of Atlantis Audio and Lighting, is a contributor to Pro Audio Review.

| EQUIPMENT USED

Soundcraft Series Five console (48-channel); A-Line Acoustics AL10 powered line array and LS218 powered subs; QSC Powerlight 1.4 power amplifier.

FAST FACTS

APPLICATIONS

Installation, live sound

KEY FEATURES

Two-way; 8-inch woofer with coaxially-mounted compression driver; 70V/100V-compatible; weather-resistant cabinet; stainless steel mounting yoke; stand mount.

PRICE

\$375 (with transformer - \$392)

CONTACT

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by Andrew Roberts

Australian Monitor ZRM4 Zone Mixer

It may not be spectacularly sexy, but this is one solid, competent zone mixer.

Zone mixers are a staple of install work. They are essential to routing signals to places like bars, dining rooms, classrooms and conferences rooms. It seems that some manufacturers are now moving toward DSP power-based versions for this class of product, but many still manufacture non-digital products. These enduring analog products seem to be very competent and comprehensive or somewhat budget oriented. On first glance, the ZRM4 appears to bridge this gap with a host of handy features and a price of only \$650. This, coupled with my lack of familiarity with the folks at Australian Monitor, piqued my curiosity to examine this mixer.

| FEATURES

The ZRM4 has a single space chassis that weighs in at 6.4 pounds. The mixer accommodates six input channels and can redirect those inputs to four separate outputs. The inputs arrive via XLR (mic/line) and dual RCA (line) while the outputs show up on balanced XLR. In addition, the outputs can be individually controlled by remote VCA

(for instance, if a bartender might want to lower the music volume at the bar without leaving his/her post to make that adjustment) that can be actuated by a remote wall mounted volume control. Other notable fea-

tures include onboard alert, evacuation, bell and pre-announce tones, as well as a high-pass filter and 15V phantom power.

The front panel is home to the control area while the back panel is home to the previously mentioned I/O connectors. Each input channel has a potentiometer for volume control ($\pm 15\text{dB}$), mini recessed pots for bass and treble, and output assignment buttons that can route that channel's signal to any of the four outputs. In addition, each channel has a status LED that glows green for signal present and red for clipping. Channel one has the ability to be designated as the priority channel (nice for making sure the big cheese or moderator gets his/her point across). The rear of the unit has the previously mentioned I/O connections, a power switch, and block connectors for triggering of the alert tones and control of the VCAs.

| IN USE

My first use of the ZRM4 was at a committee meeting at the National Institutes of Health. The meeting consisted of a facilitator and a number of scientists who would comment on agendas presented by the facilitator, including a guest on the telephone. In the past, I have used a small format mixer (like a Midas Venice 160) and had to ride herd over the proceedings. With the ZRM4, I was able to designate the priority channel for the facilitator and, once reasonable levels were established for the other participants (including a mix-minus for the telephone interface), the

event mixed itself. The room had a lot of HVAC noise, so I opted for some dynamic hypercardioid mics on tabletop stands. The ZRM4's mic preamps had no trouble providing the extra gain required to get voices to an acceptable level and, I might add, with a minimal amount of self-noise. Listening to the recording from that meeting and comparing it to previous recordings made on the Midas (with the same microphones) led me to feel that the ZRM4 has some decent mic preamps for a piece in this price range.

Later, at an event on Capitol Hill, I used the ZRM4 in a similar situation for a forum featuring some members of the Indiana Congressional delegation. Again, I assigned the priority channel to the moderator and, once reasonable levels were established on the other inputs, the event went very smooth-



ly. The room for this event, like so many on the Hill, was all marble and there were some challenges getting ample gain from the system, especially given the unit's modest channel EQ. Therefore, I had to rely more heavily on my system EQ for feedback suppression.

| SUMMARY

My experience using the ZRM4 was a very positive one but I was left feeling that I wasn't giving the unit the opportunity to reach its full potential. While it has a number of features and characteristics that made it pleasurable to use in portable sound reinforcement, it seems like it would really shine in the confines of a fixed installation. I could envision it being very valuable at a school, restaurant, or other institution where public address, multi-room music or meetings may occur. It seems to have a better build quality and sonic capability than other similar models in this price range and it feels very rugged. It actually does seem to bridge the gap between competency and affordability, offering a distinct alternative to those DSP products on the market.

Andrew Roberts, a regular contributor to Pro Audio Review, is a sound reinforcement and recording engineer.

| REVIEW SETUP

Audio-Technica AE6100, U857RU microphones; Rane EQs; Sabine Navigator; JBL SRX712 speakers.

FAST FACTS

APPLICATIONS

Installation

KEY FEATURES

Six inputs; four outputs; 15V phantom power; bass and treble controls; high-pass filter; matrix style routing; onboard alerts and tone.

PRICE

\$650

CONTACT

Australian Monitor/Sennheiser USA |
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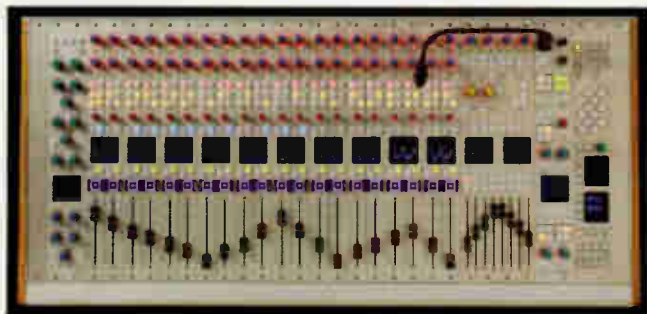
BROADCAST

The latest news and products

NEW PRODUCTS

LOGITEK Artisan Console

The Artisan from Logitek is a modular console designed with features for the TV and radio broadcast industries. The Artisan is compatible with 5.1 surround sound for the latest in Hi-Def. It also offers 24



mix-minus outputs for really big jobs. A four-band EQ with parametric bands and shelf is part of the dynamics module. The other half is a full-featured compressor. The poser behind all of this is Logitek's Audio Engine routing/processing system. The Artisan uses Penny & Giles conductive plastic faders with rubber slider knobs for comfort and also

feature those ever-so-hip "ring-of-fire" encoder knobs. Other goodies include a talkback section, multitone generator and numerous color LCD screens.

PRICE: starts at \$25,000.

CONTACT: Logitek | ☎ 800-231-5870 ➔ www.logitekaudio.com

Those nice folks at **Harris Corp.** donated a Platinum Series R Z5 5kW FM transmitter to Radio Al-Mahaba, a radio station oriented towards women in Iraq.

Speaking of women, Christina Aguilera used a **Shure KSM9** mic (with a UHF-R plug-on transmitter) for her number at the MTV Video Music Awards.



A **DiGiCo D5** digital console makes up the heart of the new Unit 4 OB truck for Belgium's dB Videoproductions. A **SADiE** 64-track recorder is also part of the system.

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by Bruce Bartlett

ZOOM H4 Handy Digital Recorder

Surprisingly good sound from a very small and very "Handy" recorder.

Recently, we've seen a flood of two-track digital recorders that record to Flash memory. They are highly portable, have no moving parts, and can transfer recordings quickly via USB to a computer for editing. These wonderful devices make field recording incredibly convenient. You can use them to capture live musical performances, band practice sessions, music lessons, field samples, interviews and podcasts.

At just \$299 street price, Zoom's H4 Handy Digital Recorder is the lowest cost unit available. Yet compared to competitive products, it includes more features such as four-track recording and XLR mic inputs with 48V phantom power. Plus, it acts as a USB audio interface!

FEATURES

Unlike other Flash-based recorders, the Zoom H4 operates either as a two-track or a four-track recorder. Four-track mode allows simultaneous playback of four tracks and

recording of two tracks. When all four tracks are recorded, you can mix them, bounce them to mono or stereo, then add more tracks. You can add effects such as guitar amp emulation, chorus, compression or delay. Other unique features are a metronome and guitar tuner.

In stereo mode, the Zoom H4 can record 16-bit or 24-bit WAV files at 44.1 kHz, 48 kHz or 96 kHz. A full range of MP3 bitrates are available as well. In four-track mode, the unit records at 16-bit/44.1 kHz.

Built into the H4 are two studio-quality electret cardioid condenser microphones in an X/Y pattern for true stereo recording. Bars over the mic capsules protect them from damage, and a foam windscreens is supplied for outdoor use.

The H4 records to a Secure Digital (SD) card. A 128MB SD card is included. With a 2GB card, the H4 provides up to 380 minutes of recording in 16-bit mode (CD quality), and 34 hours in MP3 stereo mode.

This versatile device can operate as a USB audio interface, which lets you record instruments and vocals to your computer. The H4 is bundled with Steinberg Cubase LE multitrack recording software, which works with both Windows and Mac. So, for \$299, you get a digital audio workstation as well as a two-track/four-track recorder. The audio format must be 16 bits, 44.1 kHz or 48 kHz in USB interface mode. Zoom supplies a USB cable and a handy USB/Cubase LE startup guide.

The unit runs on two AA batteries or an included power supply. Continuous battery-powered recording time is four hours, shorter with phantom switched on. Dimensions are 2.75 inches x 5.22 inches x 1.38 inches.

On the front of the H4 are a backlit 128 x 64 pixel LCD screen, sampling rate buttons/indicators, a stereo/four-track mode LED, record button, and a cursor button that selects menus, play/pause, or change file. You press the record button once to set levels and press it again to record. Arrayed along the left face are an 1/8-inch stereo jack for line output, 1/8-inch stereo jack for headphones, headphone volume wheel, on/off switch, and a mini USB port. On the right face is a jog wheel and gain switches (L/M/H) for the external inputs and internal mics. All the connectors and switches are clearly labeled.

Mic inputs on the end are balanced XLR; line inputs are unbalanced 1/4-inch, both in a combi connector. The line inputs can accept signals from a mic preamp, mixer, electric guitar, bass, or keyboards.

You use the cursor button and jog wheel to navigate through the many options and settings that the

H4 offers. You'll need to read the manual and practice the navigation, but eventually you can access all the features.



Fortunately, the manual is clearly written. Also supplied are a simple recording guide and a patch list that describes dozens of included effects patches.

IN USE

Operating the H4 requires a lot of button presses - more than competing units

FAST FACTS

APPLICATIONS

Broadcast, studio, live sound, field

KEY FEATURES

Two-track, four-track; SD card media; 16-bit/24-bit; 44.1 kHz, 48 kHz, 96 kHz sample rates; onboard mics; USB 2.0; ships with Steinberg Cubase LE software

PRICE

\$499

CONTACT

Zoom/Samson Technologies |
 ☎ 631-784-2200
 ☞ www.samsontech.com

PRODUCTPOINTS

- Very versatile
- Good built-in mics and mic modeling
- Very good A/D
- Clearly labeled, easy-access connectors and switches
- Low price



- Mic preamps slightly noisy
- Can be complicated to use

SCORE

A marvelous little handheld recorder that lives up to its "Handy" nickname.

such as the Edirol R-09 Flash recorder. For example, to connect an Edirol R-09 USB port to a computer, you just plug in the USB cable. With the H4, you also need to go to the menu, jog down to "USB," press the jog button, jog down to "Connect to PC," and press the jog button. In fairness, the H4 must have several menu choices because it is so versatile.

When I set up the H4 as a USB audio interface, both Cakewalk Sonar and Cubase recognized it and received audio from it. When set up to transfer files to the computer via USB 2.0, the H4's data transfer rate was slow at 0.85 MB/sec.

Setting levels with the H4 is a major operation. With the Edirol R-09, you set the recording level by pressing the up/down level buttons. With the H4, you select "Input Menu," jog to "Level" and select it, press jog again, and jog the level up or down. That can be a pain when you record in the field and need to make adjustments quickly. On the other hand, the H4 offers automatic level scanning, which sets the recording level for you. Unlike constant automatic gain control, it simply sets the amount of gain needed based on the received signal level, then it leaves the gain alone.

Using the H4 in four-track mode is more difficult than using a dedicated four-track recorder/mixer with dedicated controls. Still, the H4 lets you do multitrack recording without the need to carry around an extra multitracker.

In general, the H4 is harder to operate than dedicated stereo recorders but offers more features.

How does the H4 sound? Using its internal mics with no processing, the H4 was very good for the price. I recorded a

quiet acoustic guitar a foot from the mics. The playback sounded wide-range and clear with a little upper-midrange emphasis. Some quiet background hiss was audible during playback, so I wouldn't use the H4's internal mics for critical studio recording of quiet instruments. But the sound was certainly usable.

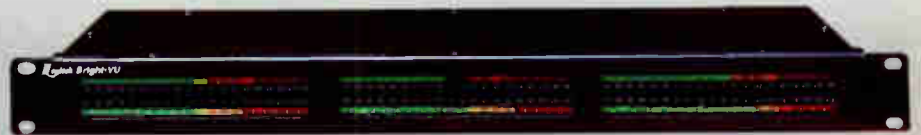
The built-in mics are X-Y cardioids angled 90 degrees. The stereo stage they produce is narrower than real-life sound

sources, but much wider than the stereo stage you get with built-in omni mics. A sound source 45 degrees off center was reproduced halfway to one side between my monitor speakers.

I checked the sound of the H4's mic simulator, which tailors the frequency response of the internal mics to sound like a Shure SM57, Sennheiser MD-421, Neumann U 87, or AKG 414. I thought that the simulation

ZOOM Continued On Page 24

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ZOOM Continued From Page 23

was well done. It's amazing how good those internal mics can sound when tuned like a 414 or U 87!

Being cardioid, the internal mics pick up a lot of handling noise. As long as you don't make any adjustments or move your fingers while holding the H4, you won't hear the noise. The H4 can be mounted on a mic stand or tripod, thanks to the supplied strap-on platform with a 1/4-inch 20 threaded insert.

I did an A-B listening test between the H4 mic preamp and a Mackie 1604 VLZ mic preamp. I connected two Neumann KM140 mics first to the H4 mic inputs, then to the Mackie preamps feeding the H4 line inputs. I played an acoustic guitar one foot from the mics. I stopped playing a few times to record the background noise in my quiet studio. To my ears, the Mackie had about 3 dB or 4 dB less hiss and a little more detail than the H4. Also, the H4 mic preamp's signal had a low-level 700 Hz tone, which I heard with

internal or external mics at high gain, with phantom on or off. This tone would be inaudible when recording a rock band at low gain.

I also performed an A-B test between the



A/D converter in the H4 and the A/D converter in an Echo Mia audio interface. The KM140 mics were amplified by Mackie 1604 VLZ mic preamps, which fed the line inputs of the Zoom H4 and the Mia card.

The two A/Ds sounded almost identical with equal noise levels, but the Echo unit sounded very-slightly-more detailed and realistic. The H4's signal recorded through its line inputs did not have the 700 Hz tone that I heard when I recorded through the H4's mic preamps. [Zoom associates the tone with battery usage and says that recording with the AC adapter should be much cleaner than with battery power – Ed.]

As those A-B tests show, you'd get better quality and lower noise using an external mic preamp with the H4. However, its A/D converter is nearly as good as that of a quality sound card.

| SUMMARY

The Zoom H4 is more flexible than competing units, but as a consequence, it requires more button pressing to operate. It offers good sound and lots of features at a very low price.

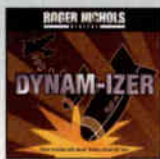
Bruce Bartlett runs a commercial recording studio and is the author of Practical Recording Techniques 4th Edition published by Focal Press.

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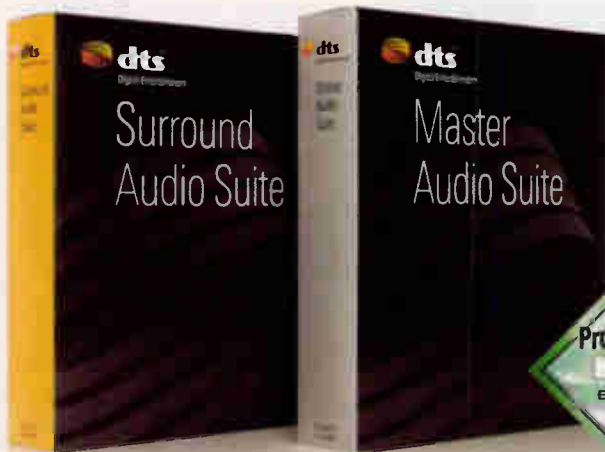
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dts-HD™

High Definition Audio

World Radio History

by Stephen Murphy

sE Reflexion Filter

An amazing device for those serious about isolating a microphone.

sE (Sound Engineering) Electronics is certainly one of the more interesting product manufacturers to emerge from China's growing audio technology sector. The Shanghai-based company was founded by Siwei Zou, a classically trained musician, with experience as a conductor and recording artist with the Shanghai Philharmonic Orchestra and Shanghai Opera.

Aiming to set themselves apart from the spate of inexpensive and seemingly identical Chinese microphones rebranded and marketed in the US and elsewhere, Zou set up his own lab and factory and enlisted the talents of top engineers and audio experts from Shanghai University. Since their introduction in the US and Europe a few years ago, sE Electronics microphones have earned a fair amount of respect from project, production and live engineers. Recently, sE Electronics introduced its unique take on acoustic ambience control, the Reflexion Filter (\$399). Bearing an uncanny resemblance to a shipboard radar antenna, the mic stand-mounted device is designed to reduce the effect of reflective room acoustics on recordings.

| FEATURES

The main part of the Reflexion Filter kit is a surprisingly large and heavy curved plane of punched metal on the convex surface and panels of absorptive material on the concave. A convoluted-but-effective all-metal mounting system connects the filter plane to a mic stand, and a secondary mounting system secures the recording microphone within the focus of the curved filter. A unique mic clamp system allows the microphone to be moved both horizontally and vertically within the absorptive space for

optimal placement of a variety of mic sizes and shapes.

The filter itself is comprised of six main layers. Starting with the outermost, a layer of perforated brushed aluminum allows diffracted waves to pass through to a layer of absorptive wool. The remaining wave energy then hits a layer of aluminum foil, intended to further dissipate the energy and break up lower-frequency waves.

Next comes an acoustically isolating air space layer, kept intact by spacers interspersed rods that run through the layers of the filter. Another layer of absorptive wool is followed by a second layer of punched aluminum. Mounted to the innermost perforated aluminum wall are four acoustically absorptive resilient pan-

els that form the inside surface (facing the mic) of the Reflexion Filter.

| IN USE

Upon opening the fairly heavy shipping box, I was impressed by the size and construction of the curved Reflexion Filter. I continued to empty the box, pulling out "oversized puzzles of ironmongery" to quote Ray Bradbury's *Something Wicked This Way Comes*.

Puzzles, indeed, for on my floor were several substantial metal contraptions and an unintentionally humorous single sheet of instructions (without words) depicting a metal rod with a wrench and arrows indicating the direction to turn.

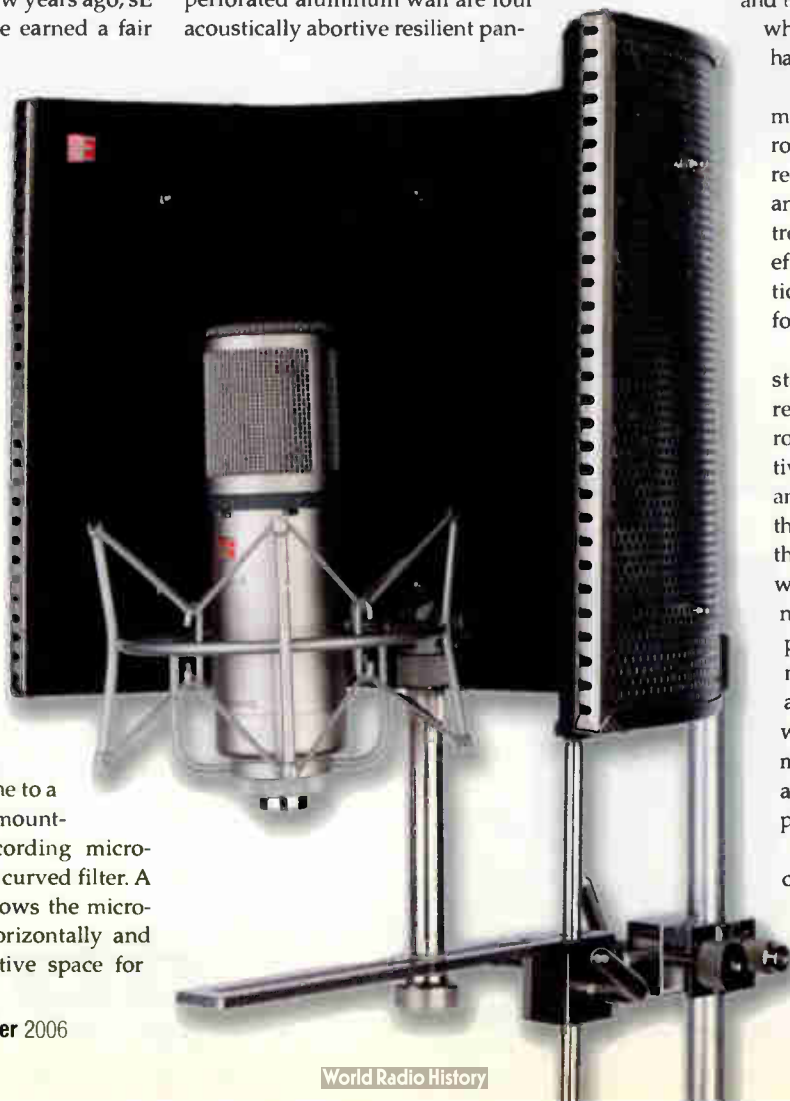
As can be inferred, other than which way to turn the wrench, figuring out the functions of the parts and assembling them in a meaningful manner was pretty much a trial-and-error affair. Thankfully, sE now has a well-written assembly/user's manual available for download on its website.

Once assembled, the Reflexion Filter system clamps easily to the shaft of any mic stand – though the heavier duty the better. Due to the weight of the mic, filter and mounting system, and the shifted center of gravity of the whole system, I highly recommend having sandbags on hand.

I tested the Reflexion Filter in my studio's control and recording rooms, as well as various non-recording rooms (read: bathroom and office). In the acoustically treated environments, the filter's effect was subtle, yet some reduction in ambience and increase in focus was evident.

The Reflexion Filter really started showing its worth on recordings made in the control room. Here, I was able to effectively reduce some low-level fan and equipment noise by pointing the outside of the filter directly at the offending sources. The result was a 3 dB - 5 dB reduction of noise on the recordings (as compared to the same mic placement without the filter). The amount of reduction varied with filter positioning and placement of the mic within the filter, and it was easy to find the most pleasing combination.

sE recommends – and my use confirms – that the mic capsule be centered vertically and horizontally within the filter's focus, and placing the



front of the capsule flush with the imaginary plane between front edges. This spot is the most benign in terms of changing the inherent sound and polar pattern of the microphone,

while providing a decent amount of ambience reduction. Moving the mic into the curve of the filter definitely provides more "room reduction" but at the cost of detrimentally (in most cases) affecting the sound of the mic.

Later, I put the Reflexion Filter to work at the National Press Club in Washington, DC, during the run-up to the launch of an XM Radio show called (what else?) "From the National Press Club." A permanent home for the show's production had yet to be decided, so we set up in a spare edit bay in the Press Club's Broadcast Operation Center. Between the bare walls and large sliding glass door, the room had all the acoustic charm of, say, a very large bathroom. Placing the mic deep into the Reflexion Filter (and the talent as close to the mic as possible) the room's "bounciness" was significantly tamed and a decent recording was teased from an otherwise unacceptable room.



regularly used in studio miking. Though certainly not a substitute for a properly designed and treated room, the Reflexion Filter comes close to being an acoustic ace-in-your-pocket for recording in challenging environments.

PAR Studio Editor Stephen Murphy has over 20 years production and engineering experience, including Grammy-winning and Gold/Platinum credits. His website is www.smurphco.com.

FAST FACTS

APPLICATIONS

Studio, live sound, broadcast

KEY FEATURES

Acoustic ambience reducing filter, six layers of absorptive and diffusive materials, rugged filter and stand assembly construction, two-year warranty

PRICE

\$399

CONTACT

SE Electronics/Sonic Distribution ||

☎ 617-623-5581

🌐 www.seelectronics.com

| SUMMARY

The SE Reflexion Filter works well to reduce ambience and focus the overall sound of the mic towards the recording subject and, as such, makes a useful addition to the range of tools



Introducing the P-SOLO Ribbon...

A proud new member of the **TRUE Systems** product line of precision mic preamps. It's specifically designed to get the absolute best results from both new-technology and vintage ribbon microphones (and for that matter, dynamic mics also).

The **P-SOLO Ribbon** features the same design as all **TRUE Systems** preamps, but with no phantom power (dangerous to most ribbon mics), no capacitors in the signal path, even higher input impedance, and higher gain capability.

Whether you're recording Bach or rock, every time a ribbon mic is used, choose the same preamp preferred by many professional musicians, engineers and producers for critical studio, location recording, and live sound situations.

(Available in January 2007.)



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www.true-systems.com

PAR Excellence Award Winners



Each year at the Audio Engineering Society convention, a select group of audio professionals peruse the aisles to find the latest and greatest pro audio gear. Sequestered in a secret location, the judges then nominate and vote on their choices for the coveted *PAR Excellence Award*, based on the following criteria:

Innovation • Value • Performance

Eligible gear must be new for this AES convention, and must be scheduled to ship by June 2007. Of the hundreds of new products introduced since the last AES show, only 38 were given the *PAR Excellence Award*. Complete with Judges' comments, the winners are... (drum roll please):

AEA TRP Ribbon Microphone Preamplifier

Features: Two-channel; gain, level controls, phase reverse, high-pass filter per channel; AEA No-Load inputs; external power supply. Price: \$835.



Judges' Comments: "Wes Dooley knows a little about ribbon mics so a ribbon mic preamp from Wes should be a sure bet."

Contact: Audio Engineering Associates at 626-798-9128, www.ribbonmics.com.

API 5500 Four-Band Analog Equalizer



Features: Two-channel; four-band; cut-boost controls; bypass. Price: \$2,995.

Judges' Comments: "Another standalone processor from API. The 5500 is bigger than a Lunchbox module but still sound as good."

Contact: API at 301-776-7879, www.apiaudio.com.

Aphex Anaconda Digital Audio Distribution System



Features: 64-channel; word clock; ADAT; Ethernet; fiber optic. Price: starts at \$3,995.

Judges' Comments: "The new Model 828 Anaconda is a winner because it combines a variety of undeniable attributes. Most importantly, it is a 64-channel bidirectional digital snake and word clock that, for previous Aphex customers, is available at a tiered (and discounted) price for 1788A owners. But even for non-Aphex customers, it's a real bargain."

Contact: Aphex at 818-767-2929, www.aphex.com.

ATI ADAC2 A/D-D/A Converter

Features: Two-channel; 24-bit, 96 kHz; headphone output; AES3, S/PDIF, Toslink I/O. Price: \$599.

Judges' Comments: "Made-in-USA 96 kHz combo A/D-D/A for under \$600."

Contact: ATI at 856-719-9900, www.atiaudio.com.



Audio Precision APx585 Test System

Features: Eight-channel; FFT analyzer; 5 Hz – 81 kHz; THD+N, crosstalk, phase, delay, DC, distortion, frequency response, integrated reporting module; Dolby/DTS-certified; USB 2.0 port. Price: starts at \$21,000.

Judges' Comments: "Mid-range AP test system with plenty of power and very intuitive GUI."

Contact: Audio Precision at 503-627-0832, www.audioprecision.com.



beyerdynamic Headzone Surround Monitoring Headphone

Features: 5.1 surround sound; separate processor, headphone. Price: \$2,500.

Judges' Comments: "Ear candy gets wiggy with the ability to turn your head in the direction of the sound and have it center in your headphones. A useful system for audio mixers in noisy environments."

Contact: beyerdynamic at 631-293-3200, www.beyerdynamic.com.

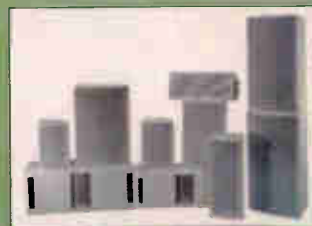


Community Loudspeakers Veris Series Installation Speakers

Features: 6", 8", 12", 15" woofers; 90-degree, 60-degree, 40-degree pattern horns; ferrofluid-cooled drivers; Cool-Coil cooling system; OmniMount mounting systems; black or white. Prices: \$315 - \$832.

Judges' Comments: "The Veris series is further proof that the 'house of worship' market has gone totally mainstream and it also expects good speakers at a low price."

Contact: Community Loudspeakers at 610-876-3400, www.loudspeakers.net.

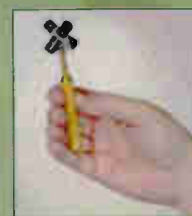


Core Sound TetraMic Surround Microphone

Features: Four mic heads; four-channel; A format. Price: under \$1,000.

Judges' Comments: "Mini four-channel microphone for under a \$1,000."

Contact: Core Sound at 201-801-0812, www.core-sound.com.



PAR Excellence Award Winners

Crowley and Tripp Naked Eye Ribbon Microphone

Features: Figure 8 pattern; ribbon element; "darker," "brighter" sides; rotary mount; ships with wood box. Price: \$745.

Judges' Comments: "An affordable, versatile ribbon mic and more high-end transducer goodness from C & T. The Naked Eye should be a hit among those in the know about Crowley and Tripp's unique approach to microphone manufacturing."

Contact: Crowley and Tripp/Soundwave Research Laboratories at 508-231-4515, www.soundwaveresearch.com.



app \$10,000.

Judges' Comments: "The Elysia Alpha compressor was easily on the 'If I had a million dollars to build my studio with...' list of products at the show. Lots of controls to play with and what a price."

Contact: Elysia/Wave Distribution at 973-728-2425, www.elysia.com.



Crown CDI Series Installation Amplifiers

Features: Two-channel; 500W @ 4 ohms per channel (CDi 1000); 800W @ 4 ohms per channel (CDi 2000); LCD screen; 70V-compatible; detachable outputs; USB port; compatible with Harman HiQnet. Prices: \$982 - \$1,332.

Judges' Comments: "There isn't a lot that's really new with installation amplifiers beyond the fact that networkability is becoming very important. The Crown CDI group has Crown quality supplemented with Harman's impressive HiQnet networking capacity."

Contact: Crown at 574-294-8200, www.crownaudio.com.



Fairlight Crystal Core Processor Technology

Features: Up to 230 channels; eight parametric EQs per channel; compatible with digital video; compatible with Windows XP; compatible with Fairlight DREAM systems.

Judges' Comments: "This PAR Excellence winner offers more possibilities than meets the eye. FPGA (Field Programmable Gate Array) technology eliminating DSP or host-based processing in Fairlight products is pretty exciting stuff."

Contact: Fairlight/MediaGear at 626-793-3940, www.fairlightau.com.



DACS Eightch Multichannel Volume Controller



Features: Eight channel; volume control. Price: \$1,120.

Judges' Comments: "Ideal for studio multichannel monitoring at a very reasonable price."

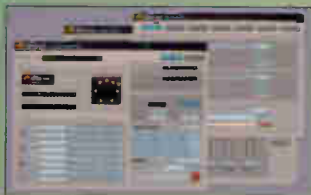
Contact: DACS/Independent Audio at 207-773-2424, www.dacs-audio.co.uk

DTS HD Master Audio Suite

Features: Up to 7.1 surround sound, up to 192 kHz sample rate (at 96 kHz); Blu-ray, HD-DVD-compatible; scalable; WAV, BWF files; SMPTE time-code; Windows XP, Mac OS X. Price: \$1,495.

Judges' Comments: "Many companies at the show demonstrated products designed to bring surround sound mastering down to the audio production masses. This suite was looks to cover all the bases and at under \$1,000."

Contact: DTS at 818-706-3525, www.dts.com.



Frontier Design AlphaTrack Controller

Features: Windows XP, Mac OS X; tape-style transport controls; dedicated function buttons; programmable function buttons; motorized fader; LCD screen; compatible with major DAW programs. Price: \$249.

Judges' Comments: "A delightfully compact studio tool that cherry-picks the most useful functions off larger control surfaces and lets you take them wherever your USB cable will roam. This would be a valuable tool in a collaborative or educational lab setting."

Contact: Frontier Design at 603-448-6283, www.frontierdesign.com.



Genelec 8200 DSP-Controlled Closefield Monitors

Features: Two-way; 6.5-inch, 8-inch woofers; .75-inch, 1-inch metal dome tweeters; powered; compatible with Genelec Loudspeaker Manager controller software; compatible with AutoCal calibration software. Prices: starts at \$1,595.

Judges' Comments: "The 8200 biamped monitor series is the next big thing from Genelec, which offers the equally-neat loudspeaker management and AutoCal automated DSP filter calibration features."

Contact: Genelec at 508-652-0900, www.genelec.com.



Elysia Alpha Stereo Compressor

Features: Two-channel; threshold, attack, release ratio, EQ gain, EQ frequency, side chain gain, side chain frequency, mix, gain, soft clip limiter controls per channel, M/S; bypass. Price:

PAR EXCELLENCE Continued On Page 20

PAR Excellence Award Winners

PAR EXCELLENCE Continued From Page 29

Genex Mix+ DSD Recording/Mixing System

Features: Integrated system; Smart AV digital console/controller; Genex Audio Mix+ 56-input I/O-processor; onboard Sony Oxford and Waves processing; Ethernet.



Judges' Comments: "Utilizing Smart AV control surface, Oxford Digital processing and Genex's high-resolution recording technology, engineers have another choice for high-res DSD or PCM recording and mixing."

Contact: Genex Audio at 818-598-0000, www.genexaudio.com.

Groove Tubes SuPre Microphone Preamp

Features: Two-channel; 15 30 dB pad; phase reverse; 48V phantom power; high-pass filter; impedance controls; 1/4-inch front panel input; pentode/triode tubes; VU meters. Price: \$1,799.



Judges' Comments: "A two channel version of the ViPre with some extra 'tweaks' at half the price of the ViPre is a clear bargain."

Contact: Groove Tubes at 818-361-4500, www.groovetubes.com.

Holophone H4 Super MINI Surround Microphone System

Features: 5.1 surround sound; camera-mountable; swappable head; compatible with Dolby Pro-Logic II; battery operable. Price: \$2,495.

Judges' Comments: "Camera-mount surround? Holophone achieved the seemingly impossible with this little gem, which opens up new possibilities for field recording. Not only can it record its own surround signal, via matrix encoding, right onto the camera's stereo audio, but with the addition of an adapter, it will record Holophone's other mics, or any other surround source as well."

Contact: Holophone at 416-362-7790, www.holophone.com.



JBL VLA Installation Speakers

Features: Three-way; long-throw drivers; 30-degree, 60-degree, 90-degree horn patterns; Duraflex finish.

Judges' Comments: "It looks like JBL took the best of the live VerTec series and the installation Precision Directivity series and created the VLA for use in big, open areas where strong sound quality is expected."

Contact: JBL at 818-894-8850, www.jblpro.com.



Korg MR Professional Portable DSD/PCM Recorders

Features: Two-track; up to 2.8 MHz (MR-1) or 5.6 MHz (MR-1000) sample rate; 1-bit technology; PCM recording up to 192 kHz; USB 2.0 port; battery operable. Prices: MR1 - \$700, MR1000 - \$1,000.



Judges' Comments: "DSD recording goes on the road. Two clever implementations of the DSD format that allow for straightforward, easy-to-use field work at the highest quality. The high-speed USB connection and included conversion software make it possible to bring the quality of DSD recording to many new settings."

Contact: Korg at 516-333-9100, www.korg.com



Lab.gruppen FP+ Live Sound Amplifiers

Features: Two and four-channel models; 1,500W - 6,500W; Class TD; compatible with



Lab.gruppen NomadLink network. Prices: \$5,095 - \$6,945.

Judges' Comments: "The FP+ amps are as powerful yet smaller than the earlier FPs. Combined with Lab.gruppen's well-deserved reputation for quality in build and performance, these amps should rock on the road."

Contact: Lab.gruppen/TC Electronic at 818-665-4900, www.labgruppen.com.

Latch Lake micKing Microphone Stand

Features: 14-foot, 20-foot booms; Boom Clutch; mic mount clutch; Grip Mic Mount; movable counterweight; interlocking base; optional attachable XtraBooms. Price: starts at \$450.



Judges' Comments: "This product is definitely a 'better mousetrap.' A thorough rethinking of the humble microphone stand that has a compact, interlockable footprint but more than enough heft to handle expensive, heavy microphones. The substitution of mountain bike-style clamps for the ubiquitous thumbscrews has me saying, 'Good Riddance!'"

Contact: Latch Lake Music Products at 651-688-7502, www.latchlakemusic.com.

Little Labs LMNOPRE Microphone Preamp

Features: Single-channel; twin front panel DI inputs; 20 dB



pad; 48V phantom power; ground lift; high-pass filter; low, high gain controls; phase reverse; phase alignment control; output level trim. Price: \$1,680

Judges' Comments: "A super-cool preamp from Jonathan Little, a gear builder of unique and exciting boxes. It offers completely differential circuit topology from input to output and low frequency resonance control."

Contact: Little Labs at 323-851-6860, www.littlelabs.com.

PAR EXCELLENCE Continued On Page 32

GENELEC®

Measured Success

Built on the solid foundation of the 8000 MDE™ and 7000 LSE™ series products, Genelec introduces the new 8200 and 7200 DSP series monitors. They are a measure of our continued commitment to customers who rely on the purity of sound reproduction.

With new technologies of DSP, GLM™ and AutoCal™ we have made our new DSP products powerful and easy to use, with the innate ability to adapt to your environment. And they do it uncompromisingly, accurately and quickly.



Genelec has utilized sophisticated digital signal processing in the new 8200 bi-amp monitors and 7200 subwoofers to achieve the next level of resolution in accurate reference monitoring.

GLM

The Genelec Loudspeaker Manager software package provides all necessary connectivity for a comprehensive computer-to-8200/7200 series DSP monitor interface.

GLM™ includes:

- Control of 30 loudspeakers on standard CAT5 cabling
- Eight section EQ
- Level, Distance and Vertical Axis settings
- Compensation audio delay for digital video
- Custom User Setup
- Solos and Mutes



AutoCal™

Genelec's automated calibration software, AutoCal™, combines decades of acoustic research along with our proprietary DSP and GLM™ network control. AutoCal will properly align and integrate each and every 8200 and 7200 speaker into any acoustic environment with exceptional precision. It's like having a Genelec acoustic product specialist on hand any time you wish – and more.

Digital monitoring systems are not new, yet none have realized the real potential, until now. For more information please visit our website.

www.genelecusa.com

PAR Excellence Award Winners

PAR EXCELLENCE Continued From Page 30

MXL USB.006 Microphone

Features: USB; condenser element; gold-sputtered diaphragm; 44.1 kHz, 48 kHz sampling rates; 5 dB/10 dB pad. Price: \$129.

Judges' Comments: "This one is rather scary – a USB-powered mic that sounds (and operates) more like a traditional studio condenser mic. We live in wonderous times!"

Contact: MXL/Marshall Electronics at 310-333-0606, www.mxlms.com.



Neumann KM-D Digital Microphones

Features: Modular system; omni, cardioid, hypercardioid swappable heads; preamp/converter body; up to 192 kHz sample rate; ships with windscreens, mic clamp. Price: \$3,495.

Judges' Comments: "Neumann now incorporates high quality analog-to-digital conversion, up to 192 kHz sampling, 24-bit in its popular instrument microphones."

Contact: Neumann at 860-434-5220, www.neumannusa.com.



Oram/DMM Paris SME-1 Stereo Microphone Preamplifier

Features: Two-channel; 48V phantom power; phase reverse; 1/4-inch front panel DI input; gain controls; tube.

Judges' Comments: "A David Manley-designed microphone preamp manufactured by John Oram's organization sounds like a winner to me!"

Contact: Oram Pro Audio at 44-14-7481-3500, www.oram.co.uk.



Roger Nichols Digital Pro Bundle

Features: Windows XP, Mac OS X; up to 192 kHz; RTAS, VST, AU; Dynam-izer; Finis; Uniquelizer; Frequel-izer. Price: \$745.

Judges' Comments: "Roger Nichols is taking the plug-in industry by storm. Great package of amazingly well thought-out widget plug-ins."

Contact: Roger Nichols Digital at 727-230-1603, www.rogernicholsdigital.com.



Rupert Neve Design 5088 Analog Console

Features: 32, 48, 64, 80-channel frames; 100mm faders; eight aux sends; talkback section; test tones; optional Portico modules. Price: starts at \$29,500.

Judges' Comments: "A fully discrete small-scale analog mixer starting at \$40k for 16 channels from Mr. Rupert Neve himself? This would seem to be as sure-a-thing as possible."

Contact: Rupert Neve Designs at 512-847-3013, www.rupertneve.com.



Shure KSM9 Live Microphone

Features: Cardioid, supercardioid patterns; condenser element; dual 3/4 gold-layered Mylar diaphragms; two-stage internal shockmount; steel mesh grille. Price: \$850.

Judges' Comments: "Following Neumann and Audio-Technica's lead, a higher-class condenser for live work."

Contact: Shure at 847-600-2000, www.shure.com.



Solid State Logic Duality Console

Features: SuperAnalogue preamps; Variable Harmonic Drive processing; SSL Series E and G EQ; 5.1 surround sound; HUI/Mackie DAW control; Total Recall settings recall.

Judges' Comments: "The new large-format music production console from the kings of large-format music production consoles is news alone. The fact that it exists to alleviate such a common problem (the DAW 'blahs') raised more than a few eyebrows. SSL continues to evolve with the music recording world and the Duality - a desk combining E, G and K analog sound with extensive DAW compatibility features - is the proof."

Contact: Solid State Logic at 212-315-1111, www.solid-state-logic.com.



The PL-2 Brickwall Analog Peak Limiter



Tame those pesky transients without messing up the rest.

- Two independent channels with stereo link
- JFET (hard) and MOSFET (soft) limiting modes
- Limiter circuit 'switched out' of the signal path when below threshold
- No latency - use it on a mix bus or an insert
- Stepped input and output gain controls ideal for mastering or session recall
- Precise readout of peak reduction
- Units can be linked for multi-channel applications

Pendulum Audio

pendulumaudio.com
(908) 665-9333

PAR EXCELLENCE Continued On Page 34

All 4 YOU

MIDI

4 new soft synths with over 1000 sounds
HALion One with Motif waves
Prologue virtual analog synth
Spector-spectrum filter synth
Mystic-physical modeling with spectrum filters

AUDIO

33 new VST3 plug-ins
Including pro EQs, vintage compressors
and amp simulation
for a total of 50 audio plug-ins
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MediaBay™
Universal Media Integration

SoundFrame™
Manage any sound
from any source

Import & Export audio from video
Video thumbnails in the timeline
Basic cut and paste editing of video inside your DAW

VIDEO

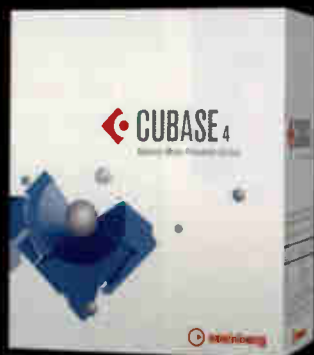
New Classical & Jazz fonts
Streamlined UI
Dynamic MIDI Articulation of Notation Symbols
for use with virtual orchestra libraries

NOTATION

Cubase 4 offers more creative possibilities than ever before. The 50 studio quality audio effects plug-ins and four new VSTI's would cost thousands of dollars on their own. Combining new features like a virtual Control Room and MediaBay™ with Steinberg innovations including Audio Warp and Play Order Track, Cubase 4 sets the standard for advanced music creation and audio production systems.

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Already own Cubase?
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Cross Platform Compatibility;
Universal MAC Binary (MAC Intel, OS X), Windows XP

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CUBASE 4
Breakthrough technology.
More creativity.
All 4 you.

 **steinberg**
Creativity First

PAR Excellence Award Winners

PAR EXCELLENCE Continued From Page 32

Steinberg Cubase 4 Software

Features: Windows XP, Mac OS X; 24-bit/96 kHz; VST3, VSTi; 5.1 surround sound; WAV, MP3, BWF, AIFF, REX; video; MIDI; music notation; SoundFrame organizer. Price: \$999.

Judges' Comments: "What's really eye-catching in this newest version is that Steinberg is beginning to address concerns beyond 'faster-bigger-fancier' with thoughts on organizing the information and material overload that are becoming inherent with these amazing DAW programs and powerful computer systems."

Contact: Steinberg at 877-253-3900, www.steinberg.net.



TASCAM DV-RA1000HD High-Resolution Master Recorder

Features: Two-track; 60GB hard drive; DVD-R/RW; DVD+R/RW, CD-R/RW; 24-bit; up to 192 kHz sample rate; DSD-compatible; onboard compressor, three-band EQ; USB 2.0 port; Price: \$2,499.

Judges' Comments: "The 2005 PAR Excellence Award winner gets a major improvement with the addition of a much-requested, built-in hard drive."



Contact: TASCAM at 323-726-0303, www.tascam.com.

True Systems Solo Ribbon Microphone Preamp

Features: Single-channel; high-pass filter (80 Hz); 1/4-inch front panel input; gain control; high gain switch. Price: \$749.

Judges' Comments: "True brings its sonic transparency to a ribbon-specific preamp."

Contact: True Systems at 520-721-2735, www.true-systems.com.



Virtual Katy Post Production Software

Features: Mac OS X, Windows XP, Pro Tools; NTSC, PAL; compatible with all TV frame rates; compatible with 3:2 pull-down. Price: \$995.

Judges' Comments: "For post audio studios, the Virtual Katy VK2 auto-conform and change management tool is destined to become invaluable. It's a program that allows an evolving project between an Avid video workstation and soundtrack on Pro Tools to be easily updated and conformed thanks to the VK Conformer."

Contact: Virtual Katy at 617-395-8128, www.virtualkaty.com.



Waves Mercury Collection

Features: Windows XP, Mac OS X; 91 processors; over 200 plug-ins; some 5.1 surround sound. Prices: \$12,000 (TDM), \$7,000 (Native).

Judges' Comments: "This is a clear winner. Who can say no to a huge plug-in bundle from Waves featuring 91 processors and over 200 component plug-ins consisting of most of their top-of-the-line packages?"

Contact: Waves at 865-909-9200, www.waves.com.



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Yamaha LS-9 Small-Format Digital Console

Features: 32, 64-input frames; 44.1 kHz, 48 kHz sample rates; Yamaha Rev X and SPX 2000 effects; 100mm motorized faders; onboard MP3 recorder; YGDAI slots. Price: starts at \$5,999.

Judges' Comments: "Most of an M7CL digital console crammed into a much smaller footprint and lower price. Designed to replace the venerable GA series."

Contact: Yamaha at 714-522-9011, www.yamahaca.com.



Zaxcom ZFR800 Wireless Recorder System

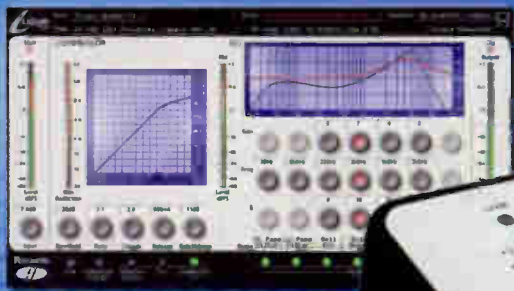
Features: SD card media; swappable mic heads; onboard wireless receiver for timecode; BWF, MP3 files; Windows, Mac software. Price: \$1,250.

Judges' Comments: "The first challenger to HHB's innovative FlashMic. The ZFR800 uses removable SD cards and has an internal wireless receiver for receiving timecode info. Very fancy."

Contact: Zaxcom at 973-835-5000, www.zaxcom.com.



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World Radio History


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UPSAMPLER

Capsule Reviews and Product Review Updates

MXL USB.006

Price: \$129 Info: www.mxlmics.com

Get ready, the USB microphones are coming. We reviewed the BLUE Snowball in August. Samson has its CO1U USB condenser mic and Rode just released its Podcaster USB dynamic microphone.

Expect more models from other manufacturers in the future. USB microphones attach directly to your computer with no additional mixers, mic preamps or interfaces.

Marshall Electronics adds to the fray with its MXL USB.006. The microphone resembles a traditional long-bodied, vintage large diaphragm condenser. Unlike some of the other USB mics it is a true condenser with a gold-sputtered Mylar diaphragm. It is plug-and-play with most Mac and PC audio systems. Both GarageBand and Audio Companion recording software tested fine with no problems. As always, research your particular program for compatibility.

Sound-wise, the first thing I noticed was an extended low midrange and true low end compared to the more clinical BLUE Snowball. This flattering frequency response soon had my thin voice sounding like a broadcast announcer. There is a dramatic proximity effect if you choose to mic up close. The cardioid-only USB.006's printed specs offer a 20 Hz – 20 kHz frequency response and sampling rates of 44.1 kHz and 48 kHz.

Setting recording levels with any USB microphone is an imprecise exercise. You must first choose the highest available setting without distortion and then fine-tune by adjusting microphone distance. The USB.006 has three sensitivity settings (neutral, -5 dB, -10 dB). This got me close to optimum levels for most things. The mic should be able to accommodate any vocalist or reasonably loud solo instrument. At the extreme end of the spectrum, a loud rock band practice had to be recorded from a long distance (the next room) to eliminate overloads. Still, it captured the full-range of the rhythm section much better than expected. A -20 dB pad would be a useful addition to the design. I found the mic a bit too easy to distort with some highly amplified sources.



Sound samples of the USB.006 are available at my audio website: <http://homepage.mac.com/daviswhite/Sites/soundcamera.htm>.

The MXL USB.006 proves that all USB mics do not sound the same. While other mics might accentuate the upper midrange for increased clarity, MXL has voiced this mic for more natural warmth and musicality. Now you have a choice. Included in the package is a padded carrying case, tripod table stand and 10-foot USB cable.

—Davis White

APWMayville Stantron Equipment Rack

Price: starts at \$600 www.stantronracks.com

To the control room tourist, an equipment rack is just something that supports equipment. I know differently, as I've purchased and installed a lot of racks.

When I learned that a new model was available from APWMayville for review purposes, I gladly volunteered my services to see how their product stacked up.

After a rack is delivered, the first thing you notice is how well it survived the trip.

APWMayville's Stantron arrived on a wooden pallet to buffer it from adjacent freight. Four cardboard sheets surrounded the rack and were pulled tight with shrink-wrap. One-inch thick honeycombed pads provided corner protection. The review model made the trip with zero dings.

The textured powder coat finish was a model of perfection — very evenly applied, outside and in, with no sign of underspray, overspray or "shadowing" around the rack's beefy internal braces.

The rack includes black and white height reference guides on both front and rear rails. Mounting rails have threaded bolt holes. These were very cleanly tapped and clear of paint.

Another measure of good rack construction is the squareness of the equipment opening. I checked this with my trusty Stanley framing square and the APWMayville passed with flying colors.

Uniform rail spacing is another mark of rack quality. Some racks come with rails so sprung, a jack is needed to spread them before mounting equipment. Not so with APWMayville — rails were uniformly parallel from top to bottom.

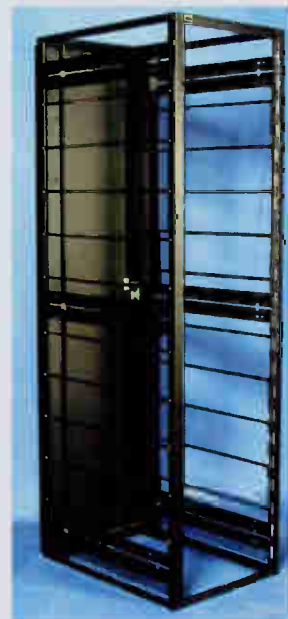
Speaking of rails, relocating rear rails to accommodate rear support of heavy equipment has always been a pain.

APWMayville felt this pain and did something about it. Relocating rails is as simple as loosening the bolts, sliding the rail where it's needed and then retightening the bolts. Installing or removing side panels is easy too. APWMayville was thoughtful enough to provide hand grips for lifting them.

This is the only rack that I've seen which comes with an instruction manual. The rack's only negative is the peanut-sized rear door latch. It's a bit small for normal hands.

All in all, I was well pleased and would recommend the product to anyone needing a quality rack.

—James E. O'Neal



A special Supplement to Pro Audio Review, November 2006

ProAudio Review

The Review Resource for Sound Professionals



The Buyers Series: **MICROPHONES**



Audio-Technica's new Artist Series™

The next generation is here.

Audio-Technica's renowned Artist Series has been re-engineered from the ground up. We've packed the culmination of 40+ years of research and design into the rebirth of these road-proven, reliable designs — adding some spectacularly innovative microphones to the line, and upgrading classic models for a complete selection of vocal, instrument and drum mics.

This first-ever remake of the Artist Series was inspired by consultations with touring artists and sound engineers who rely on these microphones for rock-solid performance every night. Our engineers turned their *what if's* into *why not's*. Why not create a dual-element kick drum mic that the working musician can afford? Or a pencil side-address condenser built for incredibly flexible placement options? What about adding a durable vocal condenser to the Artist Series family? We are proud to have made these and more dreams for this series a reality.

The sound is everything you'd expect from Audio-Technica. The vocal mics set industry standards for intelligibility, detailed reproduction and noise suppression. The new instrument microphones feature a fast transient response and low distortion characteristics that faithfully reproduce the complex details of virtually every sound source. For the drums, Audio-Technica built on the legacy of its legendary AE2500, and introduced the ATM250DE, a dual-element kick-drum microphone that combines two perfectly positioned capsules in a single housing.

These mics are built tough. As the company that made studio condensers durable enough for stage use, we know a thing or two about solid construction. The Artist Series is rugged to the core — these all-metal microphones are engineered to perform flawlessly despite the inevitable bumps and bruises of life on the road.

These microphones are created to bring clear sound, rock-solid durability and aesthetic design to every stage where artists and audiences connect... from corner bars to Carnegie Hall. Meet the Artist Series. New, again, from Audio-Technica, the pioneer in high-performance transducer design.

Vocal Microphones

ATM410 Cardioid Dynamic Vocal Microphone
This cardioid dynamic workhorse is designed for smooth, natural vocal reproduction and low noise.



ATM610 Hypercardioid Dynamic Vocal Microphone The premier Artist Series dynamic vocal mic is tuned for clear, detailed, extended-range reproduction of lead and backup vocals.
ATM710 Cardioid Condenser Vocal Microphone The Artist Series vocal condenser microphone is tailored for exacting detail and high-fidelity vocal reproduction.

Instrument Microphones

ATM250 Hypercardioid Dynamic Instrument Microphone The ATM250 hypercardioid dynamic is tailored for kick drum, percussion, brass and other highly dynamic instruments.

ATM250DE Dual-Element Instrument Microphone The ATM250DE dual-element kick drum microphone features cardioid condenser and hypercardioid dynamic capsules combined in a single housing.

ATM350 Cardioid Condenser Clip-On Microphone The low-profile ATM350 is an exceptional cardioid condenser microphone designed to clip to brass, reeds, piano, snare, toms and violin.

ATM450 Cardioid Condenser Instrument Microphone The ATM450 cardioid condenser offers an innovative side-address stick design for endless placement options and minimal obstructions.

ATM650 Hypercardioid Dynamic Instrument Microphone The versatile ATM650 has a frequency response tailored for clear sound reproduction of guitar cabinets, snare and percussion.



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COMPLETELY RE-ENGINEERED FROM THE GROUND UP



ATM710
condenser tailored for high-fidelity vocal reproduction



ATM610
hypercardioid dynamic for extended-range vocals



ATM410
dynamic workhorse for lead and backup vocals



ATM650
high-output instrument mic with multi-stage grille



ATM350
clip-on condenser supplied with violin mount & UniMount® clip



ATM250DE
affordable dual-element kick mic (condenser, dynamic)



ATM250
hypercardioid dynamic kick/percussion mic tailored for high SPLs



ATM450
side-address stick condenser offers endless placement options

For detailed information on the all-new Artist Series, visit www.audio-technica.com

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Big Ribbon™ Microphones



Turtle Island String Quartet photo: Gus Skinas / Sonoma DSD

Audio Engineering Associates (AEA) has championed ribbon microphones for over twenty-five years. AEA's Wes Dooley has serviced, sold, and demonstrated the virtues of ribbon mics from beyerdynamic, Coles and RCA. In 1996 he began work on the *Big Ribbon*™ series: a classic R44C reissue, the neo-classic R84, the stereo R88, and our new, up-close R92. AEA also builds *The Ribbon Pre*™, Decca trees, MS matrixes, stereo microphone positioners, and tall mic stands and booms.

Recording work in Europe, Africa, New Zealand, and the United States led Wes to design products for AEA and friends. For his 1972 African recordings he created AEA's *Flight Weight*™ stands. For LA Philharmonic broadcast recordings he developed *Active MS Stereo*™ decoders. In 1980s he began importing Coles ribbons, and built the MS380TX preamp with 84 dB of gain. In the 1990s Wes designed heavy-duty tall-stands and booms, stereo microphone positioners, Decca trees and microphone arrays, and he reintroduced the 44 series ribbon mics.

Wes Dooley and Ron Streicher have written three papers: *Basic Stereo Microphone Perspectives—A Review*, *M-S Stereo: A Powerful Technique for Working in Stereo*, and *The Bi-Directional Microphone—A Forgotten Patriarch* published by the Audio Engineering Society (AES). Wes was awarded the AES Silver Medal in 2003 for his contributions to the field of audio engineering.

Turtle Island String Quartet's first TELARC release, *Four + 4*, won the 2006 Best Classical Crossover Album Grammy. Their second TELARC recording this August used five AEA R84s, one R44C, and two stereo R88s with AEA TRP pre-amps. Five Sennheiser MKH 800s and a Neumann 'Fritz' dummy head handled the distant miking. ATC played these masters in their October AES demo room to rave reviews.

AEA has made accessible the classic *Big Ribbon*™ sound to a new generation of engineers such as Linda Perry and Sylvia Massy Shivy. AEA users love their mics and often write us about their experiences.

"I never dreamed I would use it (R84) as much as I do. It sounds good everywhere".

"...my favorite mic (R84)—I've used it on vocals, harmonica, percussion and violin so far—I want another".

"Excels on saturated guitars!!!" (R92)

"I am absolutely blown away by the smoothness and warmth of the R92, and how it retains high end detail without the high-mid shrillness of even the most expensive condensers.... I can scarcely recall when I have been more pleased with a gear purchase. The R92 is amazing!"

"(R88) Fantastic on brass and drum overheads. I love this mic....I use it on every session ...".

"I own other ribbon mics, but this one (R88) is stunning."

Brian Ahern recorded Emmylou Harris' *Connection* (2006 Grammy for best country vocal performance) with just one mic. "I kept waiting for something to sound wrong but it never did! I used different distances for different sound timbres. Other than a beat box, it's all just my AEA R44".



Audio Engineering
Associates

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R44

R84

TRP

R88

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Audix Microphones: Consistent Innovation!



Cliff Castle, Audix co-founder



Eddie Vetter with OM7



VX-5 hand held condenser



Audix Microphones

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www.audixusa.com
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The following is a “Snap-Shot” Interview with Cliff Castle—co-founder of Audix, an innovative microphone manufacturer that has consistently raised the bar with its successful line of products, including the award winning SCX-1, SCX25-A and D series studio microphones, and the top performing OM-Series vocal mics, the Micros, the VX10, and i-5 for sound reinforcement and installations.

How did Audix get its start?

Audix had its humble beginnings back in 1984 in Redwood City, California in a “suite” of offices totaling about 300 square feet! Initially, we were set up as the distribution arm for Audix Japan, a microphone company who was manufacturing strictly for the domestic market. The microphones were good, but not good enough to compete with the industry standards of the day. One thing led to another and we started redesigning the microphones and improving the performance characteristics. The first two years were pretty painful, but, by 1986, we introduced our first high-level vocal performance mic, the OM 1, which received very positive magazine reviews and made its way into high profile users including the Beach Boys, one of my all time favorite groups.

The OM series vocal mics are stronger today than ever. How has Audix maintained this success?

We developed our own capsule design that featured “VLM” technology, which stands for “Very Low Mass.” These lightweight diaphragms are able to react more quickly to incoming sound waves, which result in a more natural, accurate sound with better transient response. This diaphragm design, along with the hypercardioid design of the polar pattern, provided unprecedented gain before feedback, still unparalleled to this day.

Artist and engineer support has also helped. We happened to be paying attention to the “grunge” groups emerging out of the Northwest in the early 1990s. I demoed the OM7 to Dave Rat (Rat Sound) who was providing sound for two unknown groups at the time—Pearl Jam and Red Hot Chili Peppers. He pretty much flipped out when he heard the gain before feedback of the OM7 in the monitors. He thought there was some type of voodoo going on. Before we knew it, the OM7 became the microphone of choice for just about all the groups in the grunge scene—and fortunately for us, the groups hit the mainstream. By 1995, another of our mics, the

OM5, made its way into the hands of “The Tonight Show,” the Late Show” and “MTV Unplugged,” as well as many artists such as Alanis Morissette, Bonnie Raitt, Bruce Springsteen, and Crosby, Stills, and Nash—all of whom continue to use their Audix mics to this day.

Audix is now established as a leading manufacturer in drum and percussion mics – how did that come about?

Being a musician helps. I realized that drummers and percussionists, the guys who provide the heart-beat for any musical content, were being neglected as far as mics specifically designed for their applications. The Sennheiser 421, which we recognized as a great mic, had become the standard percussion mic for pros. The downside to that mic is that it’s fairly big, cumbersome and expensive. So we came up with the D series—application-specific mics for



CNC 8 axis lathe produces the D series

drums. Machined at Audix out of high-grade aluminum bars, these mics are compact, accurate, able to handle high SPLs, and cost effective. After a few years, they gained widespread recognition, and with the most recent addition of the D6 and the i-5, these mics have become really good, dependable tools for a wide variety of instrument needs.

Audix also continues to develop interesting condenser mics. Any tricks up your sleeve that we should be on the lookout for?

You already know about the SCX25-A, an improved version of our formidable large-diaphragm condenser mic that is ideal for acoustic instruments, overheads, and vocals. The Micros are the world’s smallest standalone condenser microphones with an integrated mic preamp. The 50-inch carbon fiber MicroBoom incorporates the Micros in a way that makes it the ideal solution for choir miking without having to hang mics from the ceiling. And our latest innovation is the VX5 handheld condenser vocal mic with pad and rolloff. Keep an eye out for that mic; it is bound for stardom!



On Tour with AUDIX Microphones

Clockwise from top left

Bonnie Raitt > Shooter Jennings > Tower of Power >
Katie Melua > Fall Out Boy > MxPx > Casting Crowns >
Alanis Morissette > Daize Shayne >
Charlie Musselwhite > Matisyahu >

Photography by Rob Schnell (MxPx)

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World Radio History

SMK4061 Miniaturizing Piano Miking



The SMK4061 Stereo Microphone kit has been designed for both live and recording applications with Acoustic Piano in mind. The kit is based around a hand-selected pair of our world famous 4061 Miniature series omnidirectional microphones. The 4061 is currently the microphone of choice for many individuals and organizations, from being the mic mounted on priceless Stradivarius instruments for live performances, to the mics for all instruments in the L.A. Philharmonic when playing at the Hollywood Bowl.

Well-Deserved Reputation

The 4061 has earned a reputation as a moderate cost, nearly invisible microphone that offers all of the sonic advantages of the larger, more expensive microphones DPA has become famous for. Providing a characterless sound quality, the 4061 is also capable of handling the extreme sound pressure levels that occur when mounting the microphones in very close proximity...or even directly on the instrument itself. Doing these things with high resolution and detail is what puts the 4061 into a performance category all to itself.

In developing the SMK4061 solution, we assembled a range of accessories that lend themselves to the Acoustic Piano. Getting exceptional results with the acoustic piano, specifically "on stage" in a house of worship music ministry application, has proven to be difficult at best for even the top facilities. Generally a large diaphragm microphone is settled

upon after countless hours of frustration and many dollars investing in miking solutions that simply don't work. Sadly, even with the large diaphragm mics, often a lack of clarity and something less than "musical honesty" is the best that can be achieved. This type of microphone typically requires mic stands and boom arms, giving a less than desired aesthetic to the stage area and simply does not lend itself to anything other than an "open lid" configuration, even though closed lid is often most desirable for sight lines and feedback control.

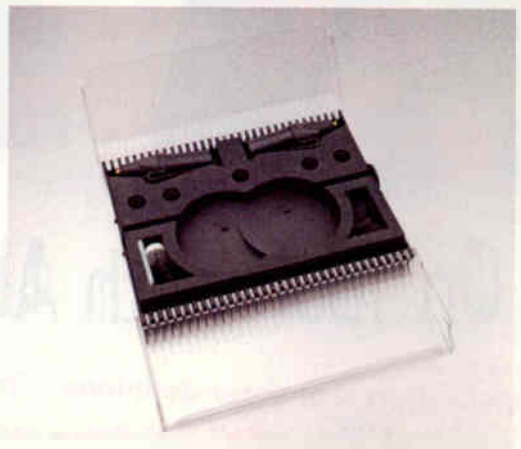
On Piano

The SMK4061 was developed as a piano miking solution. The 4061 microphones are so small as to be nearly invisible, so they lend themselves perfectly to the closed lid scenario. The mounting accessories, which include, most notably, a set of magnetic mounts about the size of a dime, allow the sound engineer to mount the mics inside the piano directly to the metal frame.

With such placement, and a mic cable less than 1/8 the diameter of a "standard" mic cable, one can easily use the SMK system lid up, lid down or anywhere in between. The resulting performance of these mics is nothing short of exceptional, capturing the true intrinsic character of the piano.

Also included in the SMK4061 kit is a set of our Boundary Layer Mounts which transform the 4061's into "pressure zone" mics. They allow the 4061 to work like a kind of acoustical zoom lens, providing higher sensitivity, clarity and intelligibility when compared to sound captured from "free air." Between the magnets and the BLM mounts, a significant range of mounting options are provided.

The result is performance that belies their price.



DPA
MICROPHONES

DPA Microphones, Inc.

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Longmont, CO 8050

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866-DPA-MICS

Fax: 303-485-6470

www.dpamicrophones.com

info-usa@dpamicrophones.com

REDEFINING PIANO MICING

DPA microphones capture many of the great piano performances worldwide, with absolute fidelity and integrity.

Now the new SMK4061 Stereo Microphone Kit partners a pair of DPA 4061 miniature omnidirectional microphones with a comprehensive range of mounting accessories to deliver a complete and uniquely discreet stereo micing solution for pianos.

Closed lid or open stick, the SMK4061 achieves exceptional results in both live sound and recording applications.



SMK4061 Stereo Microphone Kit

The microphones for sound professionals with uncompromising demands for musical accuracy

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High Definition Microphones™

What is a High Definition Microphone™? It is a microphone that will pick up sounds with far greater accuracy and fidelity than conventional microphones. The difference you hear is like the difference you see when comparing a standard television picture to a high definition television picture. It is that dramatic!

Today's recording systems and recording media are getting better and better with higher sample rates and increased bit rates that provide extended frequency response, lower noise and greater dynamic range. The question is, are microphones capable of picking up sounds with increased bandwidth, lower distortion and with far greater detail? Most microphones available today only have high frequency responses reaching between 15 kHz to 20 kHz and are also not fully capable of supplying the increased detail and dynamic range.

In contrast, David Blackmer, the inventor and engineering genius of the Earthworks and dbx core technologies, foresaw our time. He realized that dramatic improvements in microphone design technologies were needed to replace some of the existing outdated ones. So, he invented a number of new technologies to dramatically increase the audible quality of microphones. Earthworks™ High Definition Microphones™ are not made like any other microphone on the market because they employ Blackmer's new advanced microphone technologies. The audible results are startling! Let's look at some requirements needed to create advanced, higher quality microphones:



Earthworks Inc.

37 Wilton Rd.
Milford, NH 03055

Tel: 603-654-6427 ext. 14
Fax: 603-654-6107

www.EarthworksAudio.com
sales@earthworksaudio.com

Requirements of a High Definition Microphone™:

• Better Impulse Response

This is the ability of a microphone to accurately pick up signals with fast transients and rise times such as percussion, brass, guitar and piano. The impulse response is the single best measure of the overall sonic accuracy and fidelity of a microphone.

• Shorter Diaphragm Settling Time

A shorter diaphragm settling time will increase a microphone's ability to pick up subtle low-level sounds and transients. If the diaphragm is still vibrating from the sounds it picked up previously it will tend to mask or color many or all of the subtle sounds that follow.

• Extended Frequency Response

A number of studies have shown that acoustic sounds and overtones of musical instruments extend to beyond 100kHz. Studies also indicate that sounds beyond 20 kHz greatly influence the overall quality of the sound we perceive.

• Minimum Signal Path

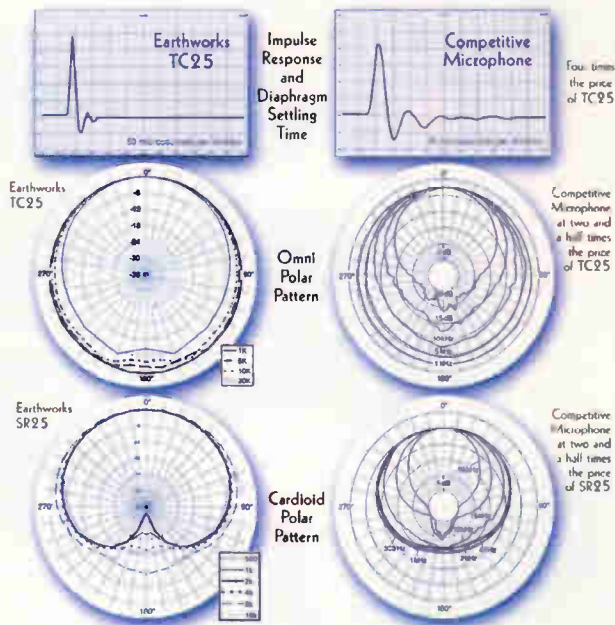
Minimum electronics provide a more pure and unaltered signal. Features such as switchable patterns, pads and hi/low pass filters tend to degrade the sonic qualities of a microphone.

• High SPL Handling at Low Distortion

Many microphones will create severe distortion above 120dB SPL. Higher quality microphones must have very low distortion up to and beyond 140dB SPL. This provides far cleaner signals when picking up high level transients from close-miked or amplified instruments.

• Cable Length

Once a microphone has provided a pure signal with extended frequency response, this signal must get to the other end of a long cable without losses. High current, Class A amplifiers allow driving long cables at very high frequencies without signal loss or slewing.



• Improved Polar Patterns

Polar response of most conventional microphones is poor over their operating frequency range. This causes beaming or spotlighting in addition to deteriorating frequency response with phasing problems on the edges of the pattern, resulting in phase cancellations and/or coloration in close multi-miking, and contributing to acoustic feedback. Improved polar response dramatically reduces these problems.

All Earthworks microphones with extended frequency responses to 25 kHz and above meet these criteria of a High Definition Microphone™. Even our 20 kHz models meet all these criteria with a frequency response out to 20 kHz. Those who have heard Earthworks microphones are astounded by what they hear. When using an Earthworks microphone, typical comments are: "I hear details that I don't hear with other mics!", "This is the best guitar sound, ever!", "This drum sound blows me away.", "This is the best piano sound that ever came out of this studio!", "You'll have to pry these mics from my cold, dead hands!" and many more.

Go to www.EarthworksAudio.com and request the free High Definition Microphone™ Demo CD." Just listen for yourself and you too will be astounded!

For Those Who Know the True Value of an Exceptional Drum Sound

Introducing
the New

Earthworks
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SYSTEM

HDM HIGH DEFINITION MICROPHONES™

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Free DK50 Premium DrumKit™
Demo CD available in Dec., 2006.
Order yours now!

More and more drummers are discovering the incredible drum sound that can be theirs with Earthworks™ High Definition Microphones™. Drummers such as Keith Carlock (with Steely Dan), Anton Fig (with the David Letterman Show), and Jeff Campicelli (with Joe Satriani) all speak of the exceptional drum sounds they are getting with Earthworks High Definition Microphones. These DrumKit™ High Definition Microphones will make a remarkable difference in either your recordings or live performance. Go to www.EarthworksAudio.com and request a Free DrumKit™ Demo CD so you can hear it for yourself.

The new, Premium-DK50R DrumKit™ System for recording features 50kHz and 30kHz High Definition Microphones™. The gold mics and accessories come in a genuine Zero-Hairbrush™ case, (available in December '06)

The popular DK25 DrumKit™ System featuring 25kHz High Definition Microphones™ DK25R for recording™ and DK25/L for live performance™. Each comes in an attractive aluminum case.

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Groove Tubes: Mics for All Seasons



diaphragms, which we introduced to the industry and are still the world's thinnest diaphragms. And now, with the VELO 8 and its large format ribbon element, we have another great flavor to choose from; it sounds like the best of the ribbon mics, and it's the only one with a field-interchangeable ribbon. No single mic will do everything for everybody, so we're happy to offer a GT solution, no matter what the job."

Company Philosophy

The company's design philosophy is apparent in mics like their mid-sized GT30 and GT40, which have optional interchangeable capsules that turn them from Cardioid to Omni or Hypercardioid. Another great example is the 2006 TEC award-winning GT

Still flush with excitement from having won a 2006 TEC award for their GT Convertible stage/studio condenser mic, Groove Tubes will be the first to tell you that there is no such thing as "the best microphone." From female vocalists to acoustic guitars to kick drums, each audio source and recording/live sound environment is unique. That's why having a deep mic locker is crucial to any serious engineer.

Groove Tubes has crafted a high quality microphone line that fully takes advantage of this fact. "There's a GT mic for everything," says Aspen Pittman, who founded Groove Tubes 29 years ago and continues to run the business today. "It's no accident that we introduced both Class A FET and tube versions of our condenser mics. We've made different flavors that sound great for different sources."

Pittman continues, "It was also part of the plan to have mics like the GT60, which use our exclusive disk resonator to extend high frequencies, as well as mics like the MD1B which retain more of a classic, vintage sound for vocals and instruments. Different sounding, but each with incredible detail as both capsules are hand-built with our ultra-thin 3-micron gold evaporated

Convertible, an affordable yet high-quality true condenser (not electret) mic that changes from a hand-held vocal mic with a removable ball wind screen into an instrument microphone for close miking applications.

There's another aspect that Groove Tubes brings to enhance any mic locker: the entire front-end package. "Most people know we make more than mics," says Pittman. "While GT mics are going to perform well in any signal chain, we're happy to offer complete solutions by pairing our mics with front-end tools like our VIPRE, SuPRE (both PAR Excellence winners) and Brick tube preamps, as well as the Glory Comp, our new all-tube compressor."

The sound of an all-GT front end is no "secret" to the engineers and producers who use them daily. Countless records in every genre of music from

pop and metal to classical and jazz have been made with GT mics, preamps and processors. Famed engineers/producers like Greg Ladanyi, Michael Wagener, and Al Schmitt consider GT gear an essential tool in their bag of tricks. If you're looking to unlock the secrets of great tone, a GT microphone and front-end processor is the key you've been missing.



Groove Tubes

1543 Truman St.
San Fernando, CA 91340

Tel: 818-361-4500
Fax: 818-365-9884

www.groovetubes.com

IF GROOVE TUBES MICROPHONES ARE PRO AUDIO'S **BEST KEPT SECRET**, OUR SECRET KEEPERS AREN'T DOING A VERY GOOD JOB.



GREG LADANYI
(FLEETWOOD MAC, WARREN ZEVON, DON HENLEY)

"For all the most important vocal and instrument sources, my GT mics, ViPRE mic pre, and Glory Comp tube compressor are what I turn to every day in the studio."



MICHAEL WAGENER
(MOTLEY CRUE, METALLICA, OZZY OSBOURNE)

"The Glory Comp, ViPRE and GT mics have become an essential part of my setup, on everything from guitar to bass to vocals."



FOX MUSIC NEWMAN SCORING STAGE
(X-MEN, THE SIMPSONS, KING KONG)

David Newman: "I love to record my violins and percussion elements with the ViPRE and our GT mics. They capture the sound of the rosin and strings extremely well."



GT Convertible:
Winner of the
2006 TEC Award
(Best Microphone for
Sound Reinforcement)



Mid-Size Diaphragm Class A FET Condenser GT30
Mini-Size Diaphragm Tube Condenser GT40
Large Diaphragm Class A FET Condenser GT50
Large Diaphragm Tube Condenser GT60
Large Diaphragm Class A FET (Multi-pattern) GT57
Large Diaphragm Tube (Multi-pattern) GT67
Large Diaphragm Class A FET Condenser MD1B FET
Large Diaphragm Tube Condenser MD1B TUBE
Velocity (Ball) Microphone VELO 8

More info on Groove Tubes' pro audio products available at www.groovetubes.com



Holophone Surround Sound Microphone Family

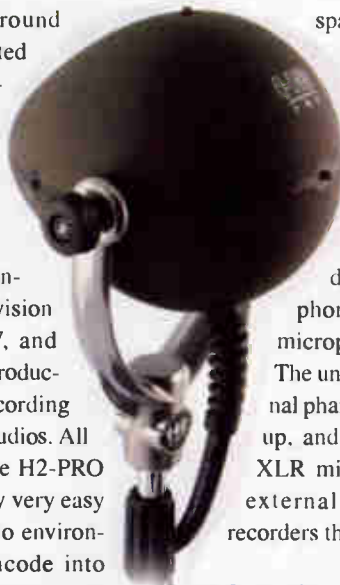
The Holophone H2-PRO Surround Sound Microphone is the only patented device specifically designed for capturing discrete 5.1, 6.1, and 7.1-channels of surround sound for all professional audio applications.

Its flexibility, ease of use, and performance make the H2-PRO ideal for recording live events and in-studio use. It is well suited for television broadcasters (standard TV, DTV, and HDTV), radio broadcasters, music producers and engineers, film location recording crews, and for independent project studios. All surround sound recordings from the H2-PRO are discrete and in real time, thereby very easy to bring into any broadcast or studio environment, manipulate, mix and/or encode into any/all of the standard consumer playback formats – Dolby, DTS, and Circle Surround. The H-2 Pro provides engineers and producers total control over all incoming, discrete surround sound audio signals and delivers those signals in an intuitive way. The Holophone H2-PRO Surround Sound Microphone is entirely compatible with all standard analog and digital I/O devices that accept up to eight channels and provide phantom power including hard disc based recorders, multichannel preamplifiers, standard multichannel I/Os, and all mixing consoles.

H3-D

H3-D, 5.1 surround sound capture for pro audio, project studios, live music production, educational applications and faith-based facilities as well as professional broadcast and recording studios. The H3-D is a powerful tool for engineers, content producers and artists on all levels to craft realistic and exciting surround sound tracks.

Based on industry standard, patented Holophone Surround technology, the H3-D offers a dedicated 5.1 design that brings the unit within the reach of the growing market segment in need of surround capture capability. The H3-D is easy to use, making it the ideal choice for situations that have budget, engineering or



space restrictions. By shattering the price to performance barrier, professional grade surround sound can now enter the production stream on all levels, further enhancing the listening experience for the end user.

The H3-D features five multi-directional, full bandwidth microphone elements and a discrete LFE microphone in one integrated capsule. The unit offers LED verification of external phantom power for ease of remote setup, and is compatible with all standard XLR mic inputs on recording consoles, external pre-amplifiers and location recorders that provide phantom power.

H4 SuperMINI

The breakthrough Holophone H4 SuperMINI Surround Sound microphone system delivers expansive 5.1 channel audio field capture in a super compact package, mountable on any professional quality video camera. The system offers an integrated multi-channel pre-amplifier, virtual surround headphone monitor and matrix surround encoder allowing truly professional results for six-channel processing of live audio from the concert hall and sports stadium to fast-paced ENG applications. The H4 is ideally suited for all live event television broadcasters, live music producers and engineers and film and video location crews who are interested in real-time

surround audio for delivery to an ever increasing Home Theater audience. The microphone has six independent microphone elements that are output through either a matrix surround encoded stereo analog output or six line-level analog outputs, available through three stereo mini-plug jacks. The SuperMINI has additional capabilities that include an input for an external, center-channel placed shotgun or lavalier microphone to enhance sonic opportunity options and features a zoom button that increases the forward bias of the pick-up pattern. It also includes Virtual Surround Monitoring on headphones for real time on-camera 3-D audio monitoring of the surround field.



HOLOPHONE®

Holophone

258 Adelaide Street East,
Suite 200
Toronto, ON, Canada M5A 1N1

Tel: 416-504-8711

www.holophone.com
info@holophone.com



Surround. Simple.

Hey You!

Yes. THIS MEANS YOU... lying on the couch or sitting at the desk or in the producer's chair or lying in bed...

Throw your surround microphone arrays in the trash!

Buy a Holophone. It just makes life so simple...

(Or at least rent one and try it!)



2006 TEC AWARD NOMINEE FOR OUTSTANDING TECHNICAL ACHIEVEMENT



A W A R D W I N N I N G P R O D U C T S



World Radio History

HOLOPHONE®

Surround Sound Microphone Systems

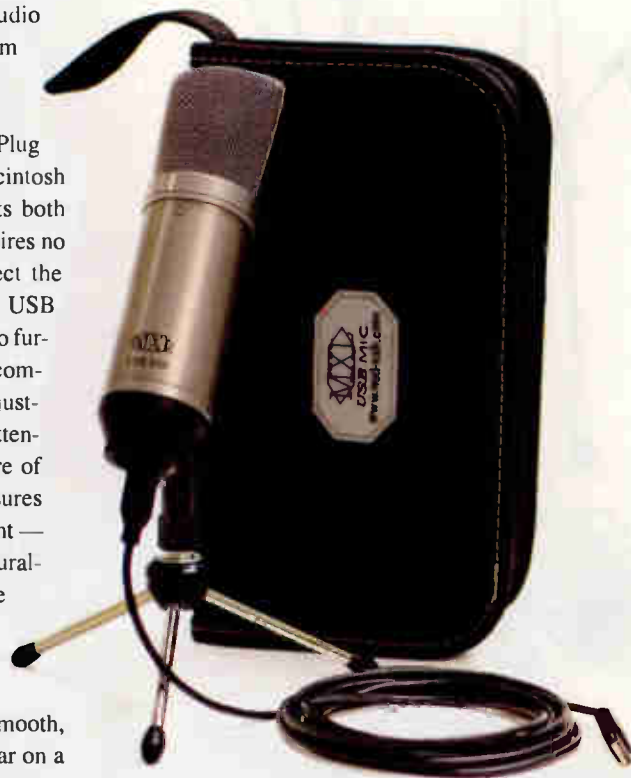
www.holophone.com 01.416.362.7790

MXL-USB.006 Microphone



The MXL-USB.006 is a true cardioid studio condenser microphone with a gold diaphragm that connects directly to personal computers via USB (Universal Serial Bus) without the need for an external mic preamp. As a true Plug and Play device for both Windows and Macintosh personal computers, the MXL.006 supports both USB 1.1 and 2.0 (high speed USB) and requires no special drivers whatsoever. Simply connect the microphone's USB cable to the computer's USB port, and installation is quick and effortless. To further simplify using the microphone with a computer, the MXL.006 handles analog gain adjustment settings via its built-in three-position attenuation switch while the computer takes care of actual record levels. This arrangement ensures proper gain staging and facilitates movement — freeing the user from having to remain unnaturally still while speaking or singing into the microphone.

Unlike electret or dynamic microphones that are commonly used for computer work, the MXL.006 has an extremely smooth, natural sound typical of what one would hear on a professionally produced CD or radio show. The analog section of the MXL.006 microphone features a 20 Hz - 20 kHz frequency response, a gold diaphragm, pressure-gradient condenser capsule, and a three-position, switchable attenuation pad with settings for Hi (0 dB), Medium (-5 dB), and Lo (-10 dB), making it easy to configure the microphone to virtually any sound source. The digital section features a 16-bit Delta Sigma A/D converter with sampling rates of 44.1 kHz and 48 kHz. Protecting the instrument's capsule is a heavy-duty



wire mesh grille with an integrated pop filter.

To make recording a trouble-free process, the MXL.006 features a red LED behind the protective grille. This LED informs the user that the microphone is active and correctly oriented toward the user. Like many professional grade studio microphones, the MXL.006 has a beautiful silver matte finish. The MXL.006 ships with a travel case, a desktop microphone stand, a 10-foot USB cable, windscreens, an owner's manual, and an applications guide.



MXL Microphones

1910 East Maple Ave.
El Segundo, CA 90245

Tel: 800-800-6608
Fax: 310-333-0688

www.mxlmics.com
sales@mxlmics.com



PLUG

PLAY



PERFORM

It's that easy to get started with the MXL USB.006. No menu's, no drivers to install, Just plug it in, set your preferences and you're recording! Ease of operation is just the beginning. Inside this great looking body you get a true Gold Diaphragm Studio Condenser Microphone - not a cheap dynamic or noisy electret. Its got real analog volume adjustments to ensure precise gain staging and sounds just like a studio mic should. The MXL.006 comes with a 10' USB cable, a table stand, a travel case and is MAC and PC compatible.

Audition one today at most fine music retailers.



(800) 800-6608 / www.mxl-usb.com



Digital Wireless Recording from Zaxcom



Zaxcom, Inc. designs and manufactures innovative professional audio equipment for the television and film industries. A pioneer in audio technologies for sound mixing and ENG professionals, Zaxcom engineered the first digital wireless microphone and the first wireless microphone to feature integrated audio recording.

Zaxcom's revolutionary TRX900, TRX900AA and TRX990 digital recording wireless microphone transmitters are the industry's first wireless microphones to provide integrated audio recording, time code transmission and full encryption to protect sensitive

audio files. This patent-pending feature set allows audio professionals to record up to 12 hours of audio directly to a Flash memory card and then transfer the .WAV files to either a PC or Macintosh for post-production.

The TRX900 and TRX900AA systems are designed for use primarily with a lavalier microphone. The TRX990, with integrated phantom power, is engineered as a complete solution for wireless booms, parabolic microphones, and a two-channel ENG bag-to-camera link. Additional information is available at www.theultimatewireless.com.

The latest addition to the TRX series is Zaxcom's TRX800 handheld wireless microphone with internal recording. Designed for use in studio, theater, and ENG applications, the TRX800 handheld is the only professional wireless handheld microphone to use digital modulation. Unlike other handheld microphones, which use a compander or audio processor that colors the audio, the TRX800 offers audio quality equivalent to AES audio on a hard-wired cable. The handheld unit records up to 12 hours of audio to a removable memory card. By recording directly to the handheld mic, the TRX800 provides a backup of all audio transmissions. When RF interference or signal loss is experienced, the user can simply transfer the audio stored on the TRX800's memory card to a broad-

cast-quality WAV file with SMPTE time code reference.

The fully encrypted TRX800 handheld system is controlled via an internal RF receiver. SMPTE time code transmitted to the TRX800 provides a time code reference for the system's patent-pending internal recording capabilities. Users can employ an RF remote to control all audio parameters even while the TRX800 unit is in use. Multiple units may be used together to form a virtual multitrack recording sys-



tem (patent pending). The TRX800 has a run time of four and one-half hours. There are also two recorders that are similar in design to the TRX series, the ZFR100 and ZFR800. These recorders, one belt-pack style, the ZFR100, and one handheld style, the ZFR800, record time code stamped .WAV files on removable mini SD cards that can be instantly changed in the field then transferred to either a PC or Macintosh for post-production.



Zaxcom

Zaxcom

230 West Parkway, Unit 9
Pompton Plains, NJ 07444

Tel: 973-835-5000
Fax: 973-835-6633

www.theultimatewireless.com
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No Signal? *No Problem!*



You're never out of range with **Zaxcom Digital Recording Wireless**

The new TRX900 has an optional 12 hour, 24 bit internal loop-recording capability. Audio is Time Code referenced, recorded and played back on a mini SD memory card that is instantly removable and can be used in any standard SD card reader. The cards contain Time Code stamped BWF files that will match up perfectly with sound and picture.

The Zaxcom logo, featuring the word 'Zaxcom' in a stylized, italicized font with a blue and white gradient.

230 West Parkway, Unit 9 Pompton Plains, NJ 07444
(p) 973.835.5000 (f) 973.835.6633 theultimatewireless.com

STUDIO

The latest news and products

NEW PRODUCTS

CHARTEROAK Acoustic Devices M900 Microphone



Amid the recent flurry of large diaphragm studio microphone introductions, CharterOak Acoustic Devices has snuck in with a new small diaphragm condenser, the M900. The M900 ships with cardioid, hypercardioid and omnidirectional capsules for maximum flexibility. Features include a 10 dB/20 dB pad along with a two-stop high-pass filter (75 Hz or 150 Hz).

PRICE: \$569, matched pair - \$1,099.

CONTACT: CharterOak Acoustic Devices | ☎ 860-698-9794

↳ www.charteroakacoustics.com.

REALTRAPS Corner MondoTrap, Tri-Corner and RFZ



RealTraps has launched three new acoustic panels designed for special circumstances. The Corner MondoTrap is a MondoTrap designed for use in corners to trap your mondoes and if you have none of those then to tame bass problems residing in the corner. The Tri-Corner is bass trap designed to fit where two walls and a floor or ceiling meet. The RFZ (Reflection Free Zone) is 32 inches by 42 inches by 2 inches deep and is aimed at snuffing out first reflections.

PRICES: Corner MondoTrap - \$349, Tri-Corner and RFZ are both \$249.

CONTACT: RealTraps | ☎ 866-732-5872

↳ www.realtraps.com.

BRYSTON 28B-SST Amplifier



Wow! Talk about once thought extinct beasts! Bryston has launched a new studio amplifier, the 28B-SST. This monobloc, nicknamed "Monster," is the latest in the SST line of big iron. Output is in the neighborhood of 1,000 watts and specs show the very low distortion level typical of a Bryston. Internals include details such as complete isolation of power supply from audio path.

PRICE: \$7,000 each.

CONTACT: Bryston | ☎ 795-742-5325

↳ www.bryston.ca.

TC ELECTRONIC M350 Dual Engine Effects Processor

Rather like saber-toothed tigers there was a brief time that digital multiprocessors ruled the Earth – the scariest beast out there. Those days are gone and the big kitties' descendants are niche products



for the most part or DAW plug-ins so it's quite exciting to see an original. The TC Electronic M350 is a real live dual engine effects processor complete with all the glorious effects required – reverb, phaser, delay, compression, etc. Over 250 factory presets and 99 user-definable presets. And adapting to its new environment the M350 can interface with a DAW as an AU/VST device.

PRICE: \$249.

CONTACT: TC Electronic | ☎ 818-665-4900 ↳ www.tcelectronic.com.

RadioStar Studios in Weed, California has added a **Soundlux** ELUX251 tube mic to its mic cabinet.

Mackie equipment, studio and live, can be found throughout Red House Studios in Walnut Creek, California. Several lounges, performance spaces, control rooms and studios have Mackie Onyx mixers, passive and powered speakers, DAW control surfaces and **Tapco** amps. See picture of the Recording Studio with a Mackie DAW control surface, Big Knob controller and HR-824 powered speakers.



London-based engineer Chris Porter is using the **sE Electronics** Reflexion filter on recent projects.

Big time session bass player Anthony Jackson used **Meyer Sound** CQ-1 monitors in putting together his sound library, Anthony Jackson Six String Contrabass Library, Vol. 1. Also used in the project: **Millennia Media** HV-3 pre-amps and an **API** 550B EQ.

The new recording studio at Glasgow City Halls in Scotland features a 32-fader **Studer** Vista 8 digital console. The studio will be used for recording and broadcast, notably with the BBC Scottish Symphony Orchestra.

Interscope Geffen A&M has installed a 48-fader **Solid State Logic** C200 Digital Production Console. Barry Gibb has added an SSL AWS Analogue Workstation to his personal studio in Miami. Mark "Spike" Stent used SSL XLogic E channels and processors for the latest Maroon 5 project. See picture of Mark and the XLogics.



THE NEW STANDARD



A new standard in location recording

A new standard has been added to the 4006 family. The 4006-TL offers extended bass response and higher sensitivity. The precise reproduction, total transparency, high resolution and natural sounding clarity of these microphones continue to make the 4006 family the best microphones in their class.

Upgrade your 4006 to 4006-TL specification

4006 microphones can be upgraded to 4006-TL specification. Undertaken at the DPA factory, the upgrade consists of a new preamplifier, a Close-miking grid, a calibration chart and a new mic case. Visit www.dpamicrophones.com for full details.



DPA 4006-TL

The microphones for sound professionals with uncompromising demands for musical accuracy

DPA 
MICROPHONES

by Russ Long

Toft Audio Designs AFC-2 Mic Preamp/EQ

From Malcolm Toft - a nicely-priced mic preamp with a great EQ section.

Consoles designed by the legendary Malcolm Toft have been used to record albums for everyone from David Bowie and Elton John to Pavarotti and Radiohead. I was impressed with the Toft Audio Designs ATC-2 when I reviewed it a couple of years ago so I was more than pleased when the opportunity arose to check out its younger sibling, the AFC-2. The Toft Audio Designs AFC-2 is a dual-channel equalizer and mic preamp competitively priced at \$859.

FEATURES

The 1U AFC-2's 1/4-inch thick anodized aluminum front panel has a striking brushed silver finish with black labeling. Its impressive spec list includes mic input impedance >1.2 Kohm balanced, line input impedance >15 Kohm electronically balanced and instrument input impedance >100 Kohm unbalanced. The mic preamp provides up to 60 dB gain, the line input is variable from -20 dB to +20 dB and the instrument input provides 36 dB of gain. The XLR output impedance is <100 ohm electronically balanced and the 1/4-inch

jack output impedance is <100 ohm unbalanced. The mic preamp input noise is <-128 dBu ref 150 ohm (20 Hz - 20 kHz) and the line input noise <-75 dBu (with the EQ activated, 20 Hz - 20 kHz).

The rear panel of the AFC-2 is equipped



with a pair of F-XLR connectors for mic input and a pair of F-XLR connectors and 1/4-inch TRS jacks (wired in parallel) for line input. Two front-panel mounted 1/4-inch jacks provide instrument input. A pair of M-XLR connectors and a pair of 1/4-inch TRS jacks provide line output. Power is provided via a standard IEC jack.

Although the rear panel is fairly simple and well labeled, I still found it a bit confusing. Typically, on multichannel pieces of equipment, the inputs go from left to right on the front panel and right to left on the rear panel. For some reason, Toft decided to reverse the two channels somewhere between the front and rear panels so the right input is directly behind the left control and vice-versa. I found that unless I was concentrating on the box, I frequently made a patching mistake.

The front panel offers identical controls for the left and right channels. In addition to the channel controls, the Power switch provides power to the unit. The box appears to be well made and the rotary controls and switches feel solid and sturdy.

The Mic/Line switch sets the unit's input to either mic or line. If a cable is inserted into the instrument input, it automatically becomes the default input. The gain control provides 60 dB gain for the mic input, -20 dB to +20 dB for the line input and -16 dB to +30 dB for the instrument input. A notched "0" position gives unity gain for the line input allowing cutting or boosting as required. The phase reverse switch (a feature that was sadly missing from the ATC-

2) reverses the phase of the input signal. It operates on both the mic and line inputs. The +48V switch activates 48V phantom power to the microphone input. A red LED illuminates to indicate that phantom power has been activated. The EQ In switch activates the equalizer circuit and a red LED illuminates to indicate that the EQ has been activated.

The box's four-band equalizer features four overlapping bands. All four bands have ± 15 dB gain control. The low-frequency band is sweepable from 40 Hz to 650 Hz, the low/mid band is sweepable from 100 Hz - 1.5 kHz, the high/mid band is sweepable from 700 Hz - 10 kHz and the high-frequency band is sweepable from 1 kHz - 15 kHz.

IN USE

After several weeks of use I have found the AFC-2 to be a wonderful recording tool.

The box works very well with drums and percussion. I put the AFC-2 with an AKG D112 to record kick drum and a Heil PR-20 to record snare and I had great results. The pre also worked well with a Royer SF-1 to record tambourine.

Coupled with a Royer R-122, I had great results using the AFC-2 to record electric guitars. The EQ is quick and easy to adjust and it is very musical.

I put the instrument inputs to work recording a stereo keyboard and bass and had good results. The box really shined on vocals. I had good results with a Sony C-800G and an AKG 414. For vocals my best results were using only the AFC-2's EQ along with a Gordon mic preamp.

I wish there was a way to simultaneously use the EQ and mic preamp separately from each other. If I'm using my Gordon mic preamps with the AFC-2 EQs, I would like to use the AFC-2's mic preamps on another sound source.

My only other complaint is that while I have found that the EQ is extremely musical, I miss having an adjustable bandwidth. Even if it was only the ability to toggle between a broad and tight Q on the two mid bands, I'd be pleased. However, these items are both minor and the box is still easily worth its rather small price tag.

SUMMARY

I have really enjoyed using the AFC-2

TOFT Continued On Page 65

FAST FACTS

APPLICATIONS

Studio, broadcast, post production

KEY FEATURES

Two-channel; four-band sweepable EQ; 48V phantom power; phase reverse; front panel 1/4-inch DI input

PRICE

\$859

CONTACT

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Chris Walla

Producer / Engineer

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World Radio History

Chris Walla at The Hive Creative Labs - Vancouver, BC



by Paul Richards

SM Pro Audio PR8E Preamplifier

In collaboration with the Conservatory of Recording Arts and Sciences, one of the country's leading pro audio teaching facilities, PAR

has introduced a regular series of in-depth reviews conducted at the Conservatory's state-of-the-art teaching faculty in Phoenix.

of the PR8E is clean and modern, mostly black with silver potentiometers and switches of gray and red. It is very user-friendly in both setup and operation.

| IN USE

I tested the PR8E in a number of situations and was impressed across the board. As a guitar player, I was anxious to see how the preamps did with both acoustic and electric guitars. Using a pair of AKG C451E mics

at home would rarely, if ever, have a need to change the polarity.

Moving to drums, I used all eight channels simultaneously on a Pacific kit. I did not encounter even a single hiccup on the PR8E's part. While soloing tracks while recording, my assistant and I were amazed at how quiet the PR8E is in operation. The output sound is clean and detailed and not dragged down at all by a noticeable noise floor. The PR8E has a consistent sound among all eight channels, so each part of the kit takes on some similar sonic characteristics, which unifies the performance, but results in the potential need for some minor equalization on things like the kick drum and floor tom which suffer slightly at the hand of the dip at 90 Hz.

The PR8E was also used as a DI for bass, and the sound was as expected from the other tests: clean and quiet with very solid output and a slight push around 2.5 kHz. In this case, the bass part actually benefited

In this world of pro audio where products that follow the classic designs of vintage Neve and API models are almost expected, SM Pro Audio introduces the PR8E, an enhanced eight-channel microphone preamplifier. Instead of being one of many manufacturers trying to get a foothold in the boutique preamp market, the PR8E is designed specifically with the home recordist and project studio in mind. In the packaged literature, SM Pro Audio explains the PR8E is designed to fill the void created by the often-compromised quality of preamps located on many consumer digital audio workstation interfaces. At a suggested retail price under \$200, how does it stack up against other preamps in its price range and beyond?

| FEATURES

The PR8E is a single rack-space unit that has a very solid feel. Each of the eight preamps has an XLR combo input on the unit's face and a TRS output on the back. The preamps provide an impressive 60 dB of gain. Alongside phantom power and peak indicator LEDs on every channel, a 48V switch is a nice feature compared to a different multiple channel preamp I tested which offers a universal 48V phantom power switch and no indicator lights. Each channel has a smooth gain potentiometer, adjustable up to a maximum output of 23 dB. The power switch and accompanying LED are also located on the front. A polarity reversal switch is also given for every channel and is located on the back of the unit, next the TRS output. The design



in a spaced pair setup on a Tacoma Koa Jumbo acoustic, I was pleased with how balanced the PR8E sounded. The preamps have a gentle dip around 90 Hz and a rise at both 2.5 kHz and 10 kHz. As the Tacoma can have a big bottom end, the PR8E tempered it while permitting the detail to shine through. On electric guitar I used a Fender SRV Stratocaster through a Fender Twin. Miking was done with two Shure SM57s on the speaker, two Audio-Technica 4047 back about two feet and two omnidirectional AKG C451E about 10 feet back in the room.

After attempting to make all three setups as even as possible, I ran one set of outputs to three channels of the PR8E, and the other set to three inputs of a Neotek Elite console. Recording all six microphones to six tracks of Pro Tools HD, the PR8E revealed a bit of lower midrange emphasis, but not in a way that made the sound overly muddy. The guitar seemed to be beefy, but lacking slightly in the "bite" the part needed. My artist felt the PR8E had more "depth" than the Neotek preamp. Engaging the polarity reversal took out some of the "beef," allowing for the "bite" to come through a bit more. Having the polarity reversal on the back of the unit limits access once the PR8E finds a home in a rack, but many of my friends who run DAWs

from the clarity of attack the slight bump provided.

CONSERVATORY Continued On Page 65

| SECOND OPINIONS

"I like that fact that every channel has an LED that shows you input. Just knowing that you've got signal into the box saves time in troubleshooting. The PR8E is a great value."

- Robert Brock, Digital Audio Department Chair, CRAS

"The PR8E is an upgrade over my current setup both in quality and quantity. The eight channels enable me to record a stereo miking setup on my acoustic while I sing. My demos sound full and detailed while maintaining the 'live' feel."

- Kelli Heath, Singer-Songwriter, Honolulu, Hawaii

"I think the PR8E is an excellent pre, especially given its price. It brought out appealing highs from the Martin acoustic we recorded, sounding airy and bright without being brittle. For the money you can't afford NOT to own one!"

- Greg Perrin, Assistant Engineer

AURORA INTERFACE OPTIONS

AES16

PCI card offers direct connectivity via PC or Mac to all 16 digital I/O channels with remote control. Includes Aurora software mixer for added routing and 64 channels of metering.

LT-ADAT

Expansion card provides up to 16 channels of ADAT Lightpipe I/O at 48 kHz. Supports higher sample rates using S/MUX. Permits format conversion between ADAT, AES/EBU and analog I/O.

LT-HD

Expansion card provides digital input and output in a format that is recognizable by DigidesignTM ProTools | HD[®]. Operates with all HD-compatible versions of ProTools. Supports up to 32 I/O channels at sample rates up to 192 kHz.

LT-FW

Expansion card available Fall 2006. LT-FW provides a 16 channel cross platform FireWire[®] interface.

LYNXTWO-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."

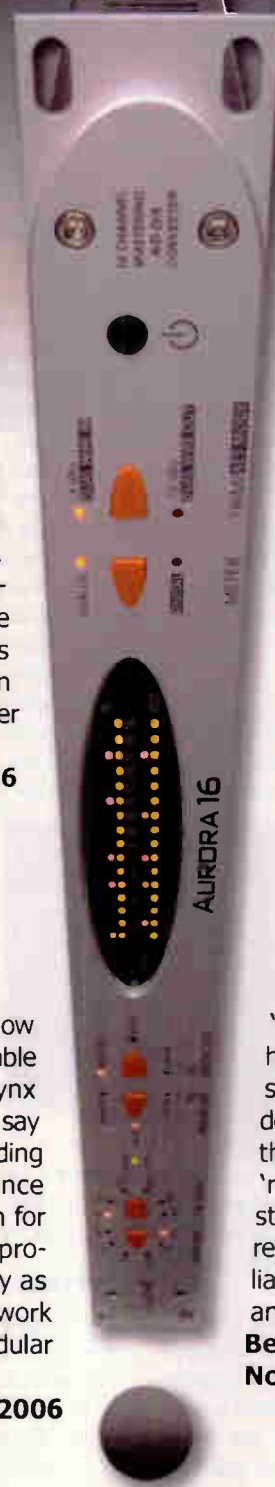
Pro Audio Review, March, 2006

"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/aurora3

Lynx
**STUDIO
TECHNOLOGY**

by Strother Bullins

Bringing J. Dilla's *The Shining* to Light



Photo Credit: Doug Rice/Allure

hop. He had done the crisp 'boom-bip' thing in the late '90s and was over things sounding too good. *Donuts* (Dilla's previous solo effort) and *The Shining* are both very conscious departures from all that."

SHINING MOMENTS

In the increasingly image-driven American hip-hop industry, low profile and behind-the-scenes production geniuses such as the late James Yancey are rarities. Truly a producer's producer, Yancey — or J. Dilla, as he calls himself on his 2006 posthumous full-length release entitled *The Shining* and elsewhere — is revered by many of modern hip-hop's biggest names who possess an ear for sonic innovation. To self-professed Dilla fans such as Pharrell Williams (of The Neptunes fame), this producer was inspiring because he built tracks like no other, not because he was the best self-promoter in the industry.

A GIFT FOR MUSIC

A Detroit native, Dilla grew up in a musical household and, as a result, became an impressive multi-instrumentalist while developing a special affinity for funk, rap, R&B, and jazz. In high school, his ability to quickly develop music-related skills paid off; he worked as an emcee while learning to program drum machines and use various studio recording equipment. Dilla's innovative sonic artistry eventually brought him to work alongside A Tribe Called Quest's Q-Tip, Busta Rhymes, and De La Soul — just to name a few — and later to projects where he collaborated with artists such as Janet Jackson and D'Angelo.

Early this year and at the age of 32, Dilla — who was increasingly recognized for creating some of the best and most hypnotizing beats around — died as a result of persistent health problems brought on by Lupus, an autoimmune disease that plagued him for much of his life. Not wanting his final work to be overlooked, Karriem Riggins, a close friend (and the executive producer of *The Shining*) along with Los Angeles-based producer/mixer Dave Cooley, helped bring *The Shining* to light. It was released earlier this year, only months after his death.

Cooley took the reins of *The Shining* project after J. Dilla expressed his admiration of Cooley's ability to mix and master his work. "He liked things to sound raw, with a lot of gritty midrange to make it sound 'underground' and aggressive," explains Cooley, who worked on the project at his residential mixing and mastering space. Cooley's ever-expanding rig is centered on a Digidesign Pro Tools | HD3 DAW and features "a ton of outboard" such as the Crane Song STC-8 stereo compressor/limiter, Smart Research C1 compressor, GML 8200 dual-channel parametric EQ, the Rupert Neve Designs Portico 5042 two-channel tape emulator, and much, much more. "At this point in my career, I'm into getting the best results out of the best equipment that I can afford to put in the studio," he affirms.

While his efforts on *The Shining* could be classified as low-fi, Cooley's approach to the project was simply all about "getting out of the way," allowing Dilla to tell his musical story. "I wanted to make sure that I executed his vision in the most optimal way, so that the greatest number of people would connect with what he wanted to communicate," explains Cooley. "To me, the ultimate producer or mixer just gets out of the way of the music — you try to just let it out. I had no intention to stamp it with anything aside from what he was going for."

A FITTING TRIBUTE

Although production continued after Dilla's passing, Cooley had worked with him enough beforehand to know exactly what he wanted. "We worked on *The Shining* while he was alive as well," Cooley confirms. "He kept on asking me to make it sound more 'cassette' and muddy. Who ever heard of a high-profile artist asking for something to sound more cassette-like? It cracked me up. Every time I would reach for a little high-end EQ, he'd be like, 'Make it more muffle-y.' I think that J. was just making a cultural statement that he was fed up with the glossy sound of most commercial hip-

Sonic highlights of *The Shining* abound, thanks to a bevy of interesting sound sources with Dilla and Cooley's collaborative knack of making them work together in a genius-inspired way. "From the creative standpoint, J. was just a monster," compliments Cooley. "He would make the slightest gestures to get the music to sound amazing. For instance, he'd say, 'Add a little 100 Hz and pan it off to the right. I'd like a dotted 1/8 delay on the left — there it is.' He was really specific and heavily involved in the mix. I would add some psyche elements here and there — spacey delays, drops, and so on — and he always seemed to like those left in. Being a record collector myself, I always got off on the things he would reference or sample — '50s Moog stuff and subtle references and interpolations of the Wild Style soundtrack (the classic '80s hip-hop feature film), for instance. It's sort of an unspoken language; if you're familiar with those things, it hits you on another level."

Cooley is quick to clarify that *The Shining* is also "a very immediate record," much to the intuitive completion work of Riggins. "When that pseudo-808 kick hits on 'Jungle Love,' it just crushes," Cooley says with clear emphasis. "That was a floor tom turned on end and tuned deep. And somehow, Karriem — who finished piecing the record together — got the performances to sound seamless, as if J. had overseen the project himself. He's an incredible musician himself, jazz-trained and does tracks for high profile rappers like Common."

INSPIRATION FOR EVERYONE

One of the most exciting and inspiring aspects of *The Shining* is not simply its greatness as an album, but the fact that it exists solely because of Dilla's ceaseless will to create under any circumstances. "Up until the end of his life, J. was still in the studio, cranking on the Korg MS-20, an Octave Cat, or other analog beasts — even in a wheelchair," says Cooley admirably. "He was making beats in his hospital bed, incorporating everything from a zither, to spaced out '60s sound elements and production, live drums, and aggressively unquantized programming. He had that purity of vision and he always lived the music. That's enough inspiration for anyone."





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by Stephen Murphy

Lil' Drummer Boy Replaced

For better or worse, drum replacement in one form or another has been a part of record production for many decades. The concept of drum replacement, as many of us have come to know it, includes the range from replacing a single hit on a specific track to the wholesale replacement of the original kit sounds. Ideally, the goal of drum replacement is to eradicate unintentional bricks in the performance that may yank the audience out of the comfortable listening experience, or to broadly enhance the overall listening experience of a song. Like automatic pitch correction, compressors, aural enhancers, fire and automobiles, drum replacement is a tool that can be used for good or evil – it all comes down to the nut behind the wheel.

One could make a case that the concept of drum replacement began with the razor blade, slicing and reassembling a drum takes on the master tape to create the perfect performance (at this point, younger engineers should give their computer a hug and thank the supreme CPU that you'll never have to drag a razor blade across 24 tracks of tape with the client hovering over your shoulder).

DRUM REPLACEMENT

Another form of early drum replacement went by the technical name: You play the drums along with the track and I'll punch in and out to fix that botched fill coming out of the chorus. A common variation on that approach was to punch in and out of a single track to replace a muffed snare hit or to drop in a missing kick drum accent.

The emergence of samplers and sampling drum machines (and the ever-popular 'Freeze' sample/playback function in the Yamaha SPX 90 effects processor) in the 1980s heralded a subtle yet significant change in the concept of drum replacement. The engineer or producer could now drop in sampled hits from the actual performance to correct drum glitches fairly easily using without requiring the drummer to be present (and all that that implies). At this point, we're still talking mostly single-hit replace-

ment, but the signposts are there.

Of course, the granddaddy of full-on drum replacement is Roger Nichols and his Wendel and Wendel Jr. Percussion Replacement Systems. Nichols developed Wendel in the late 1970s for use on Steely Dan's *Gacho* album, making its debut appearance on the hit "Hey Nineteen."

Wendel and Wendel Jr. went on to appear



Roger Nichols with one of his Wendel "drum machines" - Wendel II at Soundworks Studio, NYC, 1984.

on albums by Duran Duran, Bruce Hornsby, Miles Davis, INXS, Eddie Murphy and a host of other pop artists. Nichols' Wendel systems provided the first sophisticated tools for the replacement of any live drum or drum machine track with high-quality digital samples of acoustic drums and included the forward-thinking ability to switch between multisamples. Alesis brought hardware-based drum replacement to the rest of us in 1991 with its affordable D4 drum module with trigger inputs. This breakthrough product, for better or (often) worse, made its signature appearance on countless demo recordings and even showed up on a few radio hits.

ALL AGOG

The undisputed heavyweight king of contemporary drum replacement tools is Drumagog by WaveMachine Labs. The

Drumagog plug-in provides a wealth of advanced and creative triggering and sample playback tools grouped together in a refined and user-friendly interface. A full review of the latest version of Drumagog is in the works for an upcoming issue of *Pro Audio Review*.

Basic triggering from a track can be achieved right out of the box by simply inserting the Drumagog plug-in on a track and choosing the appropriate drum type/sample set. More advanced users can delve into its filtering, synthesis, sample import, auto crossfade and MIDI I/O capabilities to accomplish a variety of tasks beyond rote replacement. Along those lines, here are a couple of tips and not so common uses of Drumagog I've picked up over the last couple of years of using the plug-in:

Although the plug-in excels at drum

replacement, one of my favorite uses of Drumagog is wholly unrelated to that task. Drumagog is also an excellent tool for quickly and easily creating a tempo map/grid of a wild-tracked (no click) song. Songs are tracked without a click for many reasons including feel, improvisational freedom during the performance, multiple tempo changes and plain old lack of practice/ability to play with a click. Likewise, there are many reasons why having a grid locked to the song is helpful, especially for inter-take editing, spotting and for simply making fine adjustments.

To create a tempo-mapped grid in Nuendo, for example, insert Drumagog on the kick track (or hi-hat, cowbell or other percussion track that regularly hits on beat one). Record the Drumagog MIDI output generated from the kick track to a MIDI track. Go through the new track and delete

all the MIDI notes that don't fall on beat one. Turn on the tempo track, highlight all the notes remaining on the track and run the "Insert Multiple Tempi" process. The result is a tempo grid that perfectly matches the live drum track.

QUICK TIPS

In situations where some measure of drum replacement becomes necessary, it's always best to opt for the least intrusive method first. This usually involves sampling the best hits (Drumagog now has a convenient 'Add From Track' function for doing this) and using Drumagog to create a dynamic and consistent track. In my experience, the problem with many problematic drum performances is weak hits that, besides being weak also sound completely different from the strong hits. Rather than replace the whole track, you can set Drumagog to only replace the weak hits and save the bulk of the track. To do this, place a sample of a strong hit in the lowest dynamic group and fill the rest of the dynamic slots with blank (silence) samples. Record the triggered output (where only the lowest hits have triggered the strong hit sample) to another track. Run "Strip Silence" or similar on this track to automatically create events from the hits. Then use whatever method you like to replace the soft hits in the original track with the newly created strong hits on the second track (copy/paste, mix, use Nuendo 'Lanes' feature etc.).

A few other quickie tips:

If a track to be replaced has both snare and cross stick sections, go ahead and trigger and record full tracks using one sample set and then the other and simply cut and paste the appropriate sections together.

If blending original and triggered sources, route them to the same subgroup for EQ, compression and other effects processing for a more cohesive result.

If you know you want to use Drumagog on a track before cutting the drums, record using inexpensive contact triggers on the drums as well as your usual mics. Drumagog works great with contact trigger signals.

Don't forget that in order to get Drumagog to play back stereo samples, it must be inserted on a stereo track or subgroup. In Nuendo, it is simple to ctrl-drag a mono track such as a snare to a blank stereo track, and then insert Drumagog.

PAR Studio Editor Stephen Murphy has over 20 years production and engineering experience, including Grammy-winning and Gold/Platinum credits. His website is www.smurphco.com.

STUDIO | Review

TOFT Continued From Page 58

over the past several weeks. While the mic preamps aren't revolutionary, they sound really good and the EQ is wonderful. The EQ alone is worth the price of the unit so the preamps are icing on the cake. Anyone looking for a good EQ for a really good price should give the AFC-2 a listen.

Nashville-based Russ Long has been a producer, engineer and studio owner since the late 1980s. His credits include hits from by Sixpence None The Richer, albums by Wilco, Newsboys, Third Day, Dolly Parton and DC Talk and songs from the soundtracks of motion pictures such as Girl Interrupted, Here On Earth, Jonah, How To Lose A Guy In 10 Days, and She's All That.

| REVIEW SETUP:

Apple Macintosh 2 GHz dual-processor G5 w/2 GB RAM; Digidesign Pro Tools 7.1; Lynx Aurora converters; Lucid Gen-X-96 clock; PMC AML-1 monitors.

STUDIO | Review

CONSERVATORY Continued From Page 60

| SUMMARY

While the ultimate verdict lies in the ears of the beholder, the PR8E offers terrific value and performance. Eight channels of extremely clean and quiet audio packaged with features like independent phantom power and polarity reversal for under \$200? While having the polarity reversal on the back might make more savvy engineers and studio owners raise an eyebrow, SM Pro Audio focuses the PR8E on users of DAWs and simplified bedroom setups whose recordings would really benefit from an upgrade in the quality of their preamps. Bang for the buck, this is one of the best pieces of equipment available.

Paul Richards is an instructor in the Audio Recording/Production and Digital Audio departments at the Conservatory of Recording Arts and Sciences. He also runs The Musetrapp, an independent recording service. He has worked with classical artists Andre Watts, Hilary Hahn and others in working with the Phoenix Symphony for over 150 performances.



LETTERS Continued From Page 7

I'M AWAKE!

I realize that Strother Bullins was issuing a wake-up call to dewy-eyed engineering wannabes, and Bravo! for that (X/Audio, Oct. 2006). But just to set the record straight, there are educational institutions that emphasize experience along with hitting the books. Some educators realize that the best route to really understanding the craft is in the practice of it, and we all but pound that into our students. We do come up against the same lack of passion and commitment that he refers to. All one can do is to honestly tell these people that their chances of landing a job in the industry are minuscule. If they do get one, the chances of holding on to that job are even less.

And for what it's worth, my institution doesn't offer a "Recording Engineer" degree or certificate. I developed such a program a few years back, but the state wouldn't approve it, because no prospective employers would go on record saying that they might hire our graduates. We let our students know that, too. The ones who really want it won't be deterred; the rest do well to make other choices.

Kalman Socolof

*Professor
Radio-TV Broadcasting
Herkimer County Community College
Herkimer, NY*

OLDIES

I'm a recording engineer. I enjoyed Publisher's Page in the August, 2006 *PAR*.

My first recorder was a table top Sears cassette-corder. But after using my dad's 3-inch reel-to-reel as a youngster, in 1974 while still living in Rhode Island, I upgraded to a Mayfair eight-track "stereo" recording deck. I used it for my cover band projects and group "letters" to friends who'd joined the service.

I kept the Mayfair and have it stored. I used it again recently to transfer an old project onto DAT and into my computer for editing. It works great.

Brian Soucy

Los Angeles



We want to hear from you. Send your comments to jgatski@aol.com. Please include name, city, state and job title and firm in the email. For product submissions, contact Brett Moss at bmoss@maspub.com.



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by Rob Tavaglione

MOTU Digital Performer 5

A popular industry DAW program gets a big tweaking.

Put two studio engineers together in a room and within minutes one will inevitably be asking the other "So, what do you edit with?" If one answers Digital Performer (DP), it will probably be accompanied by a wry grin, an arch of the eyebrows and a tone not unlike someone sharing a secret. MOTU seems to have created a product that engenders long-term loyalty and many passionate users for their flagship sequencer/editor DAW. Why such enduring passion?

Originally known for its pioneering MIDI sequencing capabilities, DP has slowly grown into one of the most elegant and comprehensive workstations around. Widely respected for its transparent audio, logical layout and ease of use, DP is still only Mac-compatible (as it has been since its inception). This Mac-only approach has

been very appealing to DP users, and we all know how much unflinching loyalty Mac users



supported; in fact many feel that DP's MIDI implementation is still the finest around (again, we dare not go after a fish that big in this little boat).

With the new breed of Macs sporting Intel processors, compatibility is an issue on any professional's mind. DP 5.0 is written with universal binary code, which allows it to function perfectly with any PowerPC Mac and the newer Intel Macs as well. It is with the Intel Macs that DP is said to really shine, due to a maximization of code efficiency within Apple's Core Audio. Although this reviewer is on an older G4 Mac (with dual 867 processors, Mac OS X 10.4 and 2GB of

FAST FACTS

APPLICATIONS

Studio, post production

KEY FEATURES

Mac; multitrack; Intel Mac-compatible; expanded meter bridge; track folders; four new editing tools; event marking to QuickTime video; six new virtual synths; editing enhancements

PRICE

\$795 new; \$195 upgrade from previous version of DP; \$395 for upgrade from Audio Desk or competing product; \$295 upgrade to PCIe-424 from PCI-424 or PCI-324

CONTACT

MOTU | ☎ 617-576-2760
 ☞ www.motu.com

seem to have to their OS (myself included). With stability, functionality and flexibility, DP has earned a user base that is rich with composers - those scoring for film or television and many songwriter/musicians as well. Now with their much anticipated Version 5.0 (\$795) MOTU has tackled the Intel Mac situation, created a number of handy new tools and maintained their legions of diehard power users.

| FEATURES

Suffice to say that we dare not tackle the entire DP application, with a manual over 1,000 pages long (!), time and space clearly do not permit. But let's take a look at what makes DP 5.0 different and its substantial new feature set. DP is still a native-based program, relying on your Mac's CPU(s) for all its computation and processing power. The plug-in format remains MAS (MOTU Audio System) although AU (Audio Units) plug-ins are also compatible. MIDI sequencing and composition are still finely

RAM), I still saw increases in performance and speed. MOTU actually recommends at least a G4 with dual one GHz processors, OS X 10.4 or higher and one GB RAM or more for smoother scrolling and faster executions.

Users of Intel Macs are reporting much larger track counts, more simultaneous plug-ins and generally faster computation. Considering that the new Macs allow up to 16 GB of RAM, one can only imagine how fast operations could be with this new combo! MOTU's PCI-424 FireWire-based interface will need to be upgraded to the new PCIe-424, to allow use of the new PCI Express slots in the new Macs (the original PCI-424 will suffice for non-Intel Macs).

It should be pointed out that DP 5.1 is already available as a free update for registered users of 5.0. MOTU claims that 5.1 should be entirely compatible with non-Intel Macs, but cannot guarantee it at this

time. Mac OS X 10.4.4 is highly recommended for proper performance of DP 5.1.

MOTU has finally addressed the need for more comprehensive metering, a common complaint from anyone who is displeased with the typically mediocre metering found in many workstations. With MeterBridge, DP now allows metering of any audio path, whether it be input, output, bus, audio bundle (MOTU's term for hardware output bus), instrument track (virtual instrument) or track (MIDI track). This meter bridge can live in its own positionable window and be resized to any height and width (allowing selectable degree of detail or measurement). Along the lines of monitoring is a new feature that allows standard input monitoring or blended, where one can monitor track output and input simultaneously (useful to performers who wish to 'sing along' prior to a punch-in). Tracks can now monitor input regardless of "record ready" status, using a dedicated button for each individual track.

Session management has become a problem for a number of power users in our world of many multiple takes, comps and versions of a song. This problem has been

improved upon with DP's new track folder capabilities. Folders can be placed within folders to as many levels as necessary, with color coding and the ability to view the entire grouping in any DP window that shows tracks.

A handy new editing feature is the ability to apply gain (or attenuation) to a soundbite (MOTU's naming of an audio clip) and have that gain applied to all instances of that soundbite. This volume envelope will follow any instances of that soundbite. There are also new features that aid in the ease and rapidity of complicated editing tasks. One is trim, which now has its own tool in the toolbar, as do the other three new tools. Trim allows one to trim the edge of a soundbite without having to go all the way to its leading edge to grab and drag it. Another is Slip, which allows one to reposition a waveform within the boundaries of a soundbite. A tool that caught my attention is Slide, which enables the moving of the start and end points of a soundbite (together at the same time and in the same direction) without moving the audio inside the soundbite. Roll completes the new foursome of features. Roll

allows the grabbing of the seam between two soundbites and the repositioning of that seam, revealing audio in one soundbite while covering up a portion of the other (including any crossfade that is present).

Overall productivity should be enhanced with a number of tweaks on DP's editing features. When one opens the waveform editor (DP's window for the exacting editing of soundbites) features of a soundbite can be modified by using tabs for tempo, pitch, loop and volume parameters. For the first time, DP's standard transport controls will command the waveform editor (with synchronized scrolling of the sequence editor - the window that displays soundbites on the timeline). Further enhancements include full support for Pro Tools 7.0 (actually 6.7 or later), streamlined voice allocation of tracks and an improved beat detection engine (for those who like to quantize the timing of performances to a timing grid).

Scorers of TV and film will want to try out DP's new abilities with punches, flutters and streamers. These visual markers can now be inserted directly into a

MOTU Continued On Page 70

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MOTU Continued From Page 69

QuickTime movie within DP. These marks cannot only be exported with the QuickTime movie, but can also be repositioned numerically as the edit decision lists (EDL) get changed (nearly a certainty at the eleventh hour, as anyone of us who sync audio to picture can attest). Composers will welcome the addition of a

visual click to DP's QuickTime window. This click shows up as flashing circle within QuickTime, or can be routed to an external video monitor via external hardware. Beat, tacit and pattern clicks are now supported as well, giving users the ability to program clicks independent of tempo, clicks that are silent or clicks that are

arranged into any pattern one desires via a shorthand method, respectively.

Electronic musicians will have no reason to lose their enthusiasm for what many consider to still be the best composing software anywhere. MIDI Keys is a new feature that turns your computer's keyboard into a MIDI controller - useful for rudimentary MIDI programming and those of us who are too cheap to buy an external controller. Virtual synths are all the rage today and MOTU hasn't let us down here either.

Bassline is an analog-style monophonic synth that combines a saw and a square wave for its eponymous purpose. Polysynth is a single oscillator, polyphonic pad that emulates classic synth pads of the 80s. Modulo is a dual oscillator subtractive synth with extensive editing and shaping abilities. Nanosampler is, you guessed it, a sampler that promises ease of use and simple drag/drop operations. Model 12 is a sample-based drum machine with two aux sends and the convenience of being able to open multiple instances, i.e. drums and percussion. Proton is DP's final new synth offering, sporting FM synthesis for that shiny 80s sound that has suddenly become vogue again.

IN USE

Installation and initialization of software is normally a portend of things to come and DP was no exception. A single disc contained the entire app and began loading hundreds of synth samples and drum samples first, all as AIFF files, then the MOTU audio system (MAS) and then the program itself. This process was quick, taking up less than 10 minutes! Upon first opening DP (using a pre-existing session from DP 4.61) I was finally prompted for my key code and name, DP indicated it was "reading project" and then I was up and running. All of my session preferences remained, including plug-ins, automation and color schemes/positioning.

Many keystrokes and operations seemed to be more responsive and quicker, although a few commands such as manual repositioning the scrolling wiper (the vertical green line that indicates playback position) on-the-fly seemed a bit sluggish. However, it is functions such as this that MOTU indicated may be subpar with a Mac sporting less than dual 1 GB processors, such as mine. The opening of plug-ins during playback caused a brief audio glitch that wasn't present in older versions and changing plug-in parameters during playback caused momentary stalling in the graphics. All the plug-ins worked perfectly however,

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without my manual attempts to cause glitches, and met the challenge of my complicated automation of them (changing filter frequencies, changing thresholds, bypassing etc.). This included my Waves Masters mastering plug-ins, which didn't even require an update and were cruising along effortlessly, despite my intricate automation and their abnormally high processor demands.

MOTU's new virtual synths were a breeze to employ and will be very useful when clients need me to "add just a little synth here and there." One simply clicks Project > Add track > Instrument track > Add Instruments and *Voila!* ... you've now got a virtual instrument track and its accompanying MIDI track, side-by-side in the sequence editor and mixer windows. Any of the virtual synths can now easily be auditioned using MIDI keys. One simply clicks Project > MIDI Keys and my QWERTY keyboard became a respectable MIDI controller with access to controller parameters and everything. The keys aren't nearly responsive enough for composition during playback, it works albeit sluggishly, but will be more than adequate for performing simple sequencing tasks.

Bassline was quite nice, with a patch called "Aggressive" being nicely buzzy and thick, while "Round" would be a decent P-Bass emulation in a pinch. Modulo was very classic sounding, with shimmer, gloss and character to its patches, nicely

sweeping through some delightfully nasal modulations. The Nanosampler worked just fine, but came with a number of preloaded sounds that were pretty cheesy. Polysynth was pleasantly nostalgic of 80s pads and will be best suited for house and electronica type music.

Proton was the one that really got my interest though. Some very cool and

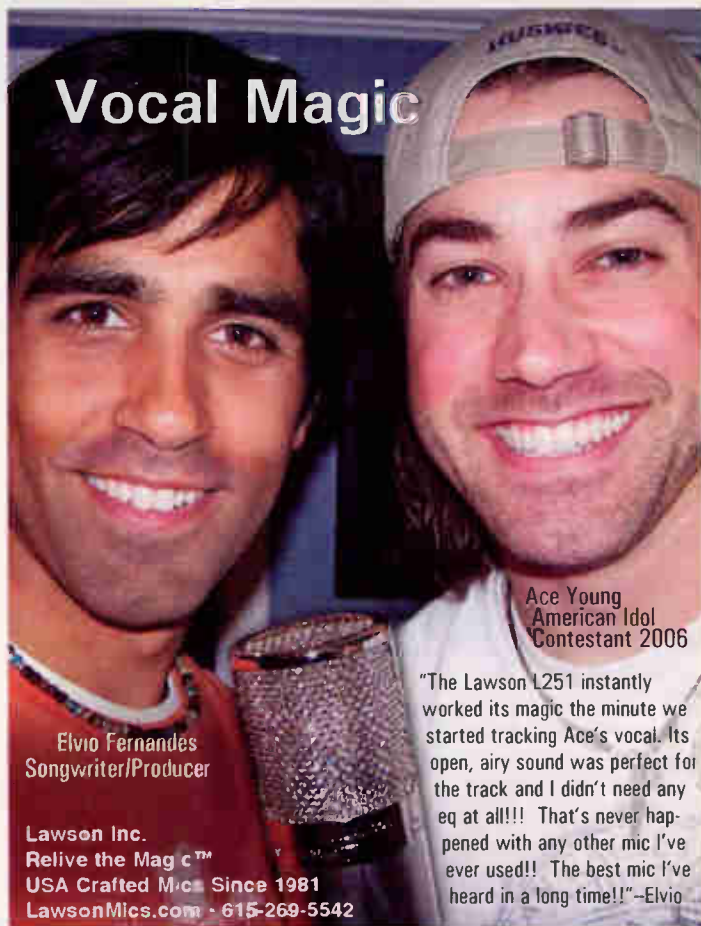
expressive sounds

were found within, even though (to be quite honest) its complexity somewhat vexed me. Given a little time this powerhouse will nicely sweeten my tracks, with expressive and colorful sounds. Model 12 offered plenty of sonic variety, including some decent "800 series" kits (Roland type), acoustic kits, a few ethnic drums and even some distorted sounds that were appropriately smashed and "splatty." Beware as you audition Model 12's sounds, some kits are rather quiet and others are considerably louder, easy on that subwoofer. All of the neces-

MOTU Continued On Page 72



Vocal Magic



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American Idol
Contestant 2006

Elvio Fernandes
Songwriter/Producer

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- Requires powerful computer for best results
- Intel Mac users need to upgrade PCI card
- Upgrade costs in general

SCORE

Well worth the cost and effort for this very mature and powerful DAW

sary parameters (tuning, groupings, envelopes, volume etc.) are there for quality drum programming; quality drum tracks

without leaving my comfy Aeron.

All of this activity was nicely displayed, at least level-wise, with the new Meter Bridge. It can be opened in its own window or used in the consolidated window (MOTU's clever multipurpose window that allows quick tabbing through multiple sources such as sequence, track, mixer or notation windows) as I prefer. I sized the consolidated window to fill the entire monitor on one of my two 17-inch LCD monitors. I then selected the audio bundles I wished to monitor and feasted my eyes. I now had a row of 10-inch high meters, with sensitivity from -57 dB to 0 dB. They could be clearly seen from across the room and had this marvelous clipping indicator that lights the entire meter red for about five seconds after a digital over... No more overs sneaking through on my watch! I could then easily toggle between Meter Bridge and mixer (or any consolidated window source) on one monitor and maintain my all-important sequence editor on the other.

Now it was time for some serious editing. I opened a session that needed some "back-up vocal manipulation magic" - coal into diamonds kind of thing. Trim became my first ally. One quick click anywhere in a waveform and I now had a new trailing edge to my soundbite, no edge grabbing required. One can even hold option with trim and execute the same command on the leading edge of the bite. Slip and slide were both as useful as promised, audibly scrubbing audio as you move their positions around. I didn't find myself constantly using these commands, but they were quite helpful where vocalists had mis-timed an entire line or partial line. Roll was harder to employ without some difficulty, although it could surely be a time saver for edits right at crossfades between soundbites. Typing in a capital "O" brings up the entire editing toolkit, which is longer and more powerful than ever (this toolkit even follows you to whatever window you're working in).

DP's pitch correction and beat quantizing features are both much more than adequate and perform as promised. Pitch correction allows redrawing of pitch envelopes by hand



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| SUMMARY

Suffice to say that any current users of DP should seriously consider this substantial upgrade. Yes, the cost is also substantial at \$195 (not to mention the PCIe-424, which upgrades for \$295). However, considering productivity enhancements, new abilities and the stability of this DAW, it will easily pay for itself in short time. Power users do not delay (note to self), the time is now to get onboard the Intel-Mac revolution and start living the good life.

Rob Tavaglione is owner of Catalyst Recording in Charlotte NC; specializing in indie music production, teacher of college level audio courses, an audio seminar speaker and mixer for the Charlotte Bobcats (NBA) and Sting (WNBA). Contact him at rob@catalystrecording.com.

| REVIEW SETUP

Apple G4 PowerPC Mac, dual 867 processors, 2 GB RAM, OSX 10.4; MOTU 2408 mkII and 2408 mkIII interfaces, PCI-424 card; dual 17-inch LCD monitors, Lucid GenX6-96 clock.

(mouse) or one can simply highlight a portion of the envelope and choose automatic pitch quantizing. It's very effective to be sure, but drawing is a meticulous task and the "piano keyboard" displayed at the left of the waveform's display (supposed to help you visually find the right pitch) is seeming-

ly worthless. My ears should make these decisions anyway, not my eyes. The beat detection is good, but requires clearly defined transients to work properly, as anyone must reasonably expect. I didn't go any further with this feature, as I am not fond of quantizing time in general.

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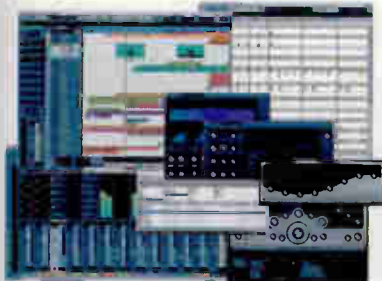
by Brett Moss

AES Software Haul

The big news in software land recently is (or was) the AES 2006 show in San Francisco last October. While the show is still mostly a hardware show, software becomes a bigger part each year.

Probably the dreamiest announcement for the show was the new bundle from Waves, Mercury. And while the price is as hot as Mercury (app. \$12,000 TDM and \$7,000 for Native flavors) the contents more resembled Jupiter in its bigness. Simply put - most everything Waves (www.waves.com) has made in the last couple of years, save the new SSL plug-ins (see Software News, October 2006), is in Mercury. A lot of money but there's a lot in the bundle.

Big news #2 from AES was Steinberg's Cubase 4 official launch (www.steinbergusers.com). Early details were blurbled in



Behold the cornucopia! Steinberg's Cubase 4 has a lot of modules.

October's Software News. Additional details from the show include the positioning of Cubase as a music creation tool in comparison to Nuendo being more strictly defined now as a post production and editing tool. Concomitantly, Nuendo's music creation functions will not be greatly enhanced with its next upgrade.

The gang at iZotope announced that they had licensed their MBIT+ dither and 64-bit sample rate converter algorithms to Sonic Studio for use in the soundBlade platform. iZotope is one of those outfits whose work is mainly behind the scenes but you've probably used some of their tools licensed under other names. They are making an effort to get better known under their own name. Check out www.izotope.com for a look at some of their tools. The Ozone package is said to be quite good.

REGULARLY SCHEDULED PROGRAMMING

Get cleaner than clean with version 1.5 of Acon Digital Media's Studio Clean 1.5 (www.acondigital.com). Available in VST and DirectX flavors, Studio Clean has denoiser, declicker and declipper modules along with StudioRebirth, a high-frequency expander.

SoundToys (www.soundtoys.com) has a FREE Preset Expander Series now available. In English these little widgets add a new dimension to some of the SoundToys plug-ins currently available. Bass Guitar Tone Machine is a bass processor for the EchoBoy plug-in. Pulsator is a rhythm and beat preset package for Tremolor. FilterFunk is a funkizer for FilterFreak.

MORE UPDATES

Users of the gargantuan Vienna Instruments sound library will be jumping for joy at news of an update to the Instrument Player. Version 1.1 has an



Those keys may appear to be tiny but they drive a gargantuan sound library - Vienna Instruments.

improved GUI, an improved Matrix and Cell Editor, more shortcuts, better pitch wheel and some other goodies (www.vsl.co.at). Windows and Mac.

The Pro-Sounds Adder Collection, a sound library, has moved up to v. 1.1. A bug fix and new Mod-wheel and Pitch-Bend features. Update is free for registered users (www.pro-sounds.net).

Peterson Tuners has an update to its StrobeSoft software tuner. Version 1.22 has bug fixes and tweaking of the GUI. Visit www.strobesoft.com.

Having a little problem with your FireWire interface? MIDI a bit slaggard? DAW chattering? Well, the folks at CEntrance (www.centrance.com) might have

a solution - the Ideal Driver. The Ideal Driver is a FireWire device driver that is supposed to cut latency and improve reliability. Works with all major FireWire chips, 16/24-bit and up to 192 kHz. If that doesn't melt



This is what a driver looks like, the Ideal Driver.

your FireWire or incinerate your audio...

Steinberg has announced that its we're-so-generous-we've-donated-this-to-the-industry standard ASIO (thanks, guys!), is up to v. 2.2. Not that anything was wrong with the earlier versions... The SDK is available at www.steinberg.net - in case you were looking. BTW, did you know that ASIO stands for Audio Stream Input/Output?

Nero, the CD burning guys not the Emperor who burned down Rome (okay, he didn't exactly burn down Rome...) have what they promise to be a whopping big update to their Nero 7 Software Suite. The free-for-registered users update has a bunch of "digital lifestyle" additions but the important bit for Software News readers is Blu-ray and HD-DVD compatibility (www.nero.com).

DRUM ROLL, PLEASE...

Universal Binary Support Roll Call!

Cycling '74 (www.cycling74.com) has upgrades for Pluggo (v 3.6), Hipno (v. 1.1), Mode (v. 1.3) and UpMix (v. 1.1) that add Universal Binary Support. Available in RTAS, VST and Audio Units flavors.

SoundToys (www.soundtoys.com/download) should be offering public betas of UBS-ized versions of its plug-ins by the time you read this. C'mon, get adventurous! What's the worse that could happen...?

Send items for consideration
in Software News to:

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Managing Editor
Pro Audio Review
5827 Columbia Pike
Third Floor
Falls Church, VA 22041
bmos@imaspub.com

BENCH TEST

API A2D Dual Mic Preamp/A-D

The following is a correction to the bench test for the API A2D in last month's issue. The graphs were all of figure 5.

BENCH MEASUREMENT COMMENTARY

API's A2D mic preamp/D-A converter certainly seems a very capable box. I uncovered no anomalies, and measured generally very high performance throughout. This was my first bench session using the dual-domain Prism dScope Series III test-rig, a powerful, flexible machine, and though highly intuitive, there's still a learning curve, up which I did my best to crawl. I could not sync the dScope at sample rates above 96 kHz, so we'll have to use our imaginations for the API's 176.4 kHz/192 kHz Fs performance; I

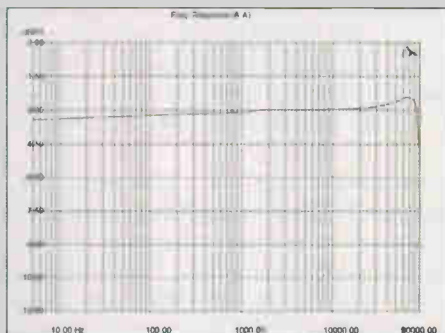


Figure 1 Freq. Response (A/A)

would expect no surprises.

Figure 1 shows analog domain (A/A) frequency response of mic-input signals; very wide and flat (the very slight up-tilt is only about 0.25 dB per octave); the hump at around 80 kHz may be spurious in the bench environment.

Figure 2 shows four similar sweeps of response for mic-in to digital-output, (note

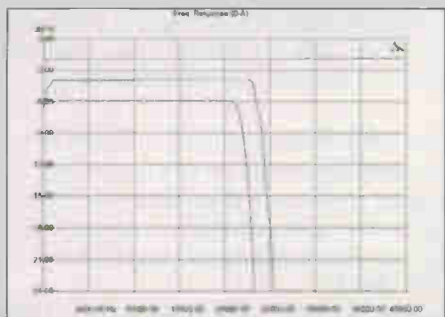


Figure 2 Freq. Response (D/A)

the linear horizontal scale to spread things out). From the top down these are the A2D's sampling frequencies of 96 kHz, 48 kHz, and 44.1 kHz (I've offset each curve by 2 dB for graphic clarity).

Figure 3 is THD+noise v. frequency for analog in and out, shown relative to 0 dB full-scale, which in the API's case is about

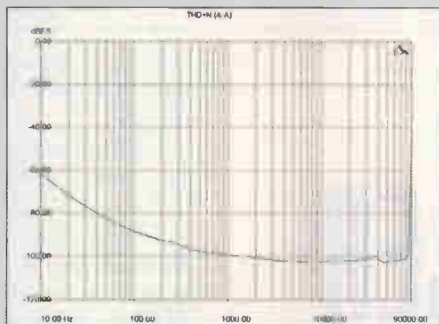


Figure 3 THD+N (A/A)

18 dBu at the outputs. The minima are about 0.001%, which is pretty close to the limit of measurement accuracy. The curve rises at low frequencies, but only as far as about 0.05% at 20 Hz, so no worries.

Figure 4 is the same test but for digital output, with plots for 96 kHz and 48 kHz Fs. (I omitted 44.1 kHz as it was virtually indistinguishable from the 48 kHz plot.) Pretty

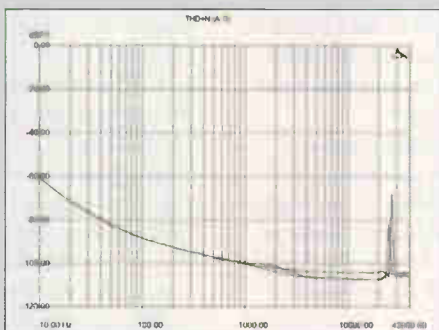


Figure 4 THD+N (A/D).

much same deal as above, but a couple dB better, probably thanks to eliminating the analog-output circuitry. I don't altogether believe the spikes at 25 kHz and 28 kHz (but cannot exactly explain them, either): very likely spurious.

Figure 5 plots THD+noise v. input-level, for both analog and digital outputs. From top

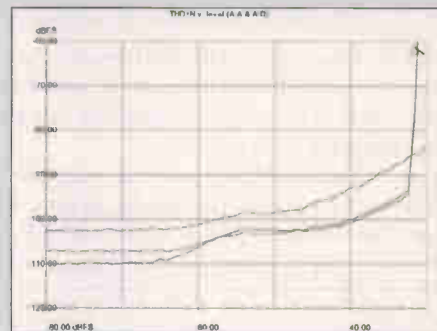


Figure 5 THD+N v. level (A/A and A/D).

to bottom at -70 dBFS input, these are analog, 96 kHz Fs digital, and 48 kHz Fs digital (again, I've skipped the 44.1 kHz plot for clarity). The higher sampling-rate mode appears to be a few dB noisier, but this is mostly a product of its wider bandwidth and consequently greater influence of noise-shaping products on its sum-of-noise. As expected, the digital plots go pretty much vertical as they approach 0 dBFS, so as always in the digital domain, a dB or two of headroom is always prudent!

Figure 6 shows two spectral-analysis plots for 1 kHz signals: I've offset them for clarity, so the absolute values are not mean-

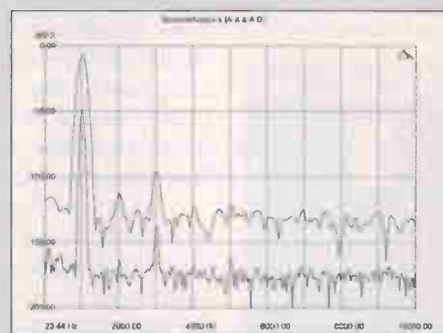


Figure 6 Spectral Analysis (A/A and A/D).

ingful, only the shapes. The upper plot is A/A; the lower A/D (96 kHz Fs). The main point here is that if you imaginarily overlay them you'll see they match very closely indeed: the analog plot has a bit more visible 4th and (maybe) 2nd harmonic—Hey, "analog sweetness" revealed!—but they're otherwise almost identical.

- D. Kumin

FROM THE ROAD

| Column

FROM THE ROAD Continued From Page 12

hidden depending on the performers' location. Also, their flat frequency response was ideal for complementing the vocals and playback of music.

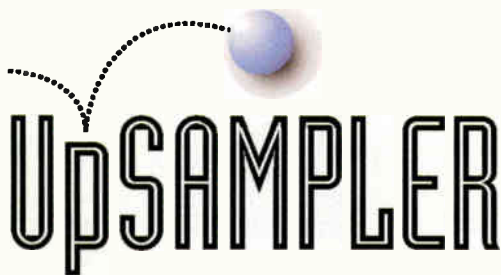
A Yamaha DM1000 console was used with an XTA active microphone splitter to send the vocals to PA/monitors and a Pro Tools HD rig operated by Dae Bennett was

used to record the vocals live. A digital stereo feed (AES/EBU) from the DM1000 was sent to the cameras for a reference track. I specified Sennheiser wireless in-ear with generic buds just in case; however, everyone was pleased with the sound of the speakers so we never had to use them. Assisting in the recording and playback was Joe Sidoti and John Nave.

The making of *Tony Bennett: An American Classic* was a very challenging and rewarding experience. I have never worked a television project that took a film approach instead of the typical television show

approach. Usually you would rehearse a TV show for a couple of days and then shoot in real time to a live audience. The attention to detail experienced on this project was a great lesson. It was a pleasure to sit in on our audio platform next to Dae Bennett for a month and watch some great TV being made. Working with the genius of the likes of Tony Bennett and Rob Marshall and all the performers involved was an experience I will never forget.

Tom Young is the live sound engineer for Tony Bennett.



UPSAMPLER

Capsule Reviews and Product Review Updates

Chandler Limited EMI TG12413 Plug-In

Price: \$500 (TDM), \$300 (RTAS/VST/AU/LE)

Info: www.chandlerlimited.com

One of the highlights of the 2005 AES show in New York City was the Chandler Limited EMI TG12413 plug-in. The plug-in was jointly developed by Chandler Limited and Abbey Road Studios and is based on the original solid state compressor/limiter module in the famous TG 12345 mix desk whose long list of credits include the Beatles' Let It Be and Pink Floyd's Dark Side of the Moon albums.

In 2004 Chandler Limited's hardware reproduction TG unit was sanctioned by Abbey Road Studios and they announced a collaboration to make additional pieces of authentic gear available through the use of EMI's original design and circuit board drawings.

Following the hardware version is the Chandler Limited/Abbey Road jointly developed TG 12413 plug-in. The plug-in supports sample rates up to 192 kHz and is compatible with mono, stereo and multi-channel tracks up to 7.1. The TG 12413 package includes the TG 12413 1969 version that emulates the classic module including the standard Hold control and the TG 12413 2005 version which emulates the Chandler Limited TG1 Abbey Road Special Edition limiter. The TG 12413 2005 has the Hold control modified to be Input gain and an overall 10 dB input boost for more aggressive compressing. This plug-in is available in TDM, VST, AU, RTAS and Audio Suite versions for ProTools HD, LE and M-Powered systems.

The TG 12413's gain meter shows the gain reduction being applied by the current compressor or limiter settings. The meter

indicators ranging from +10 (which is actually no compression) to -10 (which is 20 dB of compression) are identical to the vintage TG unit.

The input setting functions as an input gain/threshold. The more this is turned up the more the signal is compressed. The output control is a 21-position switch set in 1 dB increments. This provides ± 10 dB of output adjustment for level matching as well as accurate, recallable gain make-up. The recovery switch is marked 1 - 6 because the release times change when switching between compress and limit. Setting 1 is the fast and Setting 6 is the slowest. This is the primary control for varying the sound of the plug-in. The Comp/Limit switches between the compressor and limiter function. The compressor has a fixed 2:1 ratio and the limiter provides up to 20 dB of limiting.

I have to say, this is one fantastic plug-in. I've been using it for several months now and I decided before I wrote this review I'd go back over some of my recent mixes and see how frequently it was put to use. I was amazed to find that on average, I've been using the TG 12413 plug-in on 10 - 12 tracks (and sometimes up to 20) per mix. This is roughly the same amount as all other dynamic plug-ins combined.

The TG 12413 works wonders on ambient drum mics. It's the only plug-in that I've encountered that can actually do that super squashed room sound, like I'm used to getting from a Fairchild 660 or 670, an Empirical Labs Distressor, a Pendulum 6386 or an old RCA BA-6A and sound completely legit. Digi's Slam plug-in comes close but the TG 12413 actually pulls it off. I've been mixing my drums through a stereo aux with the TG 12413 2005 inserted in the path with fabulous results. The drums sound more punchy and fat and sound bigger without overpowering the mix. Like the original EMI TG 12413, the plug-in has a very classic pumping/breathing sound. You can hear it working but it sounds good.

Although the plug-in typically works well on keyboards there have been a few instances (most often with string pads) where even with small amounts of compression, the pumping was too obvious and it just didn't work.

The plug-in sounds absolutely fabulous on both male and female vocals. It's my go-to lead vocal compressor on practically every song. It sounds equally good on electric and acoustic guitars. It occasionally has too much color for acoustic instruments but if your goal is that squashed, in-your-face Beatles quality sound, then nothing can touch the TG 12413.

While the plug-in might seem a bit pricey at \$675 for the TDM version and \$450 for the RTAS version, I believe it is worth every penny.

-Russ Long

Upsampler

Capsule Reviews and Product Review Updates

Audix FireBall

Price: \$249 Contact: www.audixusa.com

I first heard the Audix FireBall at a music festival several months ago when an unimpressive 1970s-esque (1970s-bad, not 1970s-good) rock band played harmonica through it. While the band failed to impress the sound of their harmonica didn't and I was pushing and shoving at the end of their set to try to see what mic they were using on the instrument. Low and behold, it was the Audix FireBall, Audix's dynamic microphone specifically designed for the harmonica. Although my sessions of harmonica recording are few, I was thrilled when I was given the opportunity to try out the mic.

The FireBall, which has a tight cardioid pickup pattern and a smooth, uniform frequency response of 50 Hz-15 kHz, works equally well in both live and studio applications and is precise, clear and capable of handling sound pressure levels beyond 140 dB without distorting.

The low impedance FireBall has a transformerless design and a balanced output which allows interference-free performance, even with long cable runs. The mic is CNC machined at the Audix factory in Wilsonville, Oregon out of a solid bar of aircraft grade aluminum. The mic's final look is achieved with an elaborate three stage anodizing process that gives every microphone its own distinctive look.

The FireBall includes a mic clip (Audix's D-Clip) that is adjustable through 180 degrees, and a zippered microphone carrying pouch (P1). Optional accessories include an external foam windscreens (WS357), a 25-foot right angle XLR-XLR mic cable (CBL-DR25), a 20-foot XLR - XLR mic cable (CBL-20), a four-foot adapter cable for RAD360 wireless bodypack (CBL-V360), and a high quality low to high-impedance transformer (T50-K).

Unlike the Shure Bullet, to run the FireBall directly into a guitar amp, there needs to be a low-to-high impedance matching transformer inserted between the mic and the amp. When using this type of impedance matching device, there is typically some loss of signal and frequency response but this is typically a good thing since having a little less top end is desired when adding in the characteristics of a guitar amplifier. (Audix

says: The Audix T50-K is designed to maintain the integrity of the signal. - Ed.)

As expected, I found that the FireBall works extremely well in recording the harmonica. The mic's design allows the ball grille of the mic and the harmonica to be held in one hand leaving the other hand free for cupping. Unlike other harmonica mics, the FireBall is designed to reproduce notes accurately and clearly.

While the mic shines on harmonica, I found that it frequently works well on several other instruments including toms, snare (both top and bottom), congas, bongos and saxophone.

The mic is also a nice option for vocals, especially higher volume, more aggressive vocals. While I wouldn't buy the FireBall solely for vocals I did find that in some instances it provided the perfect vocal texture.

The FireBall is not the most versatile microphone that I've encountered but it is hands down the best harmonica mic that I've used. That coupled with its low price and its ability to provide an excellent option in several other situations make it an excellent addition to any engineer or studio's microphone arsenal.

It should be noted that recently Audix has introduced an additional model - the FireBall V (\$199), which incorporates the added feature of a volume control. The FireBall V features a black cast body as opposed to the machined brass body of the FireBall.

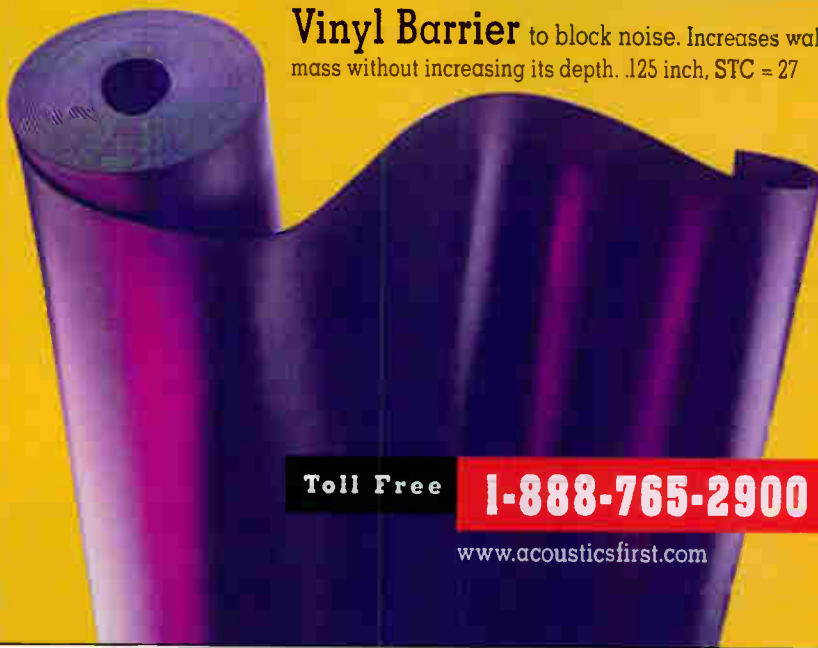
- Russ Long



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ALESIS ADAT HD24XR 24/96 Hard Disk Recorder

APPLICATIONS: Studio, post production.



FEATURES: Hard disk format; 24-track; 24-bit; 44.1 kHz, 48 kHz, 96 kHz sample rates; dual hot-swappable bays; ADAT FST file technology; Ethernet; basic editing functions; MTC; ADAT Sync; word clock; remote control surface.

PRICE: \$2,999.

CONTACT: Alesis at 401-658-3131, www.alesis.com.

ZAXCOM Deva V

APPLICATIONS: Field, film, video, broadcast.

FEATURES: Hard disk format; 10-track; 24-bit; up to 192 kHz sample rate; onboard 16-track mixer; 48V phantom power; onboard sample rate converter; slate mic; record buffer; FireWire port; optional DVD drive; ships with carrying bag. **PRICE:** \$13,900.

CONTACT: Zaxcom at 973-835-5000, www.zaxcom.com.



IZ TECHNOLOGY RADAR V

APPLICATIONS: Studio, post production, live sound.

FEATURES: Hard disk format; up to 24 tracks; up to 192 kHz sample rate; modular hard disk configuration; BWF format; SMPTE timecode; video; MIDI; word clock; Gigabit Ethernet; DVD-RAM/DVD-R drive; tabletop remote controller; meter bridge.

PRICE: starts at \$14,995.

CONTACT: iZ Technology at 800-776-1356, www.izcorp.com.



FAIRLIGHT DREAM Satellite

APPLICATIONS: Studio, broadcast, post production.

FEATURES: Hard disk format; up to 96-track; 24-bit/96 kHz; QDC engine; waveform editing; DSP effects; VST-compatible; OMF, BWF, AIFF, MP3, DAR files; Fairlight MediaLink; Ethernet; optional Fibre Channel.

CONTACT: Fairlight at 626-793-3940, www.fairlightau.com.



KORG D888

APPLICATIONS: Studio, field, live sound.

FEATURES: Hard disk format; eight-track; 24-bit; 44.1 kHz sample rate; integrated eight-channel mixer with faders; 40 GB hard drive; three-band EQ; onboard effects; basic editing functions; track markers; USB 2.0 port.

PRICE: \$800.

CONTACT: Korg USA at 631-390-6500, www.korg.com.



TASCAM X-48 Hybrid Hard Disk Workstation

APPLICATIONS: Studio, post production.

FEATURES: Hard disk format; up to 48-track; 24-bit; 44.1 kHz, 48 kHz, 96 kHz, 192 kHz sample rates; onboard 80 GB drive; waveform editing; DSP effects; SMPTE, LTC, word clock, MIDI sync; MMC; USB, FireWire ports; Gigabit Ethernet; DVD-RW drive; I/O options; BWF, OMF-compatible; VST plug-in-compatible; tape style transport controls.

PRICE: \$4,999.

CONTACT: TASCAM at 323-726-0303, www.tascam.com.



HNB Portadrive PDR2000

APPLICATIONS: Field recording, film, video, broadcast, studio.

FEATURES: Hard disk drive format; eight-track; 24-bit; 48 kHz, 96 kHz sample rates; 10-second buffer; 48V phantom power; onboard mixer; M/S; film/video sync/timecodes; slate mic; tone oscillator; battery operable (Li ion NP1); switchable LED meter; USB, SCSI, Ethernet ports.

PRICE: \$14,499.

CONTACT: HNB/Sennheiser USA at 877-736-6434, www.sennheiserusa.com.



FOSTEX D-2424LV Hard Disk Recorder

APPLICATIONS: Studio, live sound.

FEATURES: Hard disk format; 24-track; 44.1



kHz, 48 kHz, 88.2 kHz, 96 kHz sample rates; basic editing functions; onboard hard drive; tape style transport controls; shuttle wheel; varispeed; timecode; locate points; word clock; LED screen; removable frontpiece/remote; optional AES/EBU I/O, removable hard drive, DVD-RAM drive, video time code package.

PRICE: \$2,495.

CONTACT: Fostex at 310-329-2960, www.fostex.com.

GENEX AUDIO GX9048 Digital Recorder

APPLICATIONS: Studio, post production.

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CONTACT: Genex Audio at 310-828-6667, www.genexaudio.com.



TASCAM DA-98HR Modular Digital Multitrack Recorder

APPLICATIONS: Studio, post production.

FEATURES: DTRS format; 8/4/2-track; 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz sample rates; dedicated function buttons; programmable function buttons; chase function; video sync; word clock; shuttle wheel; MMC; LCD; LED screen and meters; linkable; optional remote control.

PRICE: \$6,999.

CONTACT: TASCAM at 323-726-0303, www.tascam.com.



FOSTEX PD-6 DVD Location Recorder

APPLICATIONS: Field, studio.

FEATURES: DVD-RAM format; 6-track; 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz sample rates; onboard mixer; M/S; limiter; high-pass filter per track; word clock; SMPTE timecode; LTC; BWF files; slate; tone generator; FireWire, USB ports.

PRICE: \$9,995.

CONTACT: Fostex at 310-329-2960, www.fostex.com.



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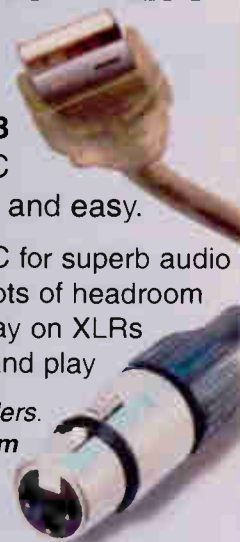
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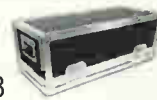


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“Call Me When You’re Sober” | Evanescence



SINGLE: “Call Me When You’re Sober”
ALBUM: *The Open Door* (Wind-Up Entertainment)
DATES: Recorded from November 2005 through March 2006 at the Record Plant in
HOLLYWOOD: Mixed in March 2006 at Ocean Way in Hollywood
PRODUCER: Dave Fortman
ENGINEER: Dave Fortman
MIXER: Dave Fortman
PRO TOOLS OP: Jeremy Parker
MASTERING: Ted Jensen at Sterling Sound in New York City
OTHER PROJECTS: Following his role as guitarist for Ugly Kid Joe, Fortman has evolved into a producer, engineer, and mixer for artists such as Boy Sets Fire, 12 Stones, Superjoint Ritual, Mudvayne, Soilent Green, and Stereo Fuse.
SINGLE SONGWRITERS: Amy Lee and Terry Balsamo
CONSOLES: Solid State Logic 9000K (playback) and Neve 88R (mix)
RECORDER: Pro Tools|HD
MONITORS: Dynaudio Acoustics BM6A and Yamaha NS-10
VOCAL MICROPHONE: Sony C-800G
VOCAL CHAIN: Telefunken V72 mic preamp and UREI 1176 (blackface) limiter
OTHER MIC PREAMPS: Neve 1073 and Neve 31102

ENGINEER’S DIARY

Everyone at Wind-Up Entertainment can now breathe: “Call Me When You’re Sober” is proof positive that Evanescence — the sonically-epic, gothically-tinged hard rock band fronted by Amy Lee, a dramatic vocal powerhouse — did not suffer from the oft-dreaded “sophomore slump.” Crafting a full-length release to follow Evanescence’s debut album entitled *Fallen* was no small project, as the world’s first impression of the band was made via “Bring Me To Life,” a huge and rather unique-sounding multiformat radio hit in 2003.

Dave Fortman — the producer, engineer, and mixer of *The Open Door* upon which “Call Me...” is featured — explains that the song came together in the midst of album preproduction. “It all started with an idea that Amy had recorded,” tells Fortman. “It was only a verse and the bridge part — with the ‘call me when you’re sober’ line — which was then a pre-chorus. The song was fairly unstructured.” However, Lee and new Evanescence guitarist Terry Balsamo quickly whipped it into shape. The result was a catchy, powerful song and a perfect vehicle for Lee’s soaring signature vocal style.

From a shootout that included U 47 and ELAM 251 microphones and Fortman’s favorite Neve 1073 preamplifiers, Lee’s vocal chain was chosen, which consisted of a Sony C-800G tube microphone, Telefunken V72 mic preamp, and a “blackface” UREI 1176 limiter. “The Sony through the V72 seemed to be the largest, warmest sound for her voice,” offers Fortman. “Due to the V72, it gave us a very warm midrange.”

If Lee’s vocals sound pure and naked, explains Fortman proudly, it’s because they are — the current trend of rampant pitch correction was simply skipped. “The album is just her singing her ass off,” he boasts. “The tracks were amazing. There was no need to tune — going in on graph mode, re-drawing lines, and all that. I think we proved with this single that, with a great singer tearing it up, you don’t need to do that just because you can.”

A slight bit of superstition brought the mix to Ocean Way’s Neve 88R console, where Fortman had last been while working on the band’s debut. “I really liked the 88R and decided to use it again, just for luck,” offers Fortman, a regular user of SSL 4000 G+ mix desks. “With the 88R, you can get that Neve tone without the darkness of the 80 Series consoles.”

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



(L to R): Terry Balsamo, Amy Lee and Dave Fortman.

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