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PRO AUDIO REVIEW

Gear & Software Reviews For The End-User

Panic! At The Disco
Page 82

April 2006

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In This Issue!

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- Extensive Broadcast Section
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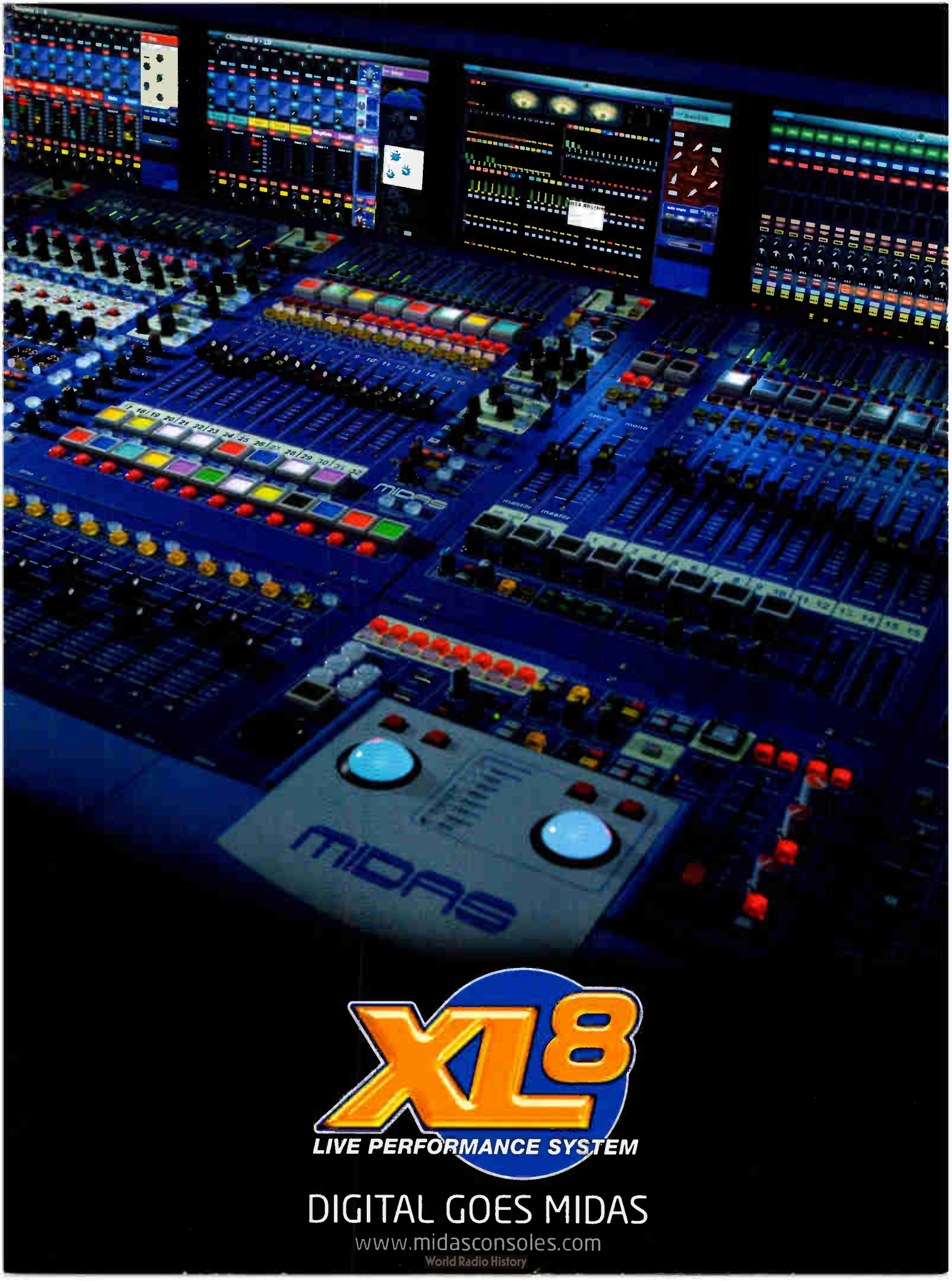

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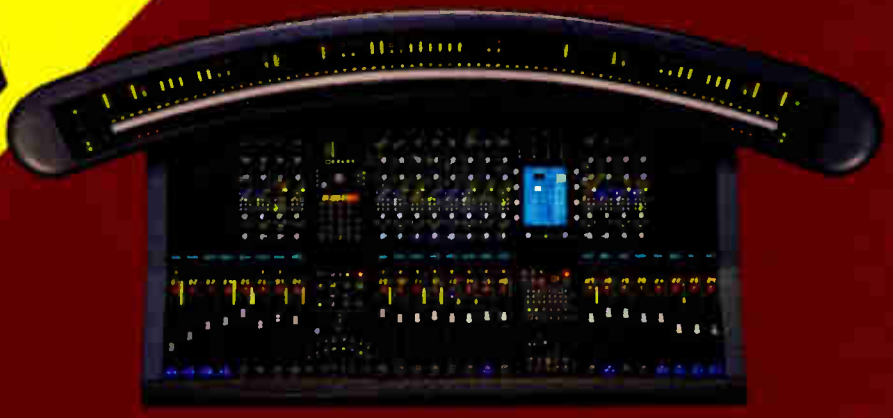

P72 mix 24

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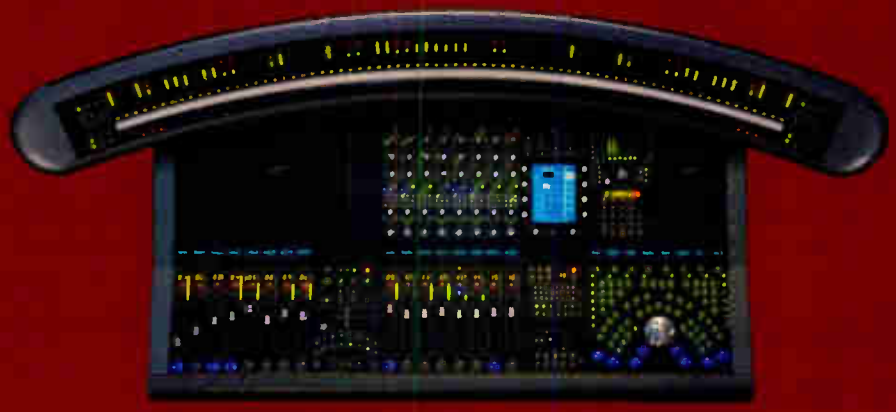

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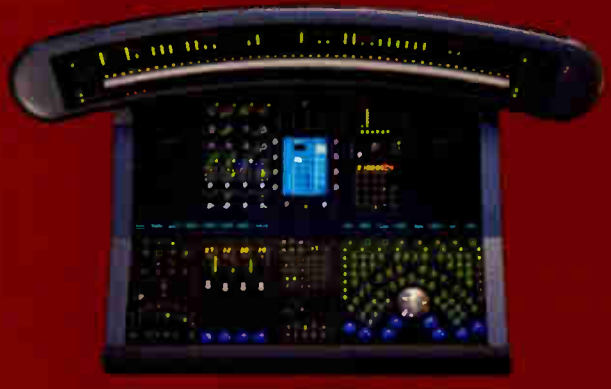
P48 Post 8

P48 Mix 8



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Gear & Software Reviews For The End-User
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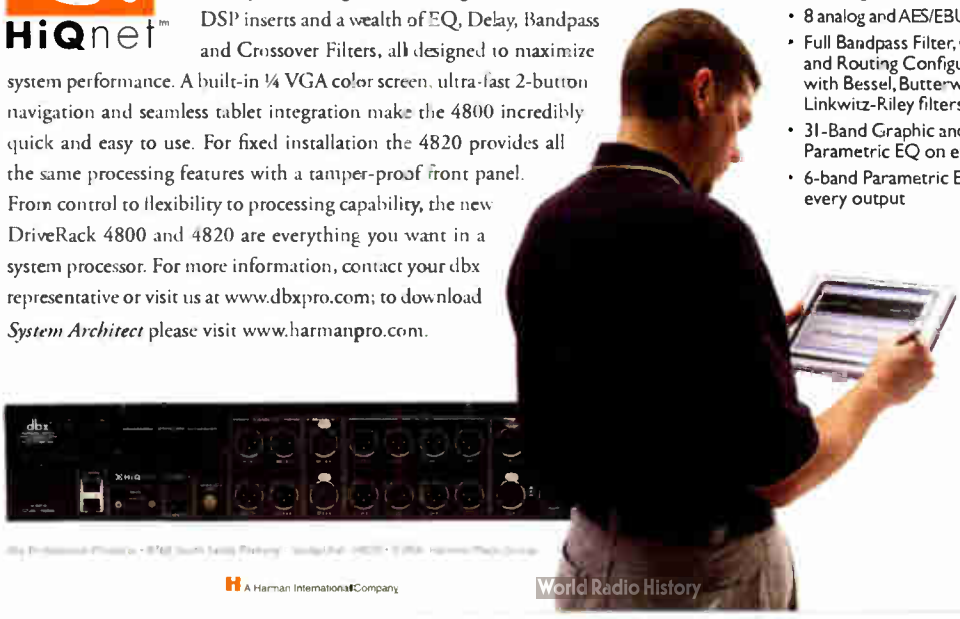

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Resolute Observations

By John Gatski

I have always believed that long-term listening to audio sets the aural benchmark threshold. Short term, carefully matched A/B comparisons are good for eliminating the obvious differences, but listening is more than that. There is a sonic memory, of sorts, that your aural/brain system gets used to, but it takes time to develop.

If you record and listen to CD quality all the time, it becomes your sonic reference. If you compare CDs to cassettes, MP3s or records, it sounds even better. In perspective, CD-quality audio was for, a time, the best format and everyone got used to it. It did not, however, sound as good as the studio analog master recordings and it contained many audible artifacts such as an irritating "edge" on complex music such as horns or violins.

However, in the mid to late 1990s, higher resolution, better-sounding formats were developed, i.e. high bit rate PCM and SACD. And I believe, without a doubt, that they are audibly superior to the CD.

Over the past six months, I exclusively listened to high-resolution recordings, both prerecorded and my own, and then went back to listening to CD quality audio. The intent was to see how much difference I noticed when I went back to listening to 44.1 kHz. The sources included both prerecorded and my own recordings of acoustic guitars.

The recordings/playback list included Benchmark ADC-1 converter linked to either the TASCAM HD-P2, TASCAM DVR-1000 or Mac G5 with Lynx card. I made and listened to original guitar recordings at 96 kHz at 192 kHz, and (for later comparison). I made simultaneous 44.1 kHz recordings of the same material.

For playback of prerecorded sources (Grateful Dead, *American Beauty* [Dual Disc], Beck and Ryerson, *Alto* [SACD], Queen, *The Game* [DVD-A] Jaco Pastorius Big Band, *The Word is Out* [SACD], and many others. Using the excellent Benchmark A/D, I also recorded these prerecordings again at 192 kHz and at 44.1 kHz, utilizing the balanced jacks from Esoteric DV-50 universal player.

I used Ultrasone HFI-2000 headphones and a Rogue Audio headphone amp, as well as a Pass X-350.5 amp and Legacy Focus 20/20 loudspeakers for playback monitoring. Listening sources included the DV-50, with its converters, and the Benchmark DAC-1. Some of the recordings were listened to as many as 50 times.

My notes written during the high-res listening included such descriptions as: "wide presentation of space around drum cymbals and guitar string plucks," "a lack of harshness on horns," "a distinct and separate center image," "live performance-like dynamic range" and "piano that sounds like a piano."

When I listened to the 44.1 kHz recordings of the same material, the differences were obvious. For example, in the big band recording notes, "the instruments' separation in the mixes was reduced with audible significance." The cymbal hits that stood out on their own at 192 kHz "receded into the center image." And the dynamic range reduction at 44.1 kHz produced a "who turned down the volume impression," despite the recording levels being exactly matched by simultaneous recording.

By the way, I also recording the DV-50's SACD analog outputs in 192 kHz and 44.1 kHz. The 192 kHz one-generation copy and original SACD were virtually identical. I could not identify which was which. The 44.1 kHz version, by comparison, lost about 30 percent of its detail and width, and there was a subtle smearing and melding of instruments when compared with the high-res versions

So what is my point? I have been arguing for years that high-res is better than the 44.1 kHz and, the industry ought to sort our which format to use — and use it. Yes, the sideways development of convenience storage technologies, such as MP3, and such, muddies the water — especially in terms of quality. But pros should be in the business of making the "best sounding" reference audio possible. That audio can then be utilized into whatever convenience format is desired.

John Gatski is publisher/executive editor of ***Pro Audio Review.***

PRO AUDIO REVIEW

Vol. 11 Issue 4 • April 2006

Evaluating audio products for professionals in commercial recording, broadcast production, audio for video/film, project studios, live sound, contracting and multimedia.

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Extensions refer to office number 703-998-7600

IMAS Publishing PRO AUDIO GROUP

PRO AUDIO REVIEW (ISSN 1083-6241) is published monthly by IMAS Publishing Group, 5827 Columbia Pike, 3rd Floor, Falls Church, Va. 22041. Subsciption information can be found at www.proaudioreview.com, by calling 703-998-7600 or writing to the above address. Letters to the editor are welcomed at the above address or par@imaspub.com.

Phone: 703-998-7600 Fax: 703-998-2966

Periodicals postage paid at Falls Church, VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Pro Audio Review, P.O. Box 1214, Falls Church, Va. 22041.

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REPRINTS: Reprints of all articles in this issue are available. Contact Emmily Wilson (ext. 110) at Pro Audio Review.

Printed In The U.S.A.

MMADP BPA WORLDWIDE BUSINESS SPARS

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iKey Revisited

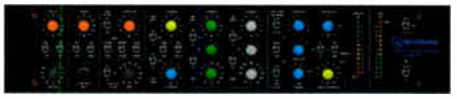
Readers have informed me that in the March 2006 X-Audio column I neglected to notice a troublesome clicking sound in the noise floor of the Gemini iKey. Further tests, attempting to duplicate pristine CD audio sources for instance, have proven these readers correct. The noise floor is indeed much higher than consumer DAT machines, quite unlike what I had suggested. The playback level has to be turned up quite loud to hear the artifact. It is masked by the actual audio for the most part. Still, I should have caught it. This kind of problem annoys me too! I wasn't able to duplicate a problem one reader seemed to be having with what sounded more like excessive RF interference.

The applications mentioned in the article, digitizing vinyl, band practice, television recordings, etc. are still good fits for the iKey. Its convenience factor is quite high for non-crucial audio. It is not a replacement for a DAT machine or high-resolution recorder though.

- Davis White

The Wrong Box

Sharp-eyed readers noticed we had the wrong Buzz Audio picture in the review of the Buzz Audio ARC 1.1 Analog Recording Channel (*PAR* 3/05 p. 26). The correct picture is below.



You can stop sending the e-mails now.

Also in the same issue, the Installation Spotlight on the World Cafe (p. 42) had a few errors in it.

Firstly, WXPN is associated with the University of Pennsylvania, not the University of Philadelphia. Secondly, Don Schell's name was misspelled as "Shell." Thirdly, The band he mixed for is Rusted Root not Busted Root. And, finally, the opening photo should be credited to Nicole Wilson.

Thanks, Dr. Fred!

After reading Dr. Frederick Bashour's review of the M-Audio MicroTrack 24/96 Flash Recorder (*PAR* 3/06 p. 46) I decided to purchase one in spite of some of the negative comments he had about the operation of it and, most particularly, the built in, non-user replaceable battery.

I just received it and it packs a huge amount of power into a tiny package. I haven't tried the phantom power yet but in a quick test it did a decent job with the included stereo mic.

I definitely agree that it is crazy to ship this unit with such a tiny Compact Flash card. Add $50 or $100 to the price and include a 2 GB card.

Fred may not have to purchase additional units. I did find and order a USB battery power unit that uses 4 AA batteries. It's from APC and costs all of $8 (plus shipping). If it works with the MicroTrack you could carry one or two of these and, hopefully at least double or triple the recording time. Just more Compact Flash cards might be needed. I do question if the unit seamlessly switches between USB power and no USB power.

Thanks for a useful review and alerting me to this product.

- Bob Sellman
Direct-to-Tape Recording Co.
www.dtrmusic.com

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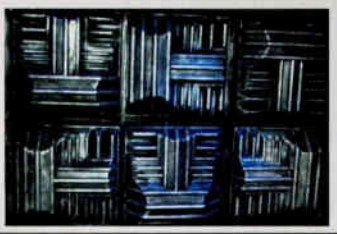
CharterOak Acoustics SA538 microphones were used by Brian Keane to record the score on a upcoming PBS documentary on playwright Eugene O'Neill.

KVEG-FM in Las Vegas cleaned out the mic cabinet and replenished it with **Heil Sound** PR-40 broadcast mics. See picture of a smiling Bob Heil (sitting) engineering consultant for KVEG, Jay Rose.

For the latest F&F Productions mobile truck, a 53-footer, the Clearwater, FL-based company used **Gepco** cabling throughout.

If you look really closely at the background of Fox TV's Unanimous TV show, you can see **Auralex** AudioTile and T-Fusors. If you are afraid to get that close to your TV see the picture for a blow-up of what you would see...



The ever-present **Zaxcom** Deva multitrack digital recorder has been used on 24, Deadwood and CSI: Crime Scene Investigation, along with movies such as Walk the Line, War of the Worlds, Memoirs of a Geisha and Oscar-winning Crash.

Omnia 5EX HD+AM processors have been placed into WTEM-AM in Washington, DC, WSM-AM in Nashville and WLS-AM in Chicago.

Mobile Television Group, a sports remote truck contractor based in Colorado, recently purchased their sixth **Euphonix** System 5-B broadcast console.

NEW PRODUCTS

Sonifex RB-DS2 Stereo Audio Delay Synchronizer

The Sonifex RB-DS2 Stereo Audio Delay Synchronizer is pretty much a WYSIWYG product – it's a stereo audio delay/synchronizer. It operates up to 24-bit/96 kHz for up to 10.5 seconds of delay or 42 seconds at 16-bit/48 kHz in its shipping configuration. Internal Compact Flash memory can be expanded up to 2GB for hours of delay. Delay can be measured in samples, fields, frames or milliseconds in PAL or NTSC formats. Price: $1,919.

Contact: Sonifex/Independent Audio at 207-773-2424, www.independentaudio.com.

Sound Devices 702 and 702T Portable Digital Recorders

Taking advantage of improvements in Compact Flash memory technology and price drops, Sound Devices has launched two new members of its portable digital recorder family – the 702 and 702T. Both are two-channel recorders utilizing Compact Flash cards as media rather than hard disks. Performance is 16-bit/24-bit, from 32 kHz – 192 kHz. Features include 48V phantom power, limiters, high-pass filters, FireWire port and a removable, rechargeable Li-ion battery. The 702T also has timecode. Prices: 702 - $2,175; 702T - $2,650.

Contact: Sound Devices at 608-525-0625, www.sounddevices.com.

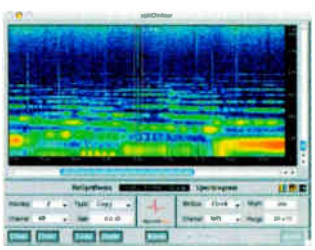
Doremi Labs NuggetPro

Just as the NAB2006 now hosts an annual event for digital cinema, high-end broadcasters and content creators increasingly find themselves dealing with material and equipment that used to be considered "post production." Such is the case with the Doremi NuggetPro, a digital video player. The NuggetPro is designed for video playback for digital audio workstations. It handles most standard definition (SD) and high definition (HD) video formats and up to six channels of audio. An internal hard drive stores QuickTime of MPEG-2 files or the NuggetPro can link via Gigabit Ethernet to a server for video playback. Price: $6,750.

Contact: Doremi Labs at 818-562-1101, www.doremilabs.com.

Algorithmix reNOVAtor

Already available for Windows systems, reNOVAtor, a high-end sound restoration software program from Algorithmix, is now available for Mac users. Like the above-mentioned NuggetPro, reNOVAtor is a product originally aimed at post houses but it increasingly has applications for the broadcast industry. Available as a Pro Tools AudioSuite plug-in, reNOVAtor's numerous sound restoration and cleaning algorithms operate at sample rates up to 384 kHz. Price: $2,500.



Contact: Algorthmix at 49-7741-91930, www.algorithmix.com.

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Can the advanced technology of Neutrik's XX series connectors reverse your receding hairline?

Possibly. You see, a growing amount of research suggests that job related stress can cause hair loss. And that's where we can help.

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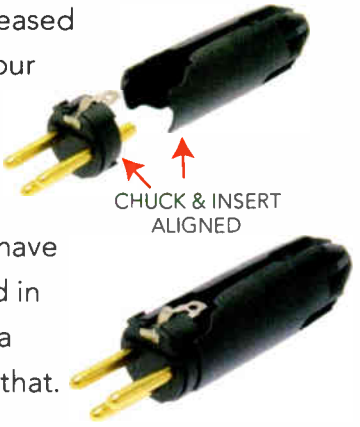
points that boost conductivity and reduce stress on the male pin. Now check out the aptly named "solder cup." It keeps the solder away from the contact, for faster, easier assembly. You can feel yourself relaxing. Your shower drain seems less clogged.

Is there a patented formula? Well, the XX does have a new ground contact that enhances conductivity between the chassis and cable connector. And a unique latch design that improves security, ease, and speed. You feel increasingly mellow. The mirror is now your friend.

But will it work every time? Relax. Our chuck type strain relief has higher traction teeth, for increased retention force. And our unique guide flaps make alignment and insertion completely hassle free. You now have more hair than you did in high school, and with a reunion coming up at that.



The moral of this story? If you want a new head of hair you need a new connector.
The XX series from Neutrik.

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Wheatstone Vorsis AP3 Multiprocessor

BY RUSS LONG

The Vorsis AP3 from Wheatstone is a multiprocessor box that can potentially replace an entire rack of dedicated processors. It can be operated as a stereo unit or two independent mono units and it provides a filter, de-esser, expander, multiband compressor, equalizer and limiter. The unit includes real-time spectrum density readouts with full metering and the included PC graphical user interface (GUI) software makes the operation of the AP3 quick, easy and accurate.

FEATURES

The Vorsis AP3 is a single rackspace 16-inch deep box. On the rear panel is a wide assortment of connectors allowing the box to easily interface to most situations. A pair of female XLR connectors provide mic and line input. A third female XLR connector along with a paralleled RJ45 connector provide digital input. A pair of male XLR connectors provide line output and a third male XLR connector along with a paralleled RJ45 connector provide digital output. A DB25 D-sub connector also provides access to all of the digital and analog inputs and outputs. Two RJ45 connectors (one for each channel) allow the use of talent mic control panels for On, Off and Cough functions and a fifth RJ45 connector allows the box to be controlled via the GUI software.

The GUI is laid out in an extremely logical manner and is very easy to use. There are eight user screen selector tabs across the top of the screen; Input, Filter, Expander, De-esser, EQ, Compressor/Multiband limiter, Output and System. The first seven follow the order of the signal path and the System user screen controls the system functions. The equalizer can be pre or post compression and the order of the tabs reflects the setting. This means that regardless of what window you are viewing, by looking at the tabs you can always tell where the equalizer falls in the signal path.

Input can be mic, line or AES. The microphone inputs have phantom power and are adjustable from –10 dB to 70 dB in 1 dB increments. The line inputs are adjustable from –10 dB to 20 dB, again in 1 dB increments. The digital AES/EBU inputs can be adjusted from –12 dB to +12 dB in 0.5 dB increments. In addition to gain and input source, the unit includes adjustments for balance, left and right phase reverse, phantom power, and a Symmetry mode which, through the use of phase shifting, reduces the peak to average ratio and enables an increase in apparent loudness with minimal audio artifacts.

The filters can be used to clean up the signal prior to dynamic processing. The 24 dB/octave high-pass filter is adjustable from 20 Hz to 1 kHz. The 24 dB/octave low-pass filter is adjustable from 1 kHz to 20 kHz and the extremely tight Q notch filter is adjustable from 20 Hz to 20 kHz.

The Expander, which is similar to a gate, activates when a signal falls below a predetermined level. The variable parameters include threshold (-60 – 0 dB FS), ratio (1:1 – 1:5), depth (0 - 40 dB), open (0.1mS – 100mS), hang (0 - 1 sec) and close (50mS – 3 Sec).

The de-esser reduces the signal level within a designated frequency range when it exceeds a predetermined level. The variable parameters include threshold (-10 to -60 dB FS), attack (0.1mS – 100mS), release (50mS – 500mS), frequency (20 Hz – 20 kHz) and bandwidth (0.15 – 4 octaves).

The parametric EQ has four identical independent bands, each fully adjustable in center frequency (20 Hz–20 kHz), bandwidth (0.2 – 3 octaves), and boost/cut (±14 dB). The entire EQ section is selectable to be pre or post the AP3 multiband compressor section.

The AP3's three-band compressor rides the signal above an associated three-band Automatic Gain Control (AGC) system bed. All three bands have independent parameter controls that include threshold (-30 to -70 dB FS), attack (0.2mS – 1 sec), release (33mS - 1 Sec), and ratio (1:1 - 20:1). An overall makeup gain control (-20 dB to +48 dB) and individual high, mid and low-band gain trim (±18 dB) allow precise level settings, and a master drive control (0 - 100%) allows all three threshold settings to be dialed back as a group. Compression activity is displayed in real-time in the spectrum analysis graph. The frequency band crossover points (LF crossover point 20 Hz – 1 kHz and HF crossover point 1 kHz – 20 kHz) are fully adjustable and also apply to the three-band AGC circuits. The AGC system has its own master attack (50mS – 500mS) and release (100mS – 4 Sec) settings. Save and Compare buttons allow instant before and after comparisons.

The Output section is the final stage. In addition to controlling output gain (-80 dB - +18 dB), this bypassable stage includes a precision peak limiter which provides maximum output signal without clipping. Adjustable parameters include threshold (20 to -10 dB FS), attack (.2 – 100mS) and release (10mS – 330mS).

The System user screen allows the user to set the system options. Sample Rate function allows the sample rate to be set to

continued on page 14 ➤

Fast Facts

Applications:
Studio, broadcast, post production, sound reinforcement

Key Features:
Two-channel; parametric EQ, compressor, multiband limiter, de-esser, expander; filters; Automatic Gain Control; 44.1 kHz, 48 kHz sample rates; spectral analyzer

Price:
$3,199

Contact:
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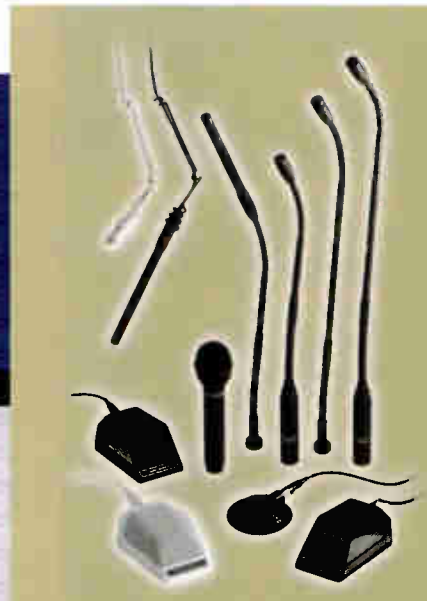
UniGuard RFI-shielding technology. Another UniPoint breakthrough from Audio-Technica, the pioneer in high-performance miniature transducer design.



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UniGuard™ RFI-shielding technology
New UniPoint models are protected by breakthrough audio and mechanical design improvements for unsurpassed rejection of radio frequency interference

*Every UniPoint model with the exception of U853Cn is equipped with Audio-Technica's UniGuard™ RFI-shielding technology

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World Radio History

➤ *Wheatstone from page 12*

44.1 kHz, 48 kHz, or Auto (in Auto, the AP3 follows the sample rate of the AES/EBU signal). The Mode function allows the operation to be set to stereo, dual mono, stereo from A, or stereo from B. The Security function allows password settings and front panel lockout.

Real-time spectral analysis of the selected audio signal is provided via a Fast-Fourier Transform (FFT) Display. The graph also shows composite curves representing the frequency response of the applied processing. The display is determined by the selector buttons below the graph. Dual indicator bar graph metering indicates the gain reduction and input and output signal levels being applied before and after the multiband compressor. A switch to the left of the display toggles the input bargraph from a 30 dB to a 60 dB range which is helpful when viewing content with a high dynamic range such as classical music.

In Use

I made the not-so-wise decision to initially use the AP3 without the GUI and what a mistake that was. All of the features can be accessed via the front panel controls but unfortunately it's a fairly complicated process. The GUI is another story completely. It is pleasing to the eye, very easy to navigate and the only way I'll ever use the AP3 from this point on. The computer talks to the AP3 via a single RJ45 Ethernet connection that lets you control one or many AP3 units. The GUI provides complete control of all audio parameters, presets, monitor functions, system settings and security. By using VPN protocols, the remote control of the AP3 can take place from anywhere with an Internet connection. I had to adjust the IP address on my computer and invest in a crossover cable since a regular Ethernet cable won't work but once I got it up and running it has operated flawlessly.

As I have found to be the case with most digital processors, the AP3 sounds the best when it isn't doing anything too extreme. It does, however, have the capability to provide extreme processing and it does it as well as anything else that I've encountered.

I spent a lot of time strapping the AP3 over my stereo buss while mixing and always liked having it in the signal path. This was true going digital in and out of the AP3 while mixing in the box or going analog in and out while mixing on an analog desk. In these situations I typically found myself using the multi-band compressor and the limiter and sometimes a hint of EQ, always varying settings depending on the source material.

The multiband compression sounds great but it takes a bit longer to get the desired results than with most multiband plug-ins that I've used. I think this is primarily because there are so many options with the AP3. I'm sure the more time I spend with the AP3 the less this will feel like it's an issue. This compressor is the heart of the box and once it has been finessed into shape, it performs amazingly well. I would say that it sounds amazing but that's what's great about the processor, you can hardly hear it processing at all.

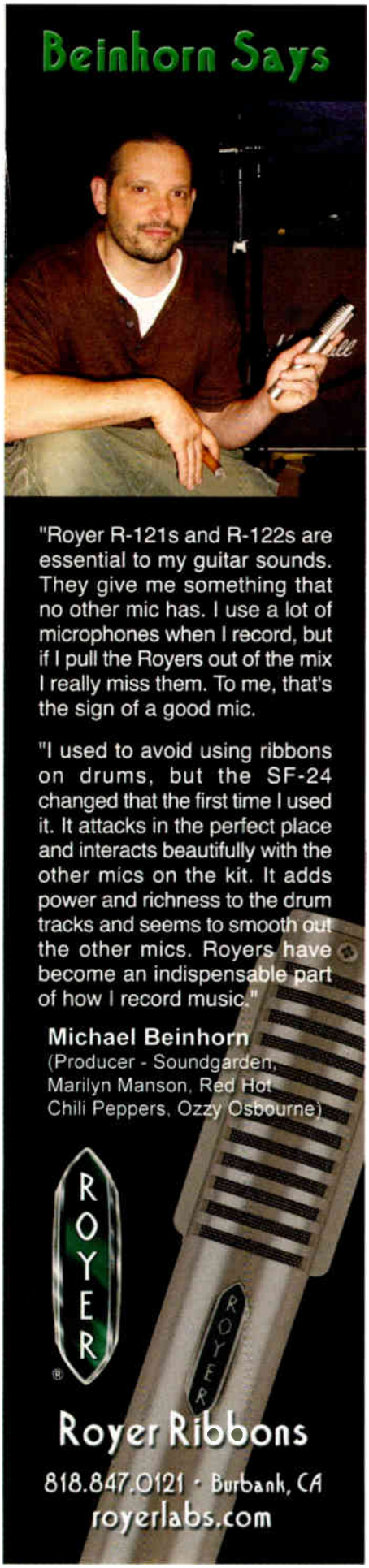
I found the mic preamp to be smooth and uncolored, a perfect pre for dialog and broadcast work. I compared it to my stable of favorites (the Gordon, Daking and John Hardy) on acoustic and electric guitar, vocals, and tambourine and although I never preferred it, I always felt that it did an adequate job. I wouldn't buy the AP3 for the mic preamp but I'm sure I'd use it without hesitation from time to time if I had an AP3.

The AP3's de-esser works well. I hyped the sibilance on a vocal and then strapped the AP3 across the stereo mix and found the unit to work extremely well removing the sibilance. I also ran an unusually sibilant vocal through the AP3 and again had good results removing the sibilance. During another mix I found that I had a problem with a 60 Hz hum that was recorded on a keyboard track. I had perfect results using the notch filter in the AP3 to eliminate it.

Summary

Whether you're setting up for an HD Radio broadcast, doing final tweaks on an album mix or recording a vocal or guitar, the Vorsis AP3 is a powerful tool that can help you get the job done well. The box will find itself right at home in the recording studio but it is perfectly suited for the broadcast industry. Anyone in need of a flexible box that can do almost anything should give top consideration to the Vorsis AP3.

Russ Long, a Nashville-based producer/engineer, owns The Carport recording studio. He is a regular contributor to ***Pro Audio Review.***



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(Top) A padded rolling case simplifies storage and transport.

(Middle) The speakers and mixer can be stand-mounted with optional accessories.

(Bottom) The mixer fits into the back of one speaker. The other speaker provides space for cables, etc.

World Radio History

KCRW's Studio Upgrade

By Mel Lambert

The National Public Radio network has earned an enviable reputation for pushing the envelope in terms of responding to the needs its local communities. Primarily subscription-based, NPR relies on listener loyalty and commitment. KCRW-FM is an NPR affiliate owned by Santa Monica College, west of Los Angeles, that addresses the needs of an eclectic listenership who appreciate an admixture of current affairs, political comment and minority-interest music. For close to 30 years the station has been providing high-quality programming to an attentive audience in excess of 450,000 weekly listeners with a varied schedule of news, locally and nationally produced music, public affairs, political analysis and cultural programs; its self-proclaimed format is "Eclectic, Non-commercial."

A Klotz VADIS control surface at KCRW

Programming Mix

KCRW-FM's daily programming comprises approximately 50 percent music – including in-studio offerings – and 50% current affairs, the latter primarily NPR's "Morning Becomes Eclectic" and "All Things Considered" plus PRI's "Marketplace," in addition to home-grown offerings that include "Which Way LA?" and "To the Point," hosted by Warren Olney. In the station's early days, recalls general manager Ruth Seymour, "KCRW offered a very different program mix from today." Back in the early 1980s, the station was broadcasting a number of drama productions using a pair of performance areas at either end of a basement complex that houses the station. "But, over the years, we have moved towards a mixture of music – some of it performed live – and magazine-format programming."

Much of the space wasn't being used because it was inappropriate, Seymour stresses, "or lacked the type of equipment we need to use the space in the way we needed." As a result, the station embarked upon an ambitious program to re-equip the station and renovate a number of music production areas. "Our keyword during the project." Seymour recalls, "was flexibility."

KCRW Production Director Bob Carlson

With its revised layout, KCRW now offers four broadcast studios, one on-air studio, two performance studios, two interview studios, two edit suites and a voice-over booth. A central Internet streaming area, a main matrix/rack room and sub rack room complete the technical facilities. "Of primary importance during our recent upgrade was the ability to share studio facilities between different production areas," stresses chief engineer Steve Herbert. "We often need to change a studio's setup at the last minute – allocate a different interview area, for example – or provide additional editing areas at a moment's notice."

The two primary music production areas are Performance Studio A and Performance Studio B, with companion control rooms. Performance Studio A is the larger of the two spaces and features a live area that easily accommodates a medium-sized group, or an acoustic ensemble - it recently hosted The Go! Team, an eight-piece indie band - while Performance Studio B is used primarily for interview sessions, although it can be used to record smaller music groups. A weekly half-hour program, "The Business." is also recorded in Performance Studio B.

Performance Studio A

Performance A is used regularly for "Morning Becomes Eclectic," a three-hour morning show "committed to a music experience that celebrates innovation, creativity and diversity by combining progressive pop, world beat, jazz, African, reggae, classical and new music," offers host Nic Harcourt. Recognized nationally as a forum for promoting a wide range of music ahead of the curve, "Morning Becomes Eclectic" has become a whistle stop for both established and emerging artists from around the world, with a regular 45-minute live music segment.

The standard format for live radio production at KCRW-FM is focused around a series of networked Klotz VADIS AudioMedia assignable control surfaces linked to Dalet Digital Media Systems data storage servers that hold pre-recorded audio files and time-shifted NPR programs. Located side by side in the two performance areas' control rooms are systems more appropriate to multitrack music and program production. Performance Studio B boasts a Yamaha DM1000 Digital Console linked to a Digidesign Pro Tools DAW running on an Apple dual-processor G5 platform. Monitoring is via Genelec

continued on page 18 ➤

World Radio History

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World Radio History

➤ *KCRW from page 16*

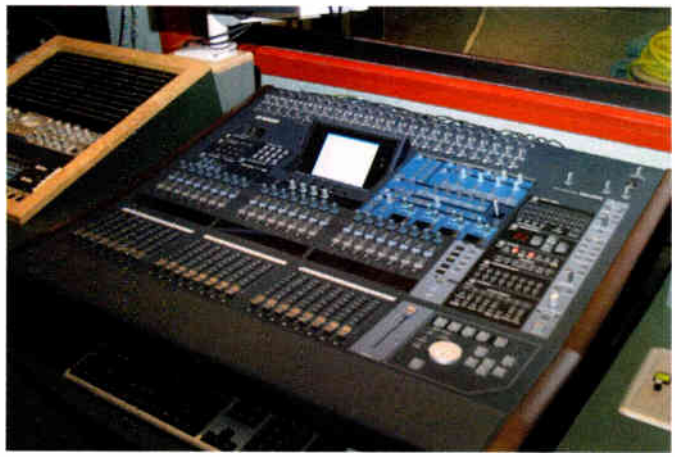
Model 1031A cabinets. Outboard processors include Avalon Model 737SP preamplifiers, and an Eventide DSP4500 DSP unit. "The area is small and intimate," says KCRW production director Bob Carlson. "We have available a transportable desk for two-way interviews, plus enough space – if necessary – to record small acoustic ensembles, although we normally use Performance A for such productions." Several vocal booths and interviews areas are also accessible within Production B, connected via dedicated tie lines to the companion digital consoles.

Performance Studio A recently went through a major upgrade, including new

Production engineers Ray Guarna and Mario Diaz in Performance Studio A

production hardware and a stem-to-stern acoustic remodeling. "The upgrade project at KCRW was divided into several stages, with the last stage being completed in late-2005," advises David Greene, assistant chief engineer. "But we also needed to remain on-air. I often liken the process to tearing out your kitchen while you are preparing Thanksgiving Dinner. We had to schedule construction and wiring very carefully."

Hired to oversee the acoustics revitalization project was noted studio designer Vincent van Haaff, president of Waterland Design. As he recalls, "Back in 1993 I was invited by KCRW to fix a sound-isolation problem in the radio-play studios. When the decision was made to renovate the studios this time around, Waterland was invited early in the process to ensure that the acoustical and electro-technical integration would flow together seamlessly."



Yamaha DM1000 in KCRW's Performance Studio B

"Performance A was always used for live broadcasts," van Haaff says, "while B was more used for taped, radio-style recording. Our aim was to bring the two closer together, allowing the overlap that often occurs in live broadcasts, where programming requires a quick change-over from one studio to the other. To this aim we decided to make Performance A as neutral-sounding as possible, while somewhat 'perking up' the acoustical ambience of B by matching that of A, and also fixing acoustical leakage problems."

Live music broadcasts from Performance Studio A were KCRW-FM's greatest concern, the designer stresses. "A great variety of artists visit KCRW's Santa Monica studios to perform live. As a result, Waterland had to redesign the Performance Studios while taking into account that exacting multifunctional aspect."

Control Room

A Yamaha DM2000 Digital Production Console was specified for the Performance Studio A's dedicated control room, because of its operator flexibility and built-in features for live in-studio interviews and music performances. Like all digital sources throughout the station, the 96-channel/24-fader DM2000 operates at a sample rate of 44.1 kHz, and links to a 16-channel Digidesign Pro Tools DAW with 002 I/O panel. Monitors comprise a mixture of Genelec large-format and Yamaha medium-format systems. Outboards include a number of API analog compressors, gates and equalizers, Universal Audio LA4 compressor/limiters, plus an array of Grace Design Model 810 and Avalon mic preamps. Production engineers using the room on a regular basis include Ray Guarna and Mario Diaz.

"Drawing upon our experience in designing complex installations," van Haaff continues, "where broadcast and live performance need to exist side by side – and with the help of Nicole Dubrow of Six Degrees – we achieved a balance that allows for future expansion of the live recording capabilities in the traditional analog realm, as well as digital control surface interface to the main machine room, directly from the performance space and Studio One for Pro Tools recording and editing."

Performance Studio A's 22-foot by-22 foot live area features a 12-foot suspended ceiling, with custom-designed Schroeder sound diffusers on the rear wall to allow natural light from an upper window, plus two unique sound traps. A corner drum trap incorporates an overheard absorbent area, as well as moveable gobo baffles that can be used to isolate the kit. A smaller area can be used for vocals, again with moveable sound-isolation panels. "The use of gobos in Performance Studio A in a radio studio means that musicians often find themselves in the wrong corner and impair

continued on page 20 ➤

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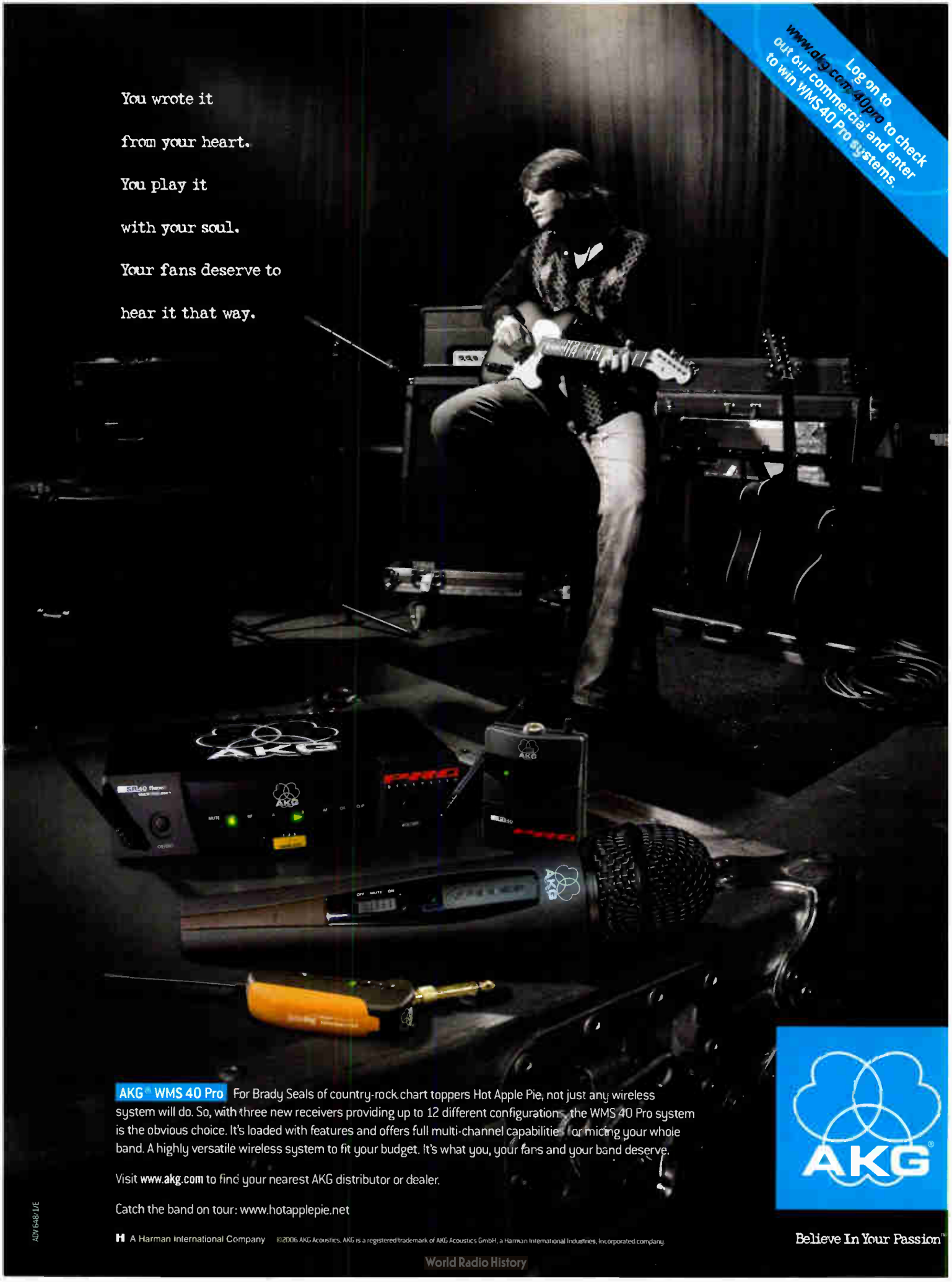


World Radio History

➤ *KCRW from page 18*

proper acoustical performance of the space," the designer offers. "We decided to fix light-weight, hinged-aluminum frame panels in their proper locations, while still allowing their fold-down in times when the floor needs to be cleared for fund-raising activities."

"The scheduling of the construction time was extremely tight," van Haaff recalls. "Often a small task such as the moving of a simple electrical outlet was scheduled in three individual day 'moments' where the window of opportunity was almost completely controlled by that 'red light on.' Strategically speaking, we had Performance A only half finished when we started the work on B, so that we had a last-minute fall back space should the electrician still be on the ladder poking into some vital live circuit!"

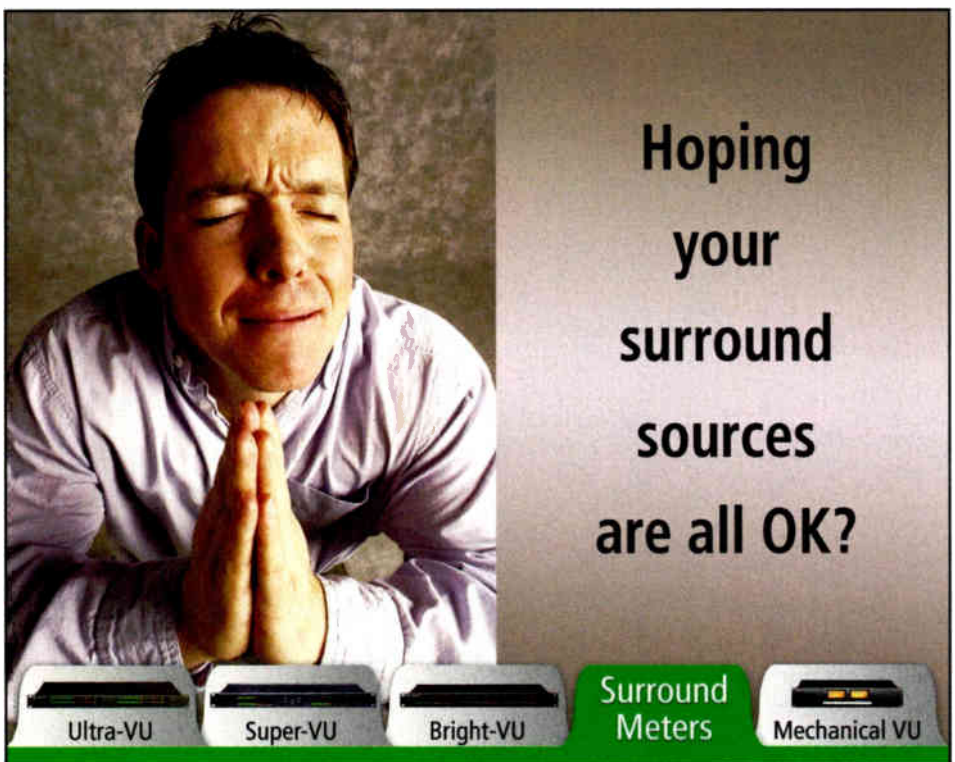
Remodeling the control rooms was also critical, since they form the very heart of a live-broadcasting radio operation. "The minimum of change had to be apparent to the DJs and the engineering staff," van Haaff offers, "to prevent interruptions to their daily operations. To provide engineers with a greater control of live recording, we opted to conceive of the control room for Performance Studio B more as a recording studio environment, where the centerline and stereo image override the need for more gear and less symmetry. Since the ceiling was the only area in the room available to effect such a 'forced' centerline configuration, we installed one of our 60 percent-scale Frontwall-style ceilings. [This design] forces the low-frequency center image and gives the board op/live mixer a better sonic 'view' of the live performance by representing the low-frequency content of the broadcast program in a more coherent way."

Studio designer Vincent van Haaff

In contrast, Performance A's control room allowed greater symmetry along its center axis, but "we had to install the [Genelec 1031A] monitor speakers on a track system to be able to free the actual visual line of sight into the live recording booth," van Haaff stresses. "That was a feat of engineering when you consider that we had to suspend about 160 pounds from an ostensibly nonstructural/acoustical isolation ceiling and still comply with mandated earthquake codes for broadcasting facilities, as well as educational facilities."

"I think few college stations - or commercial stations for that matter - have the multifunctional capabilities KCRW-FM has chosen to install," van Haaff concludes.

Mel Lambert has been intimately involved with production and broadcast industries on both sides of the Atlantic for more years than he cares to remember. Now principal of Media&Marketing, a Los Angeles-based consulting service for the professional audio industry, he can be reached at mel.lambert@MEDIAandMARKETING.com; 818-753-9510.



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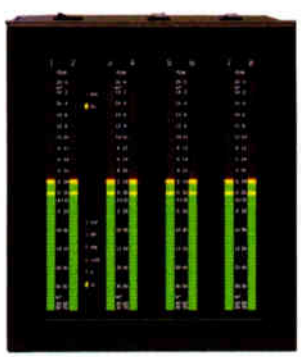

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World Radio History

Sound Devices 744T Portable Four-Track Hard Disk Recorder

BY TY FORD

There's something intrinsically spooky about pressing the record button on a Sound Devices 744T ($3,950). Even when it's recording up to four tracks of audio, it's not making any noise unless you stick your ear on the unit itself. The 744T records to both Compact Flash cards and to its 5400 RPM, 2.5 inch ATA-5, 40 GB hard drive simultaneously, or to either one. It addresses drives up to 2 TB and can record individual files up to 4 GB.

FEATURES

We all know that hard drives are somewhat fragile. When I smack my fist repeatedly into the side of the 744T while it's recording those four tracks (anywhere from 32 kHz to 192 kHz at 16-bit or 24-bit) nothing bad happens. That's good engineering.

Many of the lesser, portable audio-to-hard drive recorders use a boatload of batteries when not tethered to an AC supply. The 744T uses Sony InfoLithium L or M Series NP-style rechargeable camera batteries, or others with the same mount, from 1500 mAh to 6000 mAh. No doors to open, no batteries to juggle. One "clunk" and the battery is securely latched on the back plate and you're ready to go.

What do you want to record today? Travel light. If two mic inputs are all you need, leave your bag mixer in the trunk and use the 744T's two built-in, phantom powered mic preamps. Each input has trim, high-pass filters, gain range, and its own very nice sounding limiter set at -6dB. The 744T is even smart enough to record in Mid-Side (M/S) and give you L/R stereo output tracks and headphone feed.

Analog inputs three and four, terminated with TA3 male connectors, are line level, as are the two balanced analog line outputs. But wait, there's more! At the flick of a switch, the two analog mic/line XLR inputs become two AES/EBU digital inputs. And if your source is S/PDIF, there are also two BNC connectors on the right side panel for inputting S/PDIF.

The 744T uses a switching matrix to let you determine what input goes to which of the four hard drive tracks. There are preset routings, or you may make your own and store them. The 744T has two discrete, two-channel output busses, named Master Output and Output 2, each of which can be configured to send separate feeds. The Master Output includes the two TA3 male balanced outputs, a 3.5 mm TRS stereo, unbalanced, analog tape out and an AES3id digital output that is compatible with most S/PDIF inputs. Output 2 can be used to route similar or different sources or tracks through its digital output.

When recording multitrack files, each file appears as one file when "poly" file type is selected. Pro Tools sees four-channel files as a single LCRS multitrack file that can be dragged to the region list. If "mono" file type is selected each track appears in its own file. Careful though, If Pro Tools is running while you connect the 744T via FireWire, it will put a Digidesign database directory on the 744T. You'll want to trash that or it may cause you problems later.

The headphone section is well-powered and has 24 different possibilities based on inputs, outputs and tracks. Should a hard drive problem occur, the 744T will generate a beep or bell in the headphones and display the details on the backlit LCD panel.

There are 15 separate indicators on the LCD panel. While that is a bit overwhelming at first, once you know what you're looking at, it's all right there for you. There are two lock modes for the front panel. Non-transport lock lets you operate the Record, Stop, Play, Rewind and Fast Forward controls. Lock All locks everything but the Record button. To get out of Record, you have to get out of Panel Lock and hit the Stop button.

The level displays are similar to those of the Sound Devices 442, which display levels five different ways, including my favorite, simultaneous RMS and peak.

The 744T uses RS232 jacks that allow multiple 744Ts or 722s to operate together as needed. The 744T has a crystal-locked clock that allows it to be used as a house clock and A/D converter. It can also slave to incoming word clock. The SMPTE timecode circuitry used in the 744T was developed by Ambient Recording. The 744T holds accurate timecode for up to two hours between battery changes by being powered by its own internal, rechargeable AA battery before reverting to time-of-day. Supported timecodes are 23.976. 24, 25,

continued on page 24 ➤

Fast Facts

- **Applications:**
  Broadcast, field/location, studio
- **Key Features:**
  Four-track; 16-bit/24-bit; 32 kHz - 192 kHz sample rates; buffer; 40 GB hard disk; Compact Flash media; SMPTE timecode; FireWire port; battery operable.
- **Price:**
  $3,950
- **Contact:**
  Sound Devices at 608-524-0625, www.sounddevices.com.

World Radio History

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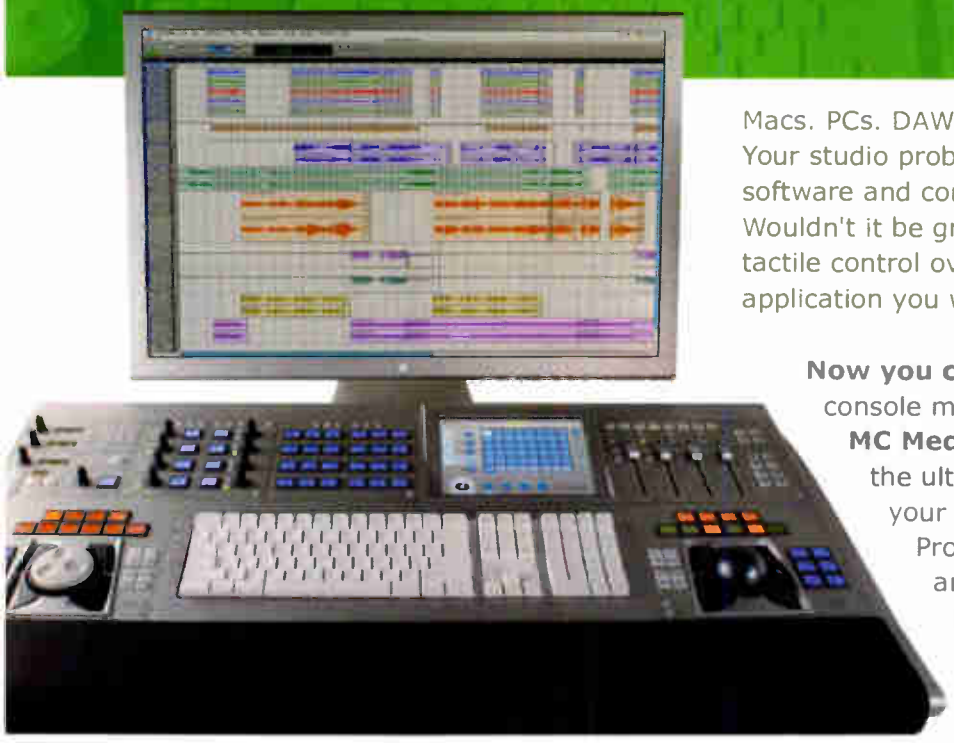

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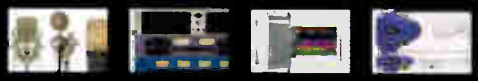

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World Radio History

➤ *Sound Devices from page 22*

29,97, 29.97DF, 30 and 30DF in Free Run, Record Run, Free Run Jam Once, 24 Hour Run, Ext TC, Ext TC/cont, Ext TC-Auto Record and Ext TC/cont Auto Record.

In Use

You'll probably not want to unpack the 744T and rush out to use it that day. I found it took me a few days to become familiar with the main controls and longer to learn its more intricate settings. The manual is very well written. Phone and email support from Sound Devices has always been superior.

I took the 744T out on half a dozen jobs and it never disappointed. I got used to hitting record and not even worrying about looking for the red Record light. The sound quality is excellent. To test it I purposely recorded tracks that peaked at -35 dB. After I imported the files, I normalized them. While there is some hiss, the file is very usable.

The views from the side

If you have a camera with a timecode output, running in Ext TC-Auto Record or Ext TC/Cont-Auto Record puts the 744T into record when the camera rolls and stops it when the camera stops.

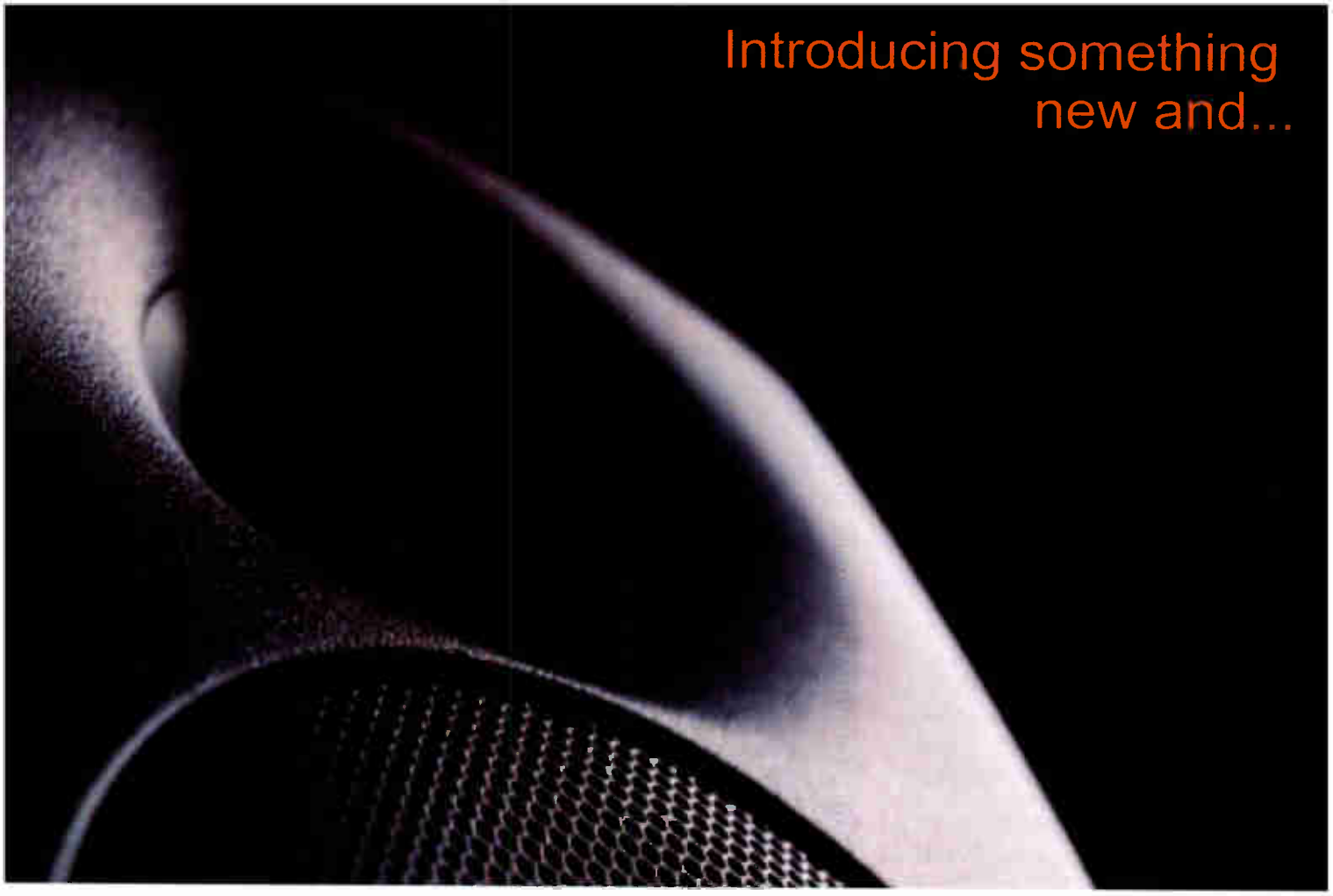
The rotating menus are easily navigated and with only two levels, you don't get lost. If you are in the menu and quickly need to record, just hit the Record button and you're recording. The Pre-Record Buffer can be built out to ten seconds at 48 kHz operation, in case you're slow on the Record button; less at higher sample rates.

Summary

Coming to market with both form and function (and looking good doing it) is not easy. Sound Devices has been able to capture the ears of its users with high quality audio, while capturing their eyes with intelligent and downright handsome design. In reality, the 744T is a combination of dedicated computer and audio recorder. Twice during its stay here I downloaded updates from the Sound Devices website (which also has a support and user forum) and upgraded the 744T. After using DATs for years, it's refreshing that the 744T can be upgraded in the field so easily. It has its own media repair utility with boot record check, FAT chain scan, lost chain recovery and RIFF (WAV/BWF) file check. The $3.950 price makes the 744T anything but a cheap date, but when you understand how much it brings to the party, it really is a great value. What did a Nagra D cost new with this much capability?

*Ty Ford has been reviewing equipment for **PAR** since the first issue. Find him at www.tyford.com.*

World Radio History



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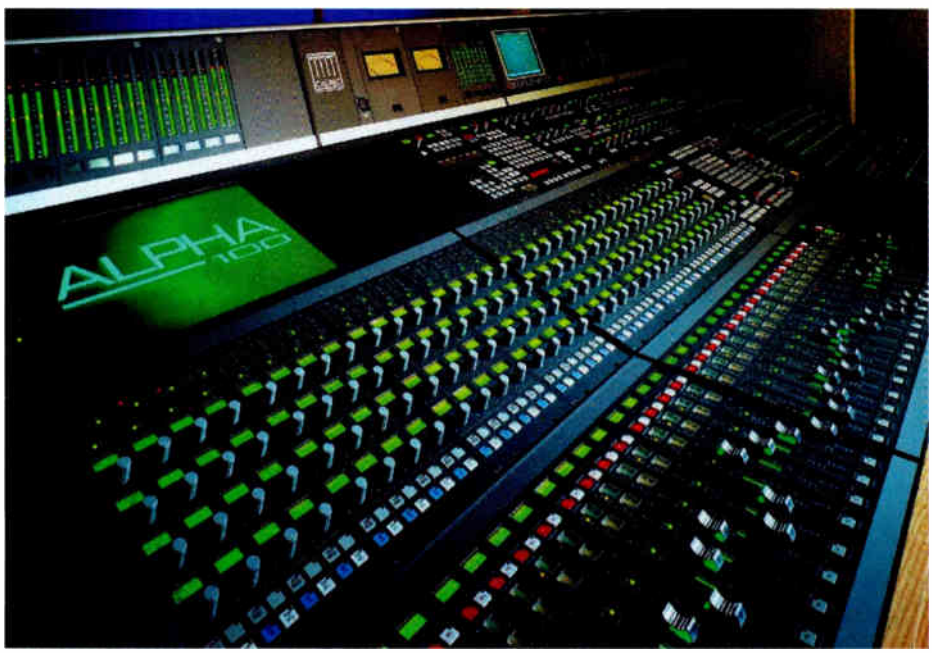
Enhanced 5.1 Audio Production at the 48th Grammy Awards

By Mel Lambert

The annual Grammy Awards ceremony produced for The Recording Academy and CBS Television by Cossette Productions, continues to break new ground, encompassing HDTV and full 5.1 channel surround sound. This year the event from the Staples Center in Los Angeles extended the technical envelope by using DAW engines for music mixing and signal processing, in addition to providing an extra off-line area where mixers could refine and finesse their multichannel balances.

In a show that is packed with complex musical productions, the task faced by live music mixers John Harris and Eric Schilling in XM Productions - Effanel Music's L7 remote truck can only be described as daunting; several dozen acts during the three-hour broadcast expect their music to sound as good – if not better – than the CD release. Earlier this year, L7's AMS Neve Capricorn digital console was replaced with a Digidesign ICON D-Control work surface and a Pro Tools HD|7 DAW core capable of supporting 128 tracks.



Calrec Alpha 100 console

Mixing Rooms

Located close by the L7 mobile was a temporary mix room into which had been installed an identical ICON system and ADAM monitors. When not working live with the bands during technical and dress rehearsals, the music mixers could move into the offline remix booth (ORB) and fine-tune static surround mix levels, EQ and dynamic settings against prerecorded Pro Tools tracks in an environment free of distractions, yet mirroring the L7 area. RPG Diffuser Systems, Tekserve, Adams Speakers Ultimate Support Systems provided components for the environment.

The change in SOP was proposed to John Cossette, the show's executive producer, and Michael Abbott, the award ceremonies' audio coordinator. The production schedule consists of between six and eight artists rehearsing over a period of 14-16 hours each day for three days prior the broadcast. Cossette and Abbott wanted to improve the show's overall workflow, efficiency and audio quality. Working closely with XM-Effanel's technical supervisor/designer Joel Singer, the producers designed and implemented the new ORB area based on the same ICON platform used in L7. "There is only enough time in rehearsals to get a basic mix," Cossette acknowledges. "but very little time to get the songs [to a position] where the engineers have wanted to in the past. But now we have the ability to go off-line and just focus on mixing."

Following a 90-minute sound check and rehearsal, during which John Harris or Eric Schilling recorded the performance to Pro Tools, the engineers were then able to transfer basic session data to portable media, and take turns each day in ORB to refine their basic 5.1 and stereo mixes. Revised plug-in settings and level data were then reinserted into a Master Pro Tools Session for the dress rehearsal and on-air broadcast in L7. Reactions were positive; several impartial analysts have commented that the 2006 broadcast represented a significant improvement in audio quality.

According to XM-Effanel's engineer in charge, Joel Singer, "ICON performed completely as expected. Because Pro Tools was not [designed] to replicate a broadcast music console, there were many things we had to step around. But none of these affected the system's audio performance. Personally, I think this was one of the best sounding shows we have ever done."

"Normally, we all walk away the night before dress [rehearsal] with a slightly uneasy feeling... jitters, whatever," Singer continues. "This year I walked to the venue each morning felling very comfortable and relaxed. This was due in part to the workflow we had [implemented] with the 'B' room on-line, and also the way D-Control and Pro Tools software were working. D-Control/Pro Tools is a perfect combination for surround and completely out-performed the [older] Capricorn, which doesn't have great 5.1 facilities. Sonically - and performance wise - we have stepped up a level."

"For music production, this is the definitely the way to go," the engineer concludes. "ICON can do anything any console in the market can do, and has the flexibility to change at a moment's notice. If a client wants Sony-type EQ or SSL-type EQ we just call up the appropriate plug-in."

For audio coordinator Abbott, a high point was the favorable response to the new

continued on page 28 ➤

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➤ *Grammy from page 26*

offline remix booth. "This type of interaction with an artist wasn't possible in the past; I would hope that this component will become a new standard for other productions. It was a big point of confidence by NARAS and John Cossette to allow this concept to be realized, and to have it work as well as it did."

Unexpectations

At the same time, Abbott reveals, the freedom introduced by ORB also allowed an unnamed artist to attempt an overdub during a dress rehearsal. "But this was an unexpected byproduct of the concept that we introduced for the show," he concedes. "How do you creatively say 'No' to an artist?"

An outside engineer also found the two mixing areas to be just what the doctor ordered. For many years, Bill Winn has served as Herbie Hancock's engineer and was on hand at Staples Center to handle the Herbie Hancock/Christina Aguilera set. "Herbie owns an ICON - I was not in favor of that purchase – so I was very skeptical of the concept of 'ICON in the Truck' for live broadcast," Winn says. "I drew Eric Schilling as my engineer, and he was great. I threw a couple of curve balls at him - Herbie has his own Fazioli 9-foot grand piano, so I mounted a pair of B&K 4011s in it; Eric managed to accommodate that request with no problem."

"We had some technical problems during the sound check on Sunday and [as a result] only had one real shot at the complete song. Needless to say, I was worried that we had enough 'input from the band,' but this is where the Pro Tools concept began to work in my favor. Eric and Tom Graham from Digidesign informed me that we could take the drives from the sound check, move to the ICON set up next door and tweak the mixes.

Digidesign ICON

"Eric took two hours during the next afternoon, and I was able to EQ, compress, reverb, delay and set mix levels, and then save it all to a Pro Tools session. Then we actually had time - thanks to John Harris - to take the session back into the Effanel truck and listen to it there. I was blown away by the results we achieved with this method. It gave us the opportunity to make good decisions away from the chaos of the main control room - with nearly two hours to tweak a four-minute tune, we had the luxury of time, which is the most important commodity in these shows."

Tom Graham, Digidesign's senior product specialist/sales, was on-hand throughout the setup, rehearsal and air date to provide technical liaison. "Before I walked into the ICON support role at the Grammy Awards," he recalls, "I thought I had a pretty good concept of what I was getting into. I was impressed that Joel Singer and the XM-Effanel team had done some serious preparation to make a very difficult task go smoothly. I was equally impressed with the creative approach they had made using ICON as just a digital console - with snapshot recall for each act - and a separate Pro Tools system solely as just a 'tape deck' feeding that console."

New York-based Tekserve supplied the four Pro Tools systems used in L7 to both mix and record the event. Tekserve and

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Digidesign also were responsible for providing the second ICON Mix System, along with a 32 Fader D-Control for ORB. According to Chris Payne, head of Tekserve's pro audio division, "Each Pro Tools mix system consists of a seven-card Digidesign HD Accel System with eight 192 I/Os - two with analog expansion and the other six equipped with digital cards." All Pro Tools ran on Apple dual 2.7 GHz G5s. The recording systems consisted of a three-card Digidesign HD Accel system, with the same I/O selection as the mix core.

In the Truck

Also taking a new role for this year's ceremony was Thomas Holmes, who handled the complex task of broadcast sound for the event, working on a Calrec Alpha 100 digital console within the NEP Super Shooter 24/SS24 HD Audio Production Truck. Holmes started mixing front-of-house and monitors for various tours in 1984, and mixing broadcast production a decade ago. When seasoned veteran Ed Green stepped down the gig went to Holmes; Phil Ramone and Hank Neuberger of NARAS and Cossette Productions supervised broadcast mixes.

"The Calrec Alpha features 76 faders and handles 130 channels - there is an amazing amount of digital I/O on the Grammys. The SS24 has 96 external AES paths, and we had maybe two left over! This allowed us to keep a completely digital path between the production mix, music mix, audience reaction mix, 5.1 surround mix, video and profile playbacks, NARAS TV Committee room and the Dolby [QC/monitoring] room."

Holmes used a touch of the Calrec Alpha 100's onboard compression for various production mics covering the podiums, lavaliers and handhelds in the audience, as well as VO playbacks. "Then on an overall dialog buss I inserted a CEDAR DNS1000 and a TC Electronics DB8," the engineer says. "I tried to have little or no impact on the signal path from the music mix to the home audience, only riding the fader here and there."

Holmes also devised a neat backup plan, using a Yamaha DM1000 to provide a separate path of all playbacks to the 5.1 mix and to the FOH mix. "If the main console had a failure, we could still provide an emergency broadcast mix from FOH, as well as continue playbacks to the floor, and to the 5.1 mix. I have never had a problem with an Alpha, or NEP, but I have been bitten hard by digital desks before, so I try to make sure there is a way of keeping the show audio up in the event of a major problem."

Under the able guidance Dave Bellamy from Soundtronics, the show's frequency coordinator, a number of wireless mics were in use during the Grammy Awards, including the new Sennheiser SKM5200 with Neumann KK104-S and ME 5005E capsules plus SKM3072 UHF models, and a number of Sennheiser SR300G2 personal monitor transmitters and EK300G2 body packs. Over 50 Sennheiser and Neumann mics were used on backline instruments, including Evolution 906s, 602s, and 604s. Several acts, including U2, used Shure wireless systems with Beta 58 heads.

Audio-Technica models were also in evidence, including Artist Elite 5000 Series UHF receivers with AEW-T5400 and AEW-

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➤ *Grammy from page 29*

T3300 handheld mic/transmitters. Backline mics included AT4047/SV for bass cabinets, ATM35 for strings, AT4050 on overheads, guitar and bass guitar cabinets, AE3000 for toms, AE2500 on kick, AT4033 on hi-hat and ride, ATM35 for strings and AE5400 on a Leslie.

Building on a successful formula developed for last year's broadcast, JBL LSR6300 Series monitors were again used in Paul Sandweiss' 5.1 mix room and the NARAS TV Committee room. "This year we were able to take the concept a step further," explains Peter Chaikin, JBL Professional's Director, Recording and Broadcast, "by installing the new LSR4300 series in the audience reaction mix room and sweetening room. Standing waves and boundary conditions can give a misleading impression of LF content at the mix position. The LSR4300 series is the first studio monitor with an integrated analyzer that measures and automatically compensates for low-frequency anomalies." The surround mix control room was provided with five LSR6328P monitors and an LSR6312SP subwoofer, plus a pair of LSR4326P units for stereo solo, while the audience reaction mix control room boasted five LSR4328P monitors, plus two LSR4326P for solos.

JBL LSR4300 series monitors

For his 5.1-channel audience mix, Klaus Landsberg again used a Holophone in the center of the auditorium "for a nice house perspective;" he used the rest of his array for the spread. "I also used four apron mics for the mosh pit crowd and a set of (Neumann) TLM100s for the rear slap of the house." He generated an L/R and a LR/RR for the main mix as well as a stereo mosh pit mix and a stereo rear-of-house mix.

Mel Lambert has been intimately involved with production and broadcast industries on both sides of the Atlantic for more years than he cares to remember. Now principal of Media&Marketing, a Los Angeles-based consulting service for the professional audio industry, he can be reached at mel.lambert@MEDIAandMARKETING.com; 818-753-9510.

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TASCAM CD-01UPro Professional CD Player

BY RICH RAREY

I love the simple things: A pretty picture, a sonnet, a simple CD player. TASCAM, TEAC Professional Division, has delivered the latter of those in the new CD-01UPro CD player. Thankfully, this pro player doesn't record, convert, edit, chase timecode, or anything else but provide a well-considered cornucopia of ways to playback CD, CD-3 and MP3 discs. This player will be of good value and use at radio/TV/production houses, online suites, sophisticated music clubs and other locations where playback function and versatility are revered.

FEATURES

The slim 1RU-high CD-01UPro doesn't have the normal boring CD drawer, but a slot that easily accepts and returns the CD and a cool blue LCD screen bordered by sturdy transport buttons. Its 8.1 pounds let you know there's not just empty space inside. Its AES/EBU, S/PDIF, optical, and balanced and unbalanced audio outputs let you know it's ready to work.

I started exploring the CD-01UPro from its menu, and by only using its front panel controls. TASCAM thoughtfully made its numerous features controllable from the remote control as well as the front panel, a must design feature for anyone who ever loses a remote. The nine basic transport buttons are grouped to the right of the display, and a shift button gives each transport button an additional feature. Thoughtfully, the shift button action is "sticky," that is, push shift and shift stays engaged until shift is pushed again. To reach the CD-01UPro Menu, press shift and then turn the small jog knob to cycle through the 15 menu items, displayed both in quirky alphanumeric font and by number. A small pitch/jog knob with push button action acts as the soft user input when scrolling through the menu, selecting pitch, scrubbing through a track, selecting tracks for the programmed playback and so on.

IN USE

I began exercising the CD-01UPro by examining the built in fade-in/fade out feature. Fades are programmable from 0.5 seconds to 10 seconds in 0.5 increments and work smoothly as expected. It is possible to trigger the fade out even before the fade in has completed by pressing the Stop button. Both fade in and fade out are equally smooth.

For operations that absolutely must play the most music per hour, the CD-01UPro has an "original key" feature that supersedes its plain pitch change feature. When enabled in the menu, turning the pitch/jog knob maintains the pitch but changes the tempo. The playback audio is artifact-free except approaching the extreme high or low end settings, above 8% up to 12.5%. At those settings, any slow vibrato or wah-wah in the music will have an unnatural shimmer. Usually +-3.3 to 5.0 is natural and adjusting while playing is smooth without audible glitch or catch up noise. You can engage and disengage the feature while playing, and there is no perceptible glitch between the two, but one can feel the "ramp" of tempo change as the player's internal buffer seamlessly empties and fills.

Thinking about buffers interested me in the Repeat A-B feature. With the CD-01UPro, it is easy to make ad hoc "sampled" riffs. Setting the menu to Repeat A-B, the player indicates it's prepared by flashing REPEAT. With the shift engaged, pressing the pitch/jog wheel marks the "A" point, pressing again marks the "B" point, and repetition begins. For more accurate positioning of the "A" and "B" points, you can place the unit in pause and turn the jog wheel to scrub to your CD frame-accurate "A" and "B" points. When you're done with the repeated section, press the pitch/jog knob three more times to free the loop and continue the playback — it's instant riff with option to continue!

TASCAM must perceive the CD-01UPro as a utility player, because they've packed it with a variety of playback modes for diverse users: random shuffle, or programmable track play, or single play for just one cut, or the continuous play mode of a conventional player. In any mode you can engage the traditional functions A. RDY and A. CUE that pauses the player between tracks and automatically cues up to the first audio of a track. Of the four playback modes, the programmed mode is the most interesting, as the user can build a 100-track program list and easily insert, edit or delete tracks from that list, just by using the front panel controls (or the remote, of course). There is usually some trepidation in programming CD track playbacks, as most manufacturers have an arcane or obscure procedure for entering the desired tracks. The CD-01UPro is as simple as turning the pitch/jog knob to choose the order and pressing the skip buttons to select a track. The display is clear and unambiguous showing which track in what order, a definite plus for the CD-01UPro. The program list is stored as nonvolatile data and is cleared only by ejecting the disc.

SUMMARY

Make no mistake about the CD-01UPro player, it is so simple yet so flexible, it's possible to lose positional awareness when using it. Even though its modes and features are clearly indicated on the LCD display, some users will forget to pay attention if they venture into unfamiliar features and they'll have unexpected playback results. Not that this player is intimidating, the CD-01UPro is a fine breed of friendly and a great sounding unit, but you really must pay attention and give thought to how to best incorporate the CD-01UPro's many great features into your plant.

Rich Rarey is an engineering supervisor at National Public Radio and a contributor to ***Pro Audio Review.***

Fast Facts

- ***Applications:***
  Broadcast, studio, live sound, installation
- ***Key Features:***
  Slot-loaded; AES/EBU, S/PDIF, analog outputs; pitch/jog knob; program play
- ***Price:***
  $699
- ***Contact:***
  TASCAM at 323-726-0303, www.tascam.com.

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NEW PRODUCTS

Producer/engineer Mark Capps of Soundshop Recording Studios in Nashville is using **Peavey** Studio Pro M2 mics these days.

LA-based producer/engineer Ted Perlman is using a lot of **A-Designs Audio** equipment these days. Producer for Burt Bacharach's Grammy Award-winning At This Time, Perlman has used A-Designs REDDI DI boxes, MP1 tube preamps, Pacifica preamps and ATTY passive level controls on recent projects (including Bacharach's).

Also in LA producer Mike Elizondo is using an **Solid State Logic** AWS 900 Analogue Workstation at his Phantom Studios – site of recent work by Fiona Apple and Alanis Morissette. SSL also placed a XL 9000 K series console into new owner Peter Gabriel's Real World Studios in Wiltshire, UK. See the picture.

Gold Line, makers of test equipment and EQs, recently put **Bag End** M6 Nearfield Monitors into two of its test labs.

Universal Mastering Studios East in Manhattan has added an **Eventide** H8000A Ultra-Harmonizer digital processor to its goodie collection.

SAE, the audio schools, purchased **Sony** Oxford Plug-in bundles for all of its "campuses."

Osceola Studios in Raleigh, NC has been using a **True Systems** Precision 8 eight-channel mic preamp for recent projects by producer/engineer Dick Hodgin.

Up in the Great White North, Click Truck Audio has rolled out a new mobile truck with an **iZ Technology** 48-track RADAR V digital recorder at its heart.

Genelec 8200 Active Monitor Series

Joining the DSP-controlled speaker party, Genelec has introduced the 8200 series of biamplified monitors. The 8250A is a two-way monitor with an 8-inch woofer and 1-inch tweeter. The 8240A is also two-way with a 6.5-inch woofer and .75-inch tweeter. Both tweeters are paired with an Advanced Directivity Controlled Waveguide. The 8250A is powered by a 150W amp (LF) and a 120W amp for the higher frequencies. The 8240A has a pair of 90W amps. The really new stuff is Genelec Loudspeaker Manager software (Mac and Windows). The GLM can control routing (up to 25 compatible speakers and five compatible subwoofers) and system calibration (with included microphone).
Contact: Genelec at 508-652-0900, www.genelecusa.com.

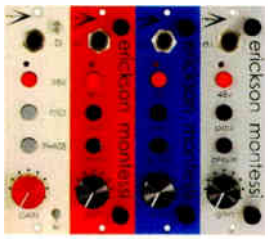
Glyph Technologies PortaGig

Small and fast might best describe the two new PortaGig drives from Glyph Technologies. Based on FireWire 400 and USB 2.0 interfaces along with Seagate Momentus 2.5-inch 7,200 RPM drives the pocket-sized PortaGigs come in 80GB and 100GB capacities. A cache of 8MB and a top FireWire transfer rate of 35MBps speed things along. The brushed aluminum case is all of 3 inches by 5 inches. Prices: 80GB - $499; 100GB - $649.
Contact: Glyph Technologies at 607-275-0345, www.glyphtech.com.

FXpansion VST to RTAS Adapter Version 2.0

Woohoo! Version 2.0! That may sound like a joke but this software widget is one of the most sought-after audio products out there and no doubt V 2.0 has been eagerly anticipated. Naturally it contains some bug fixes but the real meat is full Pro Tools 7 compatibility and increased compatibility for VST and VST2 plug-ins. Price: $99 or $49 for upgraders.
Contact: Fxpansion Audio at www.fxpansion.com.

A-Designs Audio Preamp Modules



Not content to sit still, A-Designs Audio has launched new line of preamp modules, the 500 series. Available in four flavors they are designed fit into rackmountable dock. The P1 models itself on the recently released Pacifica preamp – itself modeled on the old Quad line of consoles. The other three are similar but utilize different transformers. The EM-Silver has a steel-wound transformer while the EM-Blue has a nickel-wound transformer and the EM-Red is a "custom-wound" transformer. All models have 48V phantom power, 20 dB pad and phase switches. Price: $850 each.
Contact: A-Designs Audio 818-716-4153, www.adesignsaudio.com.

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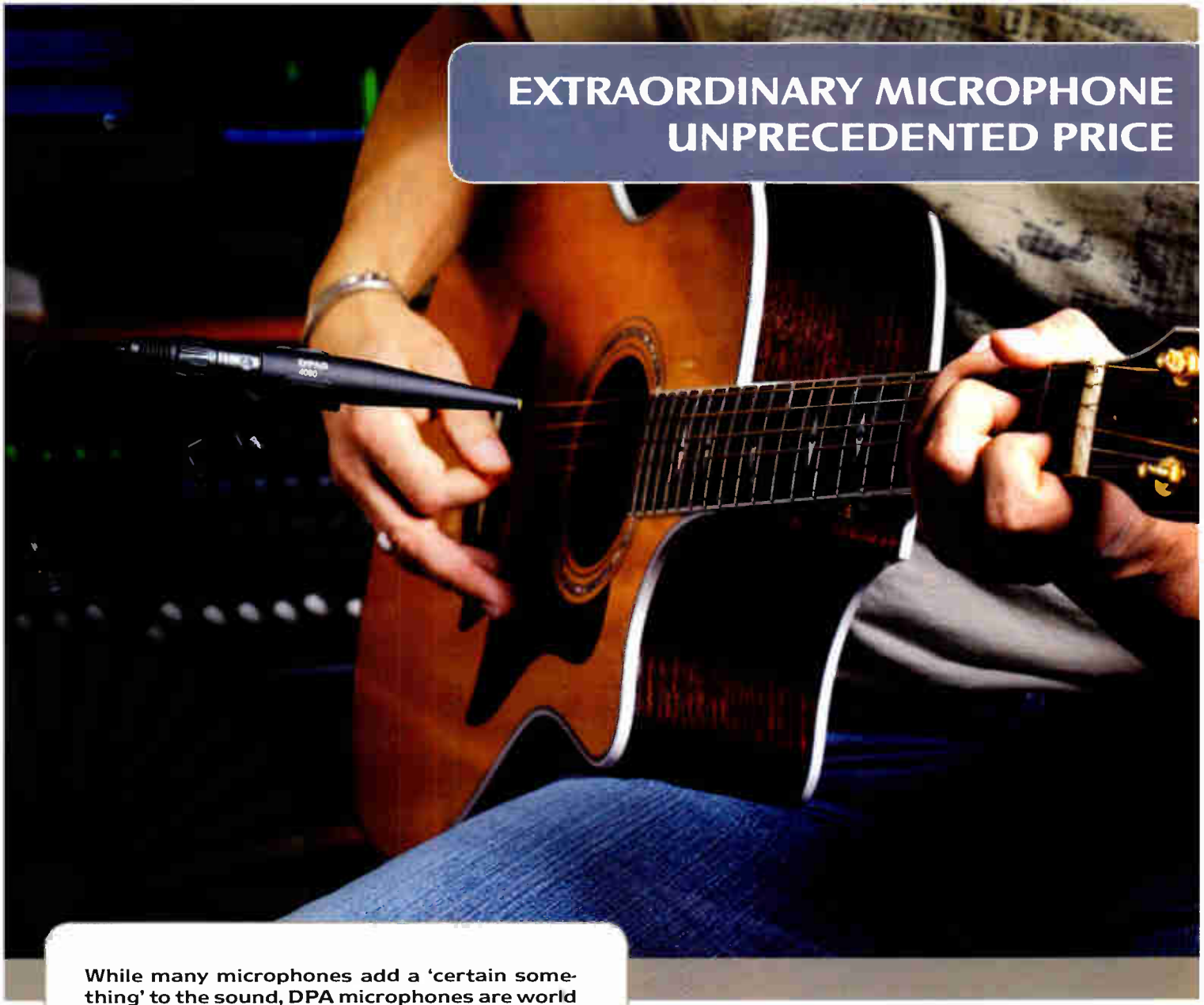

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World Radio History

API DSM-24 Discrete Summing Mixer

BY STEPHEN MURPHY

The opening notes of Richard Strauss' "Also Sprach Zarathustra" are heard. A mysterious black monolith appears in an otherwise lifeless landscape. Man-apes emerge from their caves and gather around in a confused frenzy, touching, examining and even tasting the new arrival. As the music builds to its famous climax, the man-apes' confusion gives way to a sense of wonder as they begin to understand the gift that has been bestowed upon them.

It has been pointed out to me that this sounds a lot like the "Dawn of Man" sequence from Stanley Kubrick's *2001: A Space Odyssey*. Actually, this was the scene after API delivered its new DSM-24 Discrete Summing Mixer to my studio (well, everything except the tasting part, and the fact that it wasn't so much a gift as a four-week loan).

At 42-inches high, API's monolith may not be as tall as the one from *2001: A Space Odyssey*, but it does have a lot more knobs, switches and I/O jacks – far better than the one in the movie, in my opinion. The question is: will it usher in a new era of high-quality analog mixing for the digital audio workstation-based studios that can afford its $15,900 starting price?

FEATURES

The DSM-24 is essentially a 24-channel API line-mixing console on wheels, all wired up and ready to roll. Going far beyond other analog summing mixers intended for use with DAWs, API's Discrete Summing Mixer provides much of the functionality of a large console (minus mic pres and EQ) including talkback, metering, control room speaker switching and two-track monitoring, plus channel inserts, sends and returns. For those who need more than 24 inputs, the DSM is also available in 48-channel ($24,500) and 72-channel ($34,600) configurations.

Contained within the DSM-24's rack are three API 8200 eight-channel line input modules (for engineers who never evolved past the Pleistocene era, that's 24 inputs total), an API 7800 control room master module, an API 2500 stereo buss compressor, an API 424 four-buss interface and a VU meter panel.

Two prewired TT patch bays provide front-panel access to every stage of the mix path including channel inserts, effects send and busses. Analog input from the DAW to the mixer is accomplished via three DB25 connectors (wired to the TASCAM standard) located on a panel in the rear of the rack. On the same panel are inputs and outputs (all XLR) for connecting up to three two-track decks, plus additional outputs to feed large and small control room speakers.

Each input channel on the 8200 modules features an input level knob and center-detented pan control plus two send level knobs. Also on each channel are mute, insert-select and AFL solo buttons with corresponding color-coded LEDs (red, green and yellow, respectively). All inputs, outputs, inserts and sends are balanced and calibrated for +4dBu operation, and all are available on the TT patch bay.

The 7800 master module is the brains of the operation, exerting control over all internal summing and routing tasks while simultaneously performing as a full-on control room monitoring section. The internal circuitry of the 7800 – including judicious use of the legendary API 2520 and 2510 discrete op amps – is identical to that found in the revered API Legacy console series.

On the 7800 front panel is a AFL solo level control, send and buss output level controls (each with an engage switch/LED) plus a master fader that controls the level sent to the stereo outputs. The cue and control room sections contain provisions for talkback, including level knob and momentary buttons for talkback and slate, and control room monitoring. Monitoring controls include a control room volume knob plus dim switch and dim level control, a mono summing switch, small/large speaker selection switch, and monitor left/right cut buttons. A bank of six buttons selects the control room monitor program source (from stereo buss, sends, or the three two-track inputs).

The 7800 also contains the amp circuit

continued on page 38 ➤

Fast Facts

Applications:
Studio

Key Features:
Discrete analog summing mixer with 24 to 72 line inputs (via API 8200 modules); full talkback and control room monitoring/switching (via an API 7800 master module); stereo buss or dual mono compression (via an API 2500 compressor); analog VU and LED level metering; full TT front-panel patchbay; DAW inputs on DB-25 connectors; custom configurations are available

Price:
$15,900 (DSM-24); $24,500 (DSM-48); $34,600 (DSM-72)

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

World Radio History

IF YOUR MIX SOUNDS GOOD ON THESE, IT'LL SOUND GOOD ON ANYTHING

HS80M

HS50M

HS50M
- 5" white polypropylene cone
- 3/4" dome tweeter
- 70-watt biamplified power
- XLR and 1/4" connectors
- Room Control and Frequency Response Switches

HS80M
- 8" white polypropylene cone
- 1" dome tweeter
- 120-watt biamplified power
- XLR and 1/4" connectors
- Room Control and Frequency Response Switches

HS10W
- 8" long stroke 120-watt woofer
- Dual XLR and 1/4" inputs
- 3 balanced XLR outputs (Mix, L&R)
- Phase switch
- Low/High cutoff

HS10W

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The new HS Series powered monitors were designed to be true studio reference monitors in the tradition of the famous NS10MS. That means, mixes that sound good on Yamaha HS speakers will sound good on anything. In fact, that's the ultimate test of a reference monitor. Even better than that, HS series speakers not only sound good, they look great, too.

The HS10W powered subwoofer complements the HS speakers and easily handles today's bass-enhanced music or the most dramatic surround effects. The HS10W subwoofer uses a bass reflex design cabinet that maintains high efficiency and low distortion. You can combine HS50Ms or HS80Ms with the HS10W subwoofer to create different 2:1 (stereo) and 5:1 surround sound systems. So check out the new standard in near-field reference monitors at a Yamaha dealer near you.

THE NEW STANDARD IN NEAR-FIELD MONITORS

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World Radio History

➤ *API from page 36*

that drives the stereo analog VU meters found on the meter panel mounted at the top of the DSM rack. The buss and send master outputs loop through the meter panel to give life to the eight five-segment Aux and Bus LED meters. The DSM's talkback mic is also mounted on this panel.

Last, but certainly not least, is the fantastic API 2500 stereo buss compressor (one of my personal favorites). The 2500 features the common compressor controls (threshold, ratio, attack and release) and the unique (thrust, feed-forward/feedback detection type, and variable L/R link with band-pass filter shape selector). The 2500 also provides three compression knee settings, switchable analog VU meters, and makeup level control. Like the 7800, the signal path in the 2500 is fully discrete and features plenty of 2520 and 2510 op amp circuits. The 2500 also features a "soft bypass" mode that disengages only the gain reduction circuit as well as a relay-controlled hard bypass that routes the input directly to the output.

Unfortunately, there simply isn't room in this article for complete coverage of all the API modules that comprise the DSM-24. Please see the API website for further information and product manual downloads.

In Use

I recently read an article that mentioned that users of analog summing mixers to compliment a DAW setup often liken the sound to that of mixing on a full-scale Neve or API console. Well, my friends, mixing on the DSM-24 *is* mixing on an API console. It instantly brought me back to the times when I have been given the opportunity to work on that little slice of sonic heaven that is an API console. I never roam far from my API 212L preamps, but, for me, mixing on an API console is unfortunately a rare treat.

The DSM-24 (or 'Tower of API Goodness' as I like to call it) arrived via special delivery around 12 noon, and within forty-five minutes I was mixing a Nuendo project on it. The unit arrived completely wired-up and calibrated, and a default summing channel setup (level fully up, pan in center, sends down) was already dialed in across all three 8200 modules.

A small console power supply (small meaning it is not rack mounted) provides mains power to all modules and panels, with the exception of the 2500 compressor, which is powered via a separate IEC cord. Three eight-channel TRS to DB25 snakes made the DAW-to-DSM hook up quick and easy. I completed the initial setup by patching the small and large speaker control room outs to my two sets of Westlake monitors (powered via Carver amps).

As you can see, despite the apparent complexity of the DSM system, it did not take much more time to set up than a typical self-contained, rackmount summing mixer. In fact, most of the set up time was spent re-routing tracks from the internal DAW mixer to the 24 analog outputs of three RME Fireface 800 audio interfaces. Later, once my initial excitement subsided somewhat, I took the time to patch the two sends to the headphone distribution system, and hook up some playback decks and feed a stereo mix back into the computer.

I spent the next several days working out best practices for using the DSM in conjunction with my studio equipment and workflow.

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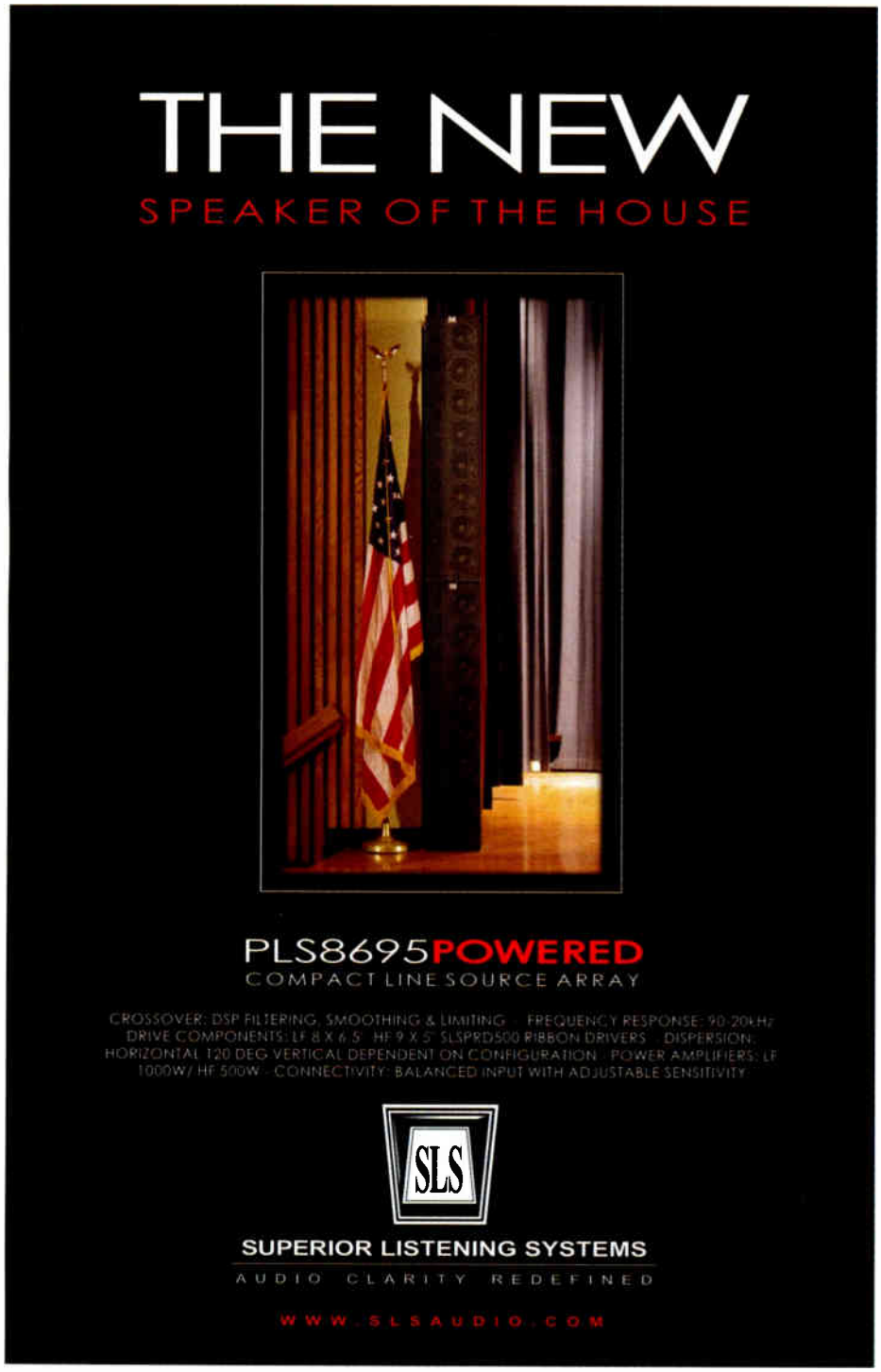

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World Radio History

PrismSound ADA-8XR Converter

BY RUSS LONG

Like its predecessor the ADA-8, the PrismSound Dream ADA-8XR is a modular A/D-D/A converter and processor that can be configured for eight channels of simultaneous A/D and D/A conversion or for 16 channels in either direction. It supports 24-bit/192 kHz operation and it can also serve as a D/D format converter. The box is perfectly suited for studio and location recording, stereo and surround mixing and mastering.

FEATURES

The 2RU ADA-8XR can be adapted to virtually any situation. Each of the ADA-8XR's paths of eight channels is independently configurable and if desired, can have independent clock references and different sample rates. And each path can drive analog and digital outputs simultaneously if desired

The unit features a host of digital interfacing options that include: AES3-S/PDIF (up to 192 kHz); handles and converts two-wire formats for 96 kHz and 192 kHz; FireWire (which provides direct connection to DAW software on PC or Mac); DSD (for SACD production, with SDIF2/3 and optional MAC-DSD); also allows sample rate conversion between any PCM rates, Pro Tools 24/Mix (direct connection in place of 888 IO), and Pro Tools/HD (192IO/96IOs; up to 32 channels in and out per Digi Core/Process card).

The ADA-8XR can act as a high resolution Pro Tools interface for recording or post production or, by using the FireWire card, it can work with a wide range of other popular digital audio workstations including Digital Performer, Logic, Cubase, Nuendo, etc.

The DSD I/O module is equipped with SDIF-2, SDIF-3 and MAC-DSD interfaces. DSP features include eight-channel PCM-to-DSD and DSD-to-PCM conversion (any PCM sample rate), plus eight-channel PCM sample rate conversion. By fitting the Pro Tools/HD and the DSD modules, Pro Tools can record and replay DSD audio, allowing SACD master recordings to be produced within Pro Tools.

The ADA-8XR's analog XLR inputs and outputs are electronically balanced, transformerless and galvanically isolated to prevent unwanted noise. The analog input and output sensitivity (and interchannel balance) are software-adjustable over the entire range with 0.05 dB resolution. The analog inputs have a dynamic range of 112 dB (rms unweighted, measured at –60 dB FS). The THD+N is –105 dB (0.0004%) typical, rms unweighted at -1.0 dB FS. The analog outputs have a dynamic range of 110 dB (rms unweighted, measured at –60 dB FS). The THD+N is –104 dB (0.0004%) typical, rms unweighted at -1.0 dB FS. Additionally, there is a TASCAM DA-88/iZ RADAR compatible DB25 connector option available for the analog inputs and outputs.

The ADA-8XR's Ultimate PrismSound clock-stability and jitter-rejection provide crystal clear imaging, with independent multiple PLLs for A/D and D/A paths. The Overkiller setting provides gentle limiting for analog inputs and assures no overs. It can be independently turned on and off on each channel.

The user interface provides fast access to all I/O and processing functions while continually displaying all settings. The eight-channel LED bargraph/status monitor can access any point in the A/D or D/A signal paths. Each path offers DSP processing and all of the signal processing functions can be carried out in the D/D mode. The unit's modular construction allows easy upgrading of all input and output cards. The software is Internet-upgradeable, loading from a computer's serial port into Flash memory inside the ADA-8XR.

The front panel of the ADA-8XR contains four sections called panels. The Monitor Panel controls and displays all parameters of the two-channel monitor. The Mimic Panel controls and displays all parameters of the routing and processing of the two eight-channel audio paths through the ADA-8XR. The Meter Panel contains eight LED bargraphs which can be switched to meter either of the two eight-channel paths, as well as a row of Channel Select buttons, which are used to apply controls to one or more selected channels, or to all eight channels using the "All" button.

The Menu Panel contains the LCD display and navigation keys for the menu system, through which all parametric adjustments are made. Blue Access buttons, distributed over the other three panels, provide shortcuts into those parts of the menu system related to their positions. Below the menu controls are the buttons for the Configuration/Store system, which allows factory and user-defined setups to be instantly loaded. On the left side of the front panel is the Standby button that is used to

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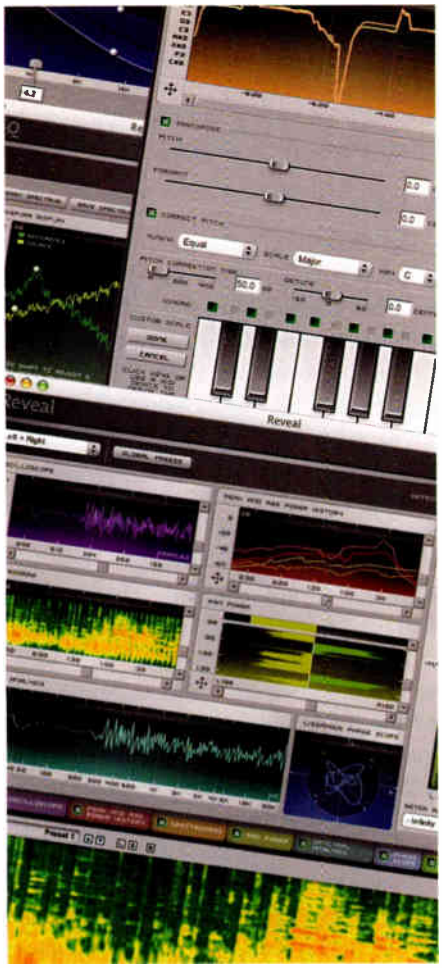
Fast Facts

- ***Applications:***
  Studio, broadcast, post production
- ***Key Features:***
  Eight-channel; 16, 20, 24-bit; up to 192 kHz sample rate; Super-Noise-Shaping; Ultimate clock and anti-jitter technology; independent channel operation
- ***Price:***
  Starts at $11,200
- ***Contact:***
  PrismSound at 973-983-9577, www.prismsound.com.

World Radio History



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Designed from the ground up for mastering and sound design professionals, these state-of-the-art plug-ins were originally available as part of Peak Pro XT™. Now the Master Perfection Suite™ is available for virtually every host application on Mac and Windows, offering more features and many interface improvements over other plug-ins in their class.

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Repli-Q™ — Spectral matching with linear phase EQ
Sqweez™-3 & -5 — Linear phase multiband dynamics
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World Radio History

➤ *PrismSound from page 40*

switch the ADA-8XR in and out of standby power mode and, below, a headphone socket for the two-channel monitor.

The rear panel of the ADA-8XR features two large module slots house the analog I/O modules and two small module slots house the digital I/O modules. The Utility Module (also on the rear panel) contains a variety of input and output connectors for reference sync, analog and digital monitor and serial communications.

Like the ADA-8, the ADA-8XR has several processing options available. Four different Super-Noise-Shaping (SNS) curves provide greatly improved small-signal performance for limited word lengths (such as CDs), and are completely compatible with existing D/A converter products. The MR-X processor is a word-mapper that allows flexible use of multiple 16-bit or 20-bit tracks for high-precision recording. The DRE (Dynamic Range Enhanced) function, retained from the AD-124 and AD-2, allows you to make 24-bit recordings on 16-bit recorders without sacrificing tracks.

The stereo monitor section can be switched between the A/D and D/A path, pre or post processing. The monitor function is equipped with Cut, Invert, Mono and Swap buttons, a volume control, and a front panel-mounted headphone jack. The stereo monitor feeds the rear panel's line level analog outputs and the AES3 digital output. These outputs can be pre or post volume control. As well as monitoring simple channel-pairs, a stereo monitor mix can be set up with panning and level adjustment for all channels. Any input or output pair or a panned stereo mix of all eight channels can be monitored at any time.

The front panel of the ADA-8XR continuously shows the status of all of the major functions including a routing display with a clear indication of all stages of the signal path. There is an access button for each function or stage that takes the menu display straight to the menu for that function, thus providing instant access to any control. For per-channel indications, an eight-channel bargraph/status display can be assigned to the A/D or D/A path, pre or post processing. Meter assignment and modes can be switched with a single key. By using the Configuration Stores, a wide range of factory and user stores can be quickly browsed and recalled.

In Use

The ADA-8XR that I reviewed was equipped with FireWire and Pro Tools/HD modules. The FireWire I/O module essentially enables the ADA-8XR to be used as a high quality soundcard, or I/O interface, for native PC and Macintosh workstation applications. Both allow up to four ADA-8XRs to be connected on the same FireWire bus allowing up to 32 channels of simultaneous recording and playback.

I initially put the ADA-8XR to work mixing a project for Nashville alt-pop band Shortwave Radio. I had fallen in love with the ADA-8 when I reviewed it a few years ago (***PAR*** 12/04) so it was no surprise to find the 8XR equally impressive. The box instantly integrated with my Pro Tools rig (running ProTools 7.1) and when set to the Pro Tools setting the computer instantly saw it as another 192 I/O.

As was the case with the ADA-8, I found that the ADA-8XR has more depth and more definition in the low and high frequencies than the RADAR or the Digidesign 192 boxes I often use. There is not much difference in sounds that sit up front in the mix but sounds that are mixed fairly low sound like they have had a blanket lifted off of them in comparison to my other converters.

I loaded the ADA-8XR FireWire driver onto my laptop PC and in an instant I was mixing in Nuendo using the ADA-8XR. I used the box with my iBook to run Peak Pro XT 5 and Ableton Live 5 and again had wonderful results. I was also completely amazed at the ADA-8XR's ease of integration into various scenarios.

I have a Lucid clock that I typically use to clock all of the digital devices in my studio. I compared the sound of the Prism clocked internally to that of the Prism clocked through the Lucid and I surprisingly found that I prefer the sound of the Prism's clock to that of the Lucid. I went on to compare the sound of my Pro Tools HD converters and my RADAR Nyquest converters clocked internally, clocked to the Lucid clock and clocked to the Prism, and in every instance I preferred the sound of the converters when clocked to the Prism ADA-8XR.

Summary

After working with the PrismSound

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World Radio History

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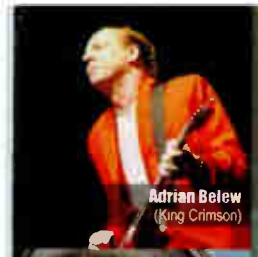
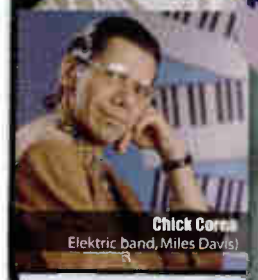
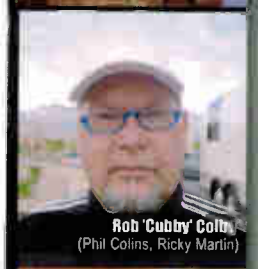
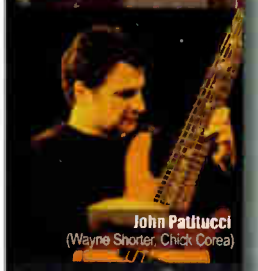
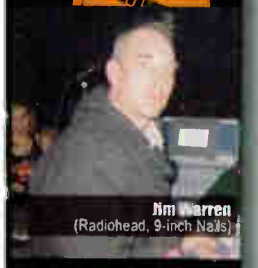

Adrian Belew
(King Crimson)

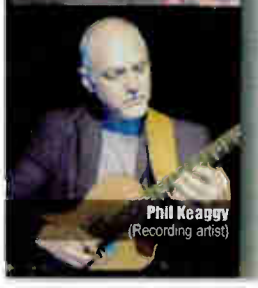

Chick Corea
Elektric band, Miles Davis)


Rob 'Cubby' Colby
(Phil Colins, Ricky Martin)

Dave Bottrill
(Peter Gabriel, Took, Silverchair)


John Patitucci
(Wayne Shorter, Chick Corea)


Jim Warren
(Radiohead, 9-inch Nails)


Phil Keaggy
(Recording artist)

Radial JD7 Injector - suggested list $849 US
Guitar freaks rejoice! Drive up to 7 amplifiers at the same time without changing the original tone of the guitar and do it without buzz or hum caused by ground loops. Record a dry track with the built-in DI and send the signal back to the JD7 and re-amplify it to 7 amps and effect pedals. Addictive.

Radial J48 Active DI - suggested list $199 US
For great sound without choking, look no further than the Radial J48. Features a 48V phantom supplied active drive circuit with a unique DC-to-DC transformer isolated switching power supply to provide amazing headroom while eliminating hum and buzz caused ground loops. Radical.

Radial JDI Passive DI - suggested list $199 US
Jensen Transformer equipped, the Radial JDI has become the standard passive DI in the business. Exceptional noise rejection eliminates troublesome ground loops and virtually zero phase distortion at any level makes the JDI a must have for studio and stage. Available in single, stereo or 6-pack. Magic.

Radial X-Amp Re-Amplifier - suggested list $199 US
Ever wish you could go back and change the sound of a pre-recorded guitar track? Now you can with X-Amp. When tracking, record a spare dry track and play it back through the X-amp after the guitarist has gone home. Two outputs lets you drive amps and pedals to create thick new textures. X-plosive.

Radial JPC Stereo DI - suggested list $199 US
Designed specifically for PC sound cards, DVD players and all those cool consumer devices that cause nothing but havoc, the JPC is 100% transformer isolated to eliminate nasty ground loops and equipped with a 48V active drive circuit for long cables. Easy to use. Great sounding. Indispensable.

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World Radio History

BIAS Peak Pro XT 5

BY RUSS LONG

With the new release of BIAS Peak Pro XT 5, the Macintosh-based industry standard stereo audio editing, processing, and mastering application is better than ever. The program suite is the perfect solution to everything from sound design for film, video, and multimedia, to music production and broadcast editing and, most importantly, mastering.

FEATURES

Peak Pro XT 5 has a list price of $1,199 that offers a complete set of audio tools including Peak Pro 5 (Mac only), SoundSoap 2, SoundSoap Pro and the BIAS Master Perfection Suite which includes six powerful VST/AU/DirectX plug-ins.

Peak Pro XT is designed to work with one stereo audio file at a time. Therefore it works as a compliment to DAWs such as Pro Tools, Logic or Nuendo and is the perfect tool to take a finished mix and make it ready for production. It also has a robust and easy-to-use batch-processing feature making it a wonderful tool for managing lots of audio files. When combined with Peak Pro's RMS Normalization feature that matches average dynamic levels, the batch processing feature appeals not only to audio engineers but to podcasters as well since it's useful for prepping large groups of audio files for radio or podcast programs.

Peak 5 has several useful new features that should improve workflow. For example, Peak now enables you to recover a damaged audio file by simply supplying the Recover Audio dialog (located under the Edit menu) with information such as channels (mono or stereo), bit depth, sample rate, byte order and the location of the audio data within a file.

BIAS has also added Region Split functions and Snap To options which increases the looping and slicing capabilities. They have also added high-resolution, tape-style scrubbing which amazingly has the sounds and feel of real tape based editing. Peak Pro 5 is the only retail Mac waveform editor that supports both VST and Audio Unit (AU) plug-ins. In the Vbox effects matrix it is easy to assemble multiple VST and AU plug-in chains that can be saved and recalled as presets. Peak's continued support of hardware samplers and the addition of live MIDI input and VST and AU soft synth support makes the program perfect for individuals designing sounds for samplers or other instruments.

Peak Pro 5 features a completely overhauled Playlist editor, which can be used to combine several audio files with cross-fades, construct and burn CDs, and prepare disc images for a professional mastering house. Peak Pro 5 adds high-quality POW-r dithering to their first-rate sample rate conversion so higher-resolution audio can be converted with a minimal impact on sound fidelity. The result can be bounced to an audio file, burned to a Red Book-compatible CD, or with an optional plug-in, be exported to a Disc Description Protocol (DDP) file.

The included SoundSoap 2 and SoundSoap Pro are tools for noise reduction and restoration. I've been a user and a fan of SoundSoap Pro for sometime now but I'm new to SoundSoap 2. SoundSoap Pro and SoundSoap 2 are both professional noise reduction plug-ins for VST, RTAS, AU, AudioSuite, and DirectX host applications. SoundSoap 2 also operates as a standalone application for users that don't own a compatible host program.

SoundSoap Pro includes intelligent noise learning algorithm that can work wonders on noise-laden tracks. The parameter controls include click and crackle removal tools, a global spectrogram and several other visual tools that assist in the audio restoration process. The program features a tab-based user interface that has a dedicated set of tools for specific noise types. It works perfectly to remove unwanted room noise, hiss, electrical hum, rumble, and other background noise.

SoundSoap 2 effectively removes broadband noise, 50 Hz and 60 Hz hum, and rumble. Its "Learn" function allows automatic noise reduction/removal and the "Preserve Voice" function provides a specialized pre-filtering for voice-based media files.

The BIAS Master Perfection Suite includes PitchCraft, GateEx, Reveal Sqweez, SuperFreq and Repli-Q plug-ins. The PitchCraft plug-in has a user-friendly interface and it provides a very natural sounding pitch correction. The plug-in combines an X/Y Tuning History Graph, Keyboard Display and several sliders to control format and pitch changes. I'm a long time user of the Antares Auto-Tune plug-in and I was impressed at how quickly and effectively I was able to adapt to using PitchCraft.

Lke PitchCraft, the GateEx gate/expander plug-in provides a comfortable and easy-to-use interface. A waveform display gives the user a real-time view of audio as it enters the GateEx. Two horizontal lines act as gate threshold indicators and

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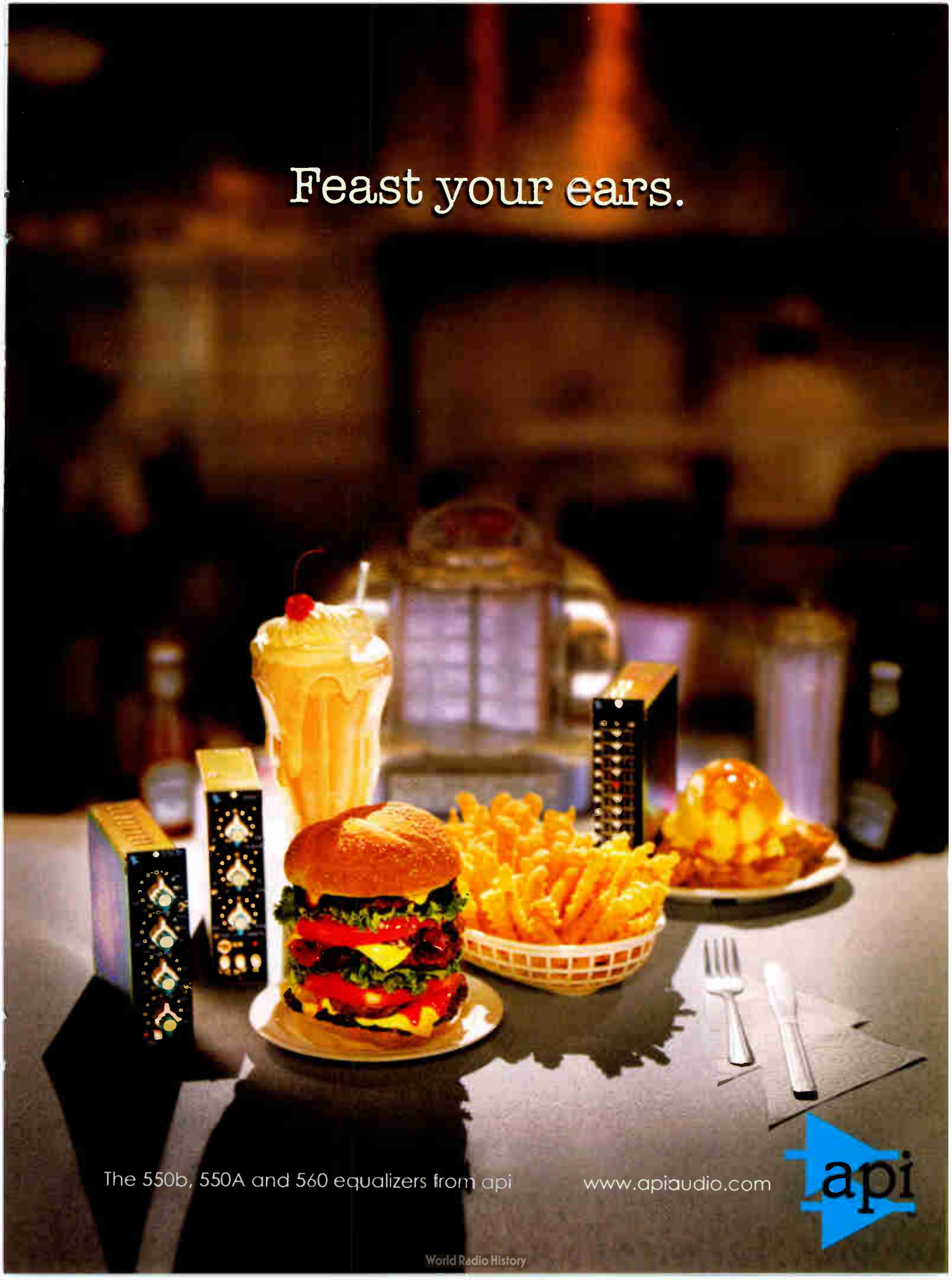
Fast Facts

- ***Applications:***
  Studio, broadcast, post production
- ***Key Features:***
  Twol-channel; mastering, noise reduction, EQ, multiband compressor, pitch modules and plug-ins
- ***Price:***
  $1,199
- ***Contact:***
  BIAS at 707-782-1866, www.bias-inc.com.

World Radio History



World Radio History

➤ *BIAS from page 44*

are controlled by the Threshold slider. Setup is extremely quick and efficient.

The Reveal plug-in is a seven-tool audio signal analysis suite. It includes an oscilloscope, spectral analyzer, spectrogram, peak and RMS level history display, peak and RMS level meters, Lissajous phase scope and pan power history display. This unique combination of tools provides engineers an intelligent way to analyze recordings. This is not the type of plug-in that I would typically consider buying but I must say I have found it to be a very useful tool. When I mix I have found the plug-in to be extremely helpful in determining exactly how certain processing is affecting the audio content. All of the analysis tools can be viewed simultaneously or independently.

The Repli-Q plug-in provides a graphical representation of the spectral content of an audio file. It is designed to analyze, edit and compare the spectral content of audio recording. After the analysis has taken place, spectral characteristics of one recording may be applied to another. I found this to be helpful when mastering a project that had several songs that were mixed by one engineer and one or two drastically different mixes that were mixed by another engineer. The plug-in quickly and easily brings the different sounding mixes into the ballpark of the other eight.

The Sqweez-3 and Sqweez-5 are linear phase multiband compressor/limiter/ expander plug-ins. In both versions, each band of compression provides gain and threshold sliders as well as five band-specific pop-up controls (attack, release, knee, ratio and max reduction). The plug-ins sound good and there are six default settings which I found provide excellent starting points making it much faster to achieve the desired result.

The SuperFreq plug-in is a 4, 6, 8 or 10-band equalizer that features five parameters per channel. Each band has a gain adjustable from –24 dB to +24 dB, a bandwidth adjustable from 0.1 to 30, a frequency sweepable from 20 Hz to 20 kHz, individual band bypass buttons, 24 dB stereo input/output meters and selectable filters including peak, notch, high-shelf, low-shelf, high-cut and low-cut.

In Use

Installing the four-disc Peak Pro XT 5 software suite was a breeze. The installation concludes with a routine requiring the USB software key to be unlocked. I hear a lot of people complaining about USB keys but I have to say, my experience with them has been only good. If that's what it takes to keep people from stealing software I'll support it.

At first glance I noticed that besides the look of the new toolbar icons and the addition of a three-octave MIDI keyboard, Peak's interface has changed very little since version 4. It is relatively simple and very intuitive. Someone who has never used the program before will be up and running in a short amount of time.

BIAS has redesigned some of the more confusing toolbar icons in Peak Pro 5 but the monochrome gray-on-gray toolbar is sometimes difficult to read at a glance. While navigating between windows in the environment is fairly natural, I wish that BIAS had added the option to store custom window sets.

I was happy to see that the new Playlist window can be used to assemble CDs visually, complete with precise timings, crossfades, and CD text. I don't really like mastering

continued on page 72 ➤

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World Radio History

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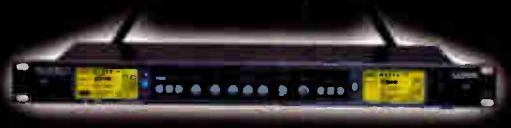

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World Radio History

Bel Canto e.One Series Amplifiers - Can Class A be Passé?

By Tom Jung

Not so long ago this engineer thought in order to experience really good audio quality it was necessary to employ Class A electronics wherever possible in the signal path. Maybe 20 years ago that was true but today it is definitely not the case. With new designs and modern integrated circuits audio quality has surpassed the most cherished all-discrete Class A designs. In fact Class A may be becoming passé (I never thought I would ever say this).

Traditionally Class A power amplifiers are big, heavy, have limited power output and run really hot consequently using lots of power from the wall whether passing audio or just idling. Not so efficient but the sound was sweet, warm and not so fuzzy.

A new line of Bel Canto amplifiers, the e.One series, are based on Ice Power technology originally developed by a group of engineers from Bang & Olufsen. My first encounter with ICE Power was on a trip to Struer, Denmark in 2003 to hear B & O's new Beolab5 powered loudspeaker (The High End, *PAR* 6/03).

Since then the technology has matured and John Stronczer president and chief engineer of Bel Canto has taken Ice Power to a new place in terms of high end audio.

This new Bel Canto e.One series replace the eVo amplifiers (The High End, *PAR* 8/02). At the top of the line is the REF 1000 ($1,995 each), a kilowatt (into 4 ohms) monoblock weighing in at a mere 13 pounds (most of that being chassis and faceplate) with a footprint of only 8.5 inches x 3 inches x 12 inches. How you get that much quality power out of such a small package you ask? By using an analog switching amplifier. This topology is based on a single-supply, fully-balanced architecture using a single pair of N-Channel power MOSFETs that switches in each output phase. This balanced output section drives a 2nd order (not so steep) optimum phase LC output filter to keep the HF noise out of the audio spectrum.

Multiple correction feedback loops keep nasty distortions extremely low, both continuous Total Harmonic Distortion (THD) and Transient Intermodulation distortion (TIM). I suspect the low TIM is one reason why these amps sound so smooth and clean without any transient artifacts or harshness that afflict so many solid state amplifiers. The low THD keeps the amplifier very transparent and faithful to the musical input signal with very low coloration while maintaining harmonic integrity.

All of the e.One amplifiers use a switching power supply that have significant advantages over conventional line frequency supplies used in most of today's amplifiers. Though switching supplies are more expensive and complicated to build good news includes more immunity to high or low AC line voltage, less susceptible to RF noise and AC line based distortion components. For example, the power transformer for the e.One amplifier runs at a frequency in excess of 100 kHz where the magnetic materials are way more efficient than magnetic materials are when running at 60 Hz power line frequencies. This efficiency means that the power transformer is about 100 times smaller and lighter weight than a conventional toriodal transformer.

Since the power supply is rock solid and almost immune to crap on the AC line this translates directly to the solid bottom end of the e.One. The rated damping factor of these amplifiers is over 1000 while the slew rate is well into the thousands; I like to refer to an amp with these attributes as "an amp with good hands."

The M300 ($995 each) is also a monobloc delivering 300 watts into 4 ohms and 150W into 8 ohms while the real dual mono (with separate power supplies). The S300 ($1,395) does this times two. The REF-1000 runs lukewarm while the M300 and the S300 run totally cool.

All e.One amplifiers live in the same size chassis sporting a half-inch solid engraved aluminum face plate with the center machined out to a black background and a single blue power LED right in the middle. The back panel has both balanced XLR and unbalanced RCA inputs and heavy duty binding posts for the outputs.

I have been listening to all of the Bel Canto e.One amplifiers for a month or so now and can not find anything I don't like about them. Usually after this period of time I zero in on something that grinds on me with any gear.

My SLS S8R ribbon monitors have never sounded better, these speakers have a ported enclosure and can get a bit loose on the bottom end with some amplifiers but the e.One's make them sound like they are in a sealed box with bass extension. The inner detail is so amazing that I'm hearing things even in my own recordings that I haven't heard before. Not a trace of harshness or solid state artifacts all in a beautiful compact package that both runs and looks cool.

Prices: For pro audio sales you can contact Bel Canto direct at www.belcantodesign.com.

Tom Jung is ***Pro Audio Review's*** *Technical Consultant.*

World Radio History

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

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World Radio History

M-Audio ProjectMix I/O Control Surface/FireWire Interface

BY STEPHEN MURPHY

I have been fortunate to have had the opportunity to use, abuse and review a number of software control surfaces over the last six years. The subjects have ranged from controller-only models (Radikal Technologies, Mackie, SmartAV) to digital mixer/controller combos (Yamaha, Mackie, Behringer, TASCAM) to FireWire-interface/control surface combos such as the TASCAM FW series.

What I have found is that they all presented a good core set of controller functions (moving faders, transport buttons, channel parameter controls), most have brought one or more new and innovative elements to the table, and all have had some shortcomings or omissions.

M-Audio's ProjectMix I/O ($1,599) is the newest control surface to enter the fray. Aimed at M-Audio's core personal and project studio markets, the ProjectMix I/O features built-in support for the most popular DAW platforms, a FireWire computer interface, and an all-important LCD scribble strip.

FEATURES

The M-Audio ProjectMix I/O functions as both a FireWire audio interface and as a control surface for popular Mac and Windows-based DAW platforms. The unit itself is fairly compact, measuring 20 inches wide, 18 inches deep and 4.25 inches at its highest point. Its sloped front-panel wrist support combined with a fader section that never reaches over two inches high makes the ProjectMix I/O easy on the wrists.

The ProjectMix I/O audio interface features eight mic/line-selectable analog inputs and four line level analog outputs. All line level connections are on balanced 1/4-inch jacks, and, of course, all microphone inputs are on XLR jacks.

Each of the eight analog inputs features a mic/line selector switch and input gain knob, plus signal present and clip LED indicators. The phantom power switch is global, affecting all eight microphone inputs (so no using ribbons with condensers!). The A/D and D/A converters are 24-bit, and support the standard sample rates between 44.1 kHz and 96 kHz.

The first channel of the ProjectMix I/O can be switched to a high-impedance/instrument level input for use with the corresponding front panel 1/4-inch instrument input. The ProjectMix I/O also provides an output knob (typically used to control the volume of one or both of the stereo outputs, though other functions can be selected in the control panel) plus two stereo headphone outputs with individual level controls. The headphone outputs can be independently set to monitor either of the analog output pairs (1/2 or 3/4) or set to monitor a custom "aux" mix, dialed up in the ProjectMix I/O's control panel (more on this later). Headphone output 1 can be assigned to an A/B button on the control surface for monitoring two different headphone mixes.

Digital connectivity includes a single 6-pin FireWire port for connecting to the host computer, one set of ADAT optical I/O ports (which double as the optical S/PDIF ports), coaxial S/PDIF I/O (RCA), a set of MIDI In and Out ports, and word clock I/O on BNC jacks. Rounding out the unit's connections is a 1/4-inch footswitch jack and a power input jack for the included line lump power adapter.

Of course, the heart of any control surface is its faders, and the ProjectMix I/O matches up with the best in its class: eight 100mm touch-sensitive motorized channel faders plus one more for master fader control, all operating at 10-bit resolution. Above each channel fader is a dedicated record enable, channel select, solo and mute button, plus a rotary encoder knob.

Another highlight of the ProjectMix I/O is its backlit two-line LCD display, which performs scribble strip, parameter value, operating mode and other duties.

The ProjectMix I/O also features illuminated transport controls and a jog/scrub wheel, plus four directional navigation buttons (which double as zoom controls when the zoom button is enabled). Other transport control buttons include nudge forward and back, marker set and marker-locate forward and back buttons, loop enable and locate to in/out point buttons. For navigating across your software mixer, there are buttons for jumping forward and back eight channels at a time or one channel at a time.

The functionality of the set of buttons located in the "Encoder Operations" section of the control surface is, for the most part, application-specific. These controls include five aux buttons. plus pan, plug in, channel info, meter, flip and others. The specific use of these buttons heavily depends upon which software application is in use.

The ProjectMix I/O manual, available on the M-Audio website, details specific functionality for the Pro Tools, Cubase, Logic, SONAR, Live and Digital Performer platforms. The M-Audio ProjectMix I/O can also be used in any Mackie Control or HUI-compatible application. The ProjectMix I/O also features a dedicated MIDI control layer (accessed by hitting the "MIDI" button) for customizing MIDI control of specific software elements, virtual synths or outboard MIDI gear.

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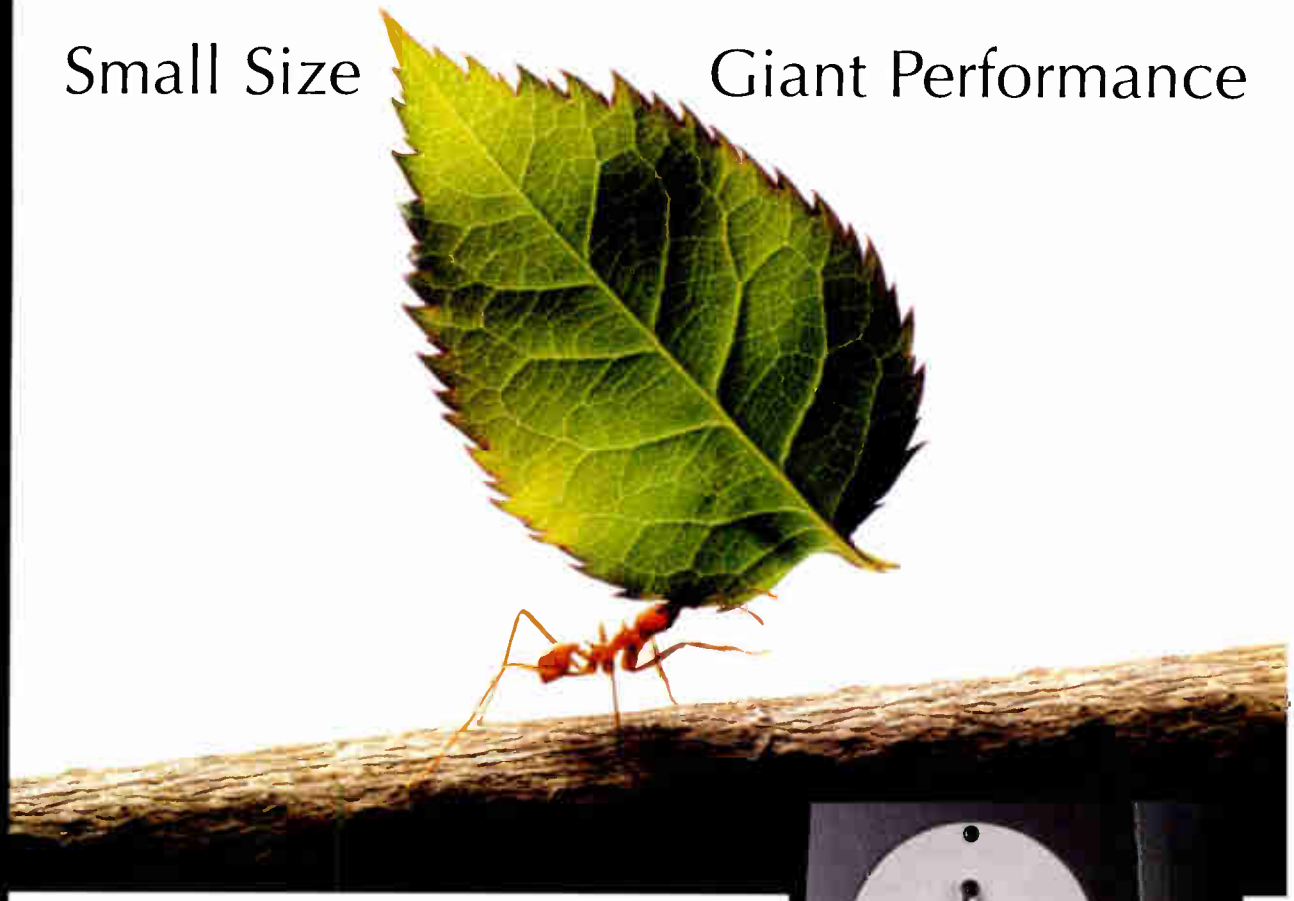
Fast Facts

- ***Applications:***
  Studio
- ***Key Features:***
  Eight analog mic/line inputs; ADAT and S/PDIF I/O; four analog outputs; two headphone outs with independent volume and sources; nine 100mm motorized faders with 10-bit resolution; two-line LCD display; word clock I/O; built-in support for most popular DAWs.
- ***Price:***
  $1,599
- ***Contact:***
  M-Audio at 626-633-9050, www.m-audio.com.

World Radio History

Small Size Giant Performance



BM 5A Compact

Audio professionals have for years expressed a heartfelt demand for an extremely compact nearfield monitor with uncompromising acoustic qualities. The new BM 5A Compact from Dynaudio Acoustics fills this important gap in the broadcast and post production industry. OB Vans, editing suites and film and post production facilities that have less than no space to spare, can now finally fit a high quality, high performance monitor into their cramped workspaces.

The BM 5A Compact is an extremely small yet surprisingly powerful monitor. Extensive research has made it possible to fit an impressive 2 x 50 watt amplification into a cabinet that is as small as 170 x 260 x 235 mm / 6.7" x 10.2" x 9.3" (W x H x D). Combined with the BM 9S it will make up an excellent multichannel system of minute dimensions. BM 5A Compact – the power to size ratio is just as impressive as that of an art.

Two-way active nearfield monitor, 5.7" woofer and 1.1" soft dome tweeter – dimensions: 170 x 260 x 235 mm / 6.7" x 10.2" x 9.3" (W x H x D)

Actual size

dynaudio acoustics
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World Radio History

➤ *M-Audio from page 50*

In Use

For this review, I used the M-Audio ProjectMix I/O with an Intel 3.2 GHz P4-based PC running Windows XP Professional (SP2). I principally used the controller/interface with Steinberg Nuendo and Cubase, and Digidesign Pro Tools M-Powered.

As an audio interface, I was pleased with the unit's sound quality in general and the ease of use of the M-Audio control panel when making routing and hardware setup changes. The mic preamps are decent, though, as to be expected, they don't fare as well when pitted against high-end (and high-priced) outboard preamps.

I liked the fact that the unit has separate switchable mic and line inputs (as opposed to combo jacks) – great for leaving line level playback gear etc. always plugged in, or for wiring the unit to a patch bay. I wish M-Audio had put in at least a couple of insert points for post-preamp analog processing. Of concern is the lack of pads on at least a couple of the mic preamps – a Shure 57 on a snare drum consistently pushed a preamp set at minimum gain into overload.

The monitor mixer interface within the control panel is fairly powerful without being overly complicated. A nice touch is that the two headphone outputs can be independently sent either of the computer output pairs (1/2 or 3/4) or fed from an aux bus that can be derived from a mix of any or all of the analog and digital outputs. Any of the live inputs can also be mixed in (with level and pan control) for no-latency monitoring. I also liked the fact that the ADAT I/O can be switched to S/MUX II mode for four-channel 96 kHz operation.

I should mention that, although M-Audio markets the ProjectMix I/O as an 18 x 14 interface, this is a bit disingenuous, as it is actually only capable of 16 x 12 simultaneous I/O channels. Though I could find no mention of this in the manual, enabling the ADAT digital I/O disables the S/PDIF I/O and vice versa.

As a controller, the ProjectMix I/O worked very well with both Nuendo and Pro Tools M-Powered. The layout of the control surface is well thought out and intuitive, and I was particularly impressed with the feel and motion of the motorized faders. I also really liked the dedicated horizontal and vertical zoom buttons, and the marker set and locate functions. One conspicuous omission is the lack of dedicated programmable buttons for assigning to specific functions within the chosen application. Even though it interfaces with the software applications using the ubiquitous Mackie protocol, the ProjectMix I/O goes one better by incorporating specific application support into its hardware (as opposed to waiting for the DAW developers to write support into their programs) – smart move.

There were a few programming oddities that I hope will be refined in future updates. For instance, in order to see your pan positions for the eight channels (within the pan display mode, no less) you have to first move one of the eight encoder knobs. Only then will the pan settings for the eight channels be displayed. You can hit a button called "Chan Info" to achieve the same result without changing a knob, but as soon as you bank left or right, or view any other page, it reverts to simply displaying that you are in the pan edit page. The same holds true for send, insert, plug in/effects and all the other parameters – the default simply shows the name of the parameter, not the actual state (imagine a page that displays "FxOn" – the parameter name – over all eight channels, but not actual states of the parameter). At the very least, they should allow the controller to remain in "Chan Info" mode (if selected) as one navigates between pages and around the control surface.

Similarly, there is a welcome meter mode feature that displays a horizontal level meter over each of the eight channels – obviously not intended for precision measurements, but great for visual reference. The misstep here is that the meters don't go away when entering any of the edit pages (again: pan, sends, inserts etc.), obliterating any chance of actually doing anything useful within those pages.

Summary

Based on the company's excellent track record in driver development, I expect M-Audio will actively address these software issues and continue to refine and enhance the operation of this otherwise well-thought out product. Its built-in support for the most popular recording applications, intuitive operation and sound quality make the ProjectMix I/O a worthy consideration as the hub of computer-based personal and project studios.

__PAR__ Studio Editor Stephen Murphy has over 20 years production and engineering experience, including Grammy-winning and Gold/Platinum credits.

World Radio History

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World Radio History

We Built This Gap

BY STEPHEN MURPHY

The ongoing shift away from the console-centric studio model in favor of one based around a DAW and control surface has left a conspicuous gap in monitoring functionality. This gap has given rise to the formerly boutique market of outboard monitoring systems. Once the domain of high-end micro manufacturers, the fact that Mackie, PreSonus, Samson, Hosa and others have entered the market with inexpensive hardware monitoring systems is proof of both the gap's existence and the growing demand for solutions.

Some of these outboard systems provide as little as an analog volume control, but most also provide speaker switching, a headphone output, some two-track inputs and possibly a talkback to the phones output. Unfortunately, even the most expensive systems leave something to be desired compared to a full console monitoring section, if for no other reason than that they cannot possibly be tied to every buss and send in use in the software mixer (for nondestructive monitoring or matrixing).

Those who made the move from a studio console are apt to demand a replacement solution and, at the same time, lump the loss of some functionality. Those who grew up in the DAW era may not even be aware of what they are missing. Either way, the result is a dumbing-down of engineering as once-available tools are left by the wayside.

MEANWHILE, BACK IN HAMBURG...

As we all know, workstation software is in a constant state of development. With each new major version comes a healthy set of new features and refinements – healthy enough to induce current users to pay for the upgrade, and hopefully win new converts from the competition.

While enhancements are always welcome, it is a rare occasion when one of these new features has a dramatic effect on our workflow. It is even rarer when that same new feature escapes its software boundaries and has a positive impact on our hardware setup downstream – it's hard to picture, I know. Now imagine that the same new feature is included in a free, mid-version update.

This is exactly what happened when Steinberg added its impressively robust software-based monitoring system (dubbed the 'Control Room') to Nuendo in the version 3.2 update.

HERE COMES THE BRIDGE

So what can the Nuendo Control Room monitoring system do for you? Here's a sampling of some of the goodies:

• Support for up to four sets of control room monitors, with configurations from mono up to 10.2 surround. Flexibility in output routing allows you to specify, for example, the same two speakers you use for stereo mixing as the front L/R speakers in a surround configuration. Each monitor set has lockable gain calibration and phase control.

• Individual speaker soloing on all monitor sets and flexible dim control.

• Support for up to six external input sources (like 2TK monitoring on a console, but with configurations from mono up to 10.2 surround), each with adjustable input gain and phase. Any of the external input sources can also be directly recorded to tracks.

• Support for up to four discrete cue mix outputs (called "Studios") that can be used for performers' headphone feeds and/or studio speakers. The source for each of the Studios can be derived from the program mix, a custom mix (unique to each Studio), or any of the six external sources.

• Dedicated talkback channel with flexible routing and automatic enabling/dimming. The engineer can decide which of the four studio feeds can hear the talkback mic at any given time.

• Dedicated control room headphone output that, like the four sets of control room speaker setups, can monitor the program mix, any of the four discrete cue mixes, or any of the six external sources.

• User-definable downmix settings for all speaker configurations.

• Click track enable and click level control for each Control Room output.

• Nondestructive "listen bus" for soloing tracks in the control room without affecting Studio cue mixes (can also be enabled on individual cue mixes if desired)

• Level meters and inserts on all external inputs, Studio cue mixes and control room monitor/headphone outputs.

There are numerous other features I haven't listed – including a number of tools for quickly creating custom cue mixes derived from the program mix – but even from this sampling, you can see the Nuendo Control Room is quite comprehensive. The reason this is possible is that, just like a studio console monitoring section, it is intricately interwoven into the "circuitry." Additionally, it has the benefit of having access to every element of a recording project, so it is able to provide a number of features unavailable in even the best studio console monitoring section.

From a real-world standpoint, the Nuendo Control Room is limited only by the number of I/O channels available. Unlike a hardware monitoring system, the software-based Control Room also allows the engineer complete flexibility in D/A converter choice and future system expansion.

I am especially impressed that such a complex conceptual and programming feat arrived with few, if any, bugs (Steinberg does need to implement better control surface integration before it is truly mature, however). One caution: If you are as paranoid as I am about yielding complete volume control over $6,000+ in speakers to HAL-9000, keep an analog attenuator in line.

While it may not be the perfect solution for everyone (especially for those who don't use the program), for me, Nuendo's Control Room has revolutionized my monitoring setups, greatly enhanced my studio cue mix capabilities, and literally gave me back the ability to control... from my control room!

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.

World Radio History

PROJECTMIX I/O

mix surface | 24/96 interface | 8 preamps | LCD

Today, more professional music is produced at home than ever before–and the new ProjectMix I/O delivers what you need to take your computer-based studio and productions to the next level. Seamless integration with all major DAW software. The ability to record directly into industry-standard Pro Tools sessions. Faders so you can feel the mix with your fingertips instead of dragging a mouse. On-board display of critical parameters for intuitive operation. Motorized control to craft more accurate mixes. And professional multi-channel I/O including mic/instrument preamps, Lightpipe and S/PDIF. ProjectMix I/O is the universal solution that combines the best of the hardware and software worlds for a new standard in streamlined production.

- record audio directly into Pro Tools M-Powered > industry-standard format
- 10-bit touch-sensitive motorized faders > totally intuitive mixing and editing
- built-in 18 x 14 FireWire audio interface > no additional hardware required
- 8 phantom-powered mic/line preamps > pro input right on board
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World Radio History

L-Acoustics KUDO line arrays were on tour during the winter with Aerosmith and Nickelback. Powering the tour are L-Acoustics LA48a amps. A bit less known was the KUDO tour of punk band Simple Plan.

The latest in **dbx**'s DriveRack family, the 4800, is being used on the Toby Keith tour.

Julie Roberts is using **Sennheiser** an ew345 G2 handheld wireless transmitter with an MD 845 capsule in concert. See picture of Julie.

Productions and Concerts, a tour contractor operating out of Stockbridge, GA, bought 16 **A-Line Acoustics** AL-10D line array boxes. First stop, Atlanta Symphony Hall for a Hall and Oates concert.

SPL Sound of Vineland, NJ has added two **Yamaha** PM5D digital consoles and 10 **JBL** VerTec 4889 line array boxes to its inventory.

Coldplay is using **Lab.gruppen** fP amplifiers on its 2006 US tour. L-Acoustics V-DOSCs are the speakers system receiving the juice. Special Event Services of Winston-Salem, NC is handling the tour work. See picture of a mess o' amps backstage at the Coldplay concert.

NEW PRODUCTS

Dynacord CL Series Amplifiers

The latest additions to Dynacord's CL series of amplifiers are the CL800, CL1200, CL1600 and CL2000. The CL series are based on Class H technology and utilize the standard protection scheme for HF, DC, temperature, overload and short circuits. A three-speed fan and 2 ohm-compatibility are also included. Power rates from 400W per channel for the CL800 up to 1000W per channel for the CL2000. Prices: CL800 - $845; CL1200 - $1,035, CL1600 - $1,220 and CL2000 - $1,430.
Contact: Dynacord at 800-392-3497, www.dynacord.com.

Audix FireBall-V Microphone

When introduced last year Audix's FireBall microphone was something of a rarity – a microphone designed for use with a harmonica. Rather than just sitting back and marking that market as taken care of, Audix listened to feedback from users and has come out with an improvement, the FireBall-V. New to the mic is a volume control, hence the "V" appellation. The mic retains many of the original FireBall features such as a zinc alloy body, steel mesh grille and internal pop filter for the Audix VLM dynamic capsule. Designed for high plosive use, the FireBall-V can handle upwards of 140 dB. Price: $199.
Contact: Audix at 800-966-8261, www.audixusa.com.

A-Line Acoustics SubARRAY Series

Big and powered describes A-Line Acoustics SubARRAY series of powered subwoofers. Available in single 15-inch, dual 15-inch and single 18-inch woofer configurations the SubARRAY series are powered by lightweight 1,000W ICE power modules. The SubARRAYs also utilize A-Line's EZAL rigging system. The cabinets are made of birch plywood covered in DuraTex.
Prices: AS115A - $5,299; AS215A - $5,599; AS118A - $5,349.
Contact: A-Line Acoustics at 716-510-5685, www.a-lineacoustics.com.

Electro-Harmonix 2880 Super Multi-track Looper

So what do you do when you're on-stage and you need some on-the-fly looping? Well instead of hoping someone in the band has some DJ equipment, just turn to the 2880 Super Multi-track Looper. The 2880 is a dedicated four-track stereo looper with several fancy features. Looping performance is 16-bit/44.1 kHz and up to 480 seconds per track with a 256 Compact Flash memory card. Goodies include tempo control, pan controls, reverse, octave pitch, dry output control, MIDI clocking and a USB port. Price: $595.
Contact: Electro-Harmonix at 718-937-8300, www.ehx.com.

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World Radio History

Shure UHF-R Wireless Microphone System

By Wayne Becker

The folks at Shure are certainly no stranger to our industry. Anyone who has used a microphone over the last 50 years has at one time touched a Shure microphone. Known for their quality sound and reliability, Shure has achieved the respect others in the industry aspire too. However with great respect comes a greater responsibility to deliver with consistency. Enter the UHF-R wireless system - the latest offering from Shure as their premium wireless microphone solution. What makes this wireless mic system so special? Do we need another high-end system? With the resurgence in touring starting to bloom and an increase in fixed installations, I suspect Shure has their reasons, and what I discovered when auditioning the UHF-R system is that indeed this product is the go-to system if you have any doubts whatsoever about the possible problems you may encounter if incorporating multiple wireless system in your touring rig or installation.

Features

The UHF-R's features and specifications are impressive; 2,400 selectable frequencies across 60 MHz bandwidth, up to 40 preset compatible systems per band and up to 108 systems with multiple bands. Networked operation, automatic frequency selection, automatic transmitter sync, interface setting locking Flash memory group storage, and Crestron/AMX compatibility. The carrier frequency range is 518 MHz - 865 MHz with a typical working range of about 500 feet. The frequency response is stated as being 40 Hz - 18kHz, ±3 dB with a THD of .3% and dynamic range of >105 dB. Additionally, Shure has incorporate a new companding circuit that is reported to respond to the varying audio level and dynamically reduce wireless transmission artifacts and increase dynamic range.

Just as you would suspect, the unit is ruggedly built with a logically laid out and well appointed front and rear panel. Housed in a black galvanized steel enclosure, the receiver is a weighty 10 pounds, in a 1U space. There are two receiver models available, the single receiver UR4S and the dual receiver UR4D. Front panel controls include, a push to activate parameter control wheel, enter and exit buttons, four LCD menu navigation buttons, monitor control and power. Other indicators available are; sync IR port, an LED meter RF meter for A & B antennas and audio level LED meter. The dual receiver unit has a matching pair of the LCD panel and metering of course. The units come ready to rack with front panel knockouts for front of unit antenna mounting and a pair of sturdy handles/control protection bars straddle the unit.

On the rear of the unit you have an antenna input port, a mic/line selection switch, balanced low impedance XLR output jack, another selection switch for ground lift, a TRS 1/4-inch output jack, USB port, and RJ45 Ethernet connection, and the other diversity antenna port. On the side of the units are exit ports for the internal temperature activated fans.

Transmitters available for the unit are the UR2 handheld transmitter and UR1 bodypack transmitter. Housed in a 14-ounce (with batteries) black die-cast aluminum body, the UR2 handheld transmitter is available with SM58, SM86, Beta58, Beta 87A, Beta 87C capsules. Stop the presses! And the latest, the KSM9 condenser microphone handheld transmitter (more on that later). Running on two AA batteries, it is reported to provide up to 8 hours of continuous use and offers 30 dB gain adjustment. The UR1 is a sleek designed bodypack transmitter housed in a 5-ounce (with batteries) magnesium body, with a threaded T4 mic jack. The unit offers a 55 dB gain adjustment, with a maximum input level +15 dBu.

An added bonus is Shure's Wireless Workbench software. Spend a few moments in front of the application and you'll find all sorts of useful features to help you better understand the RF environment you'll be working in. Some of the unique little software gems that accomplish this are the Frequency Compatibility Calculator Wizard which scans the RF environment and recommends frequencies. The Frequency Selection Wizard which automatically scans and selects open frequencies for networked UHF-R receivers. Comprehensive Infrared Sync which automatically syncs frequencies, custom groups, lockouts and power settings between transmitters and receivers and provides PC control over these parameters. Band Limiting feature allows you to view custom frequency band parameters so that you can align them with any country or regional RF guidelines that could conflict with the available bandwidth and a Custom Frequency Group Creation which allows the user to customize and save frequency groups for specific regions for instant recall.

It's important to note that all systems come with the receiver, two antenna cables, two 1/2 wave antennas, power cable, power extension cable, Ethernet patch cable, Wireless Workbench software, assorted rack screws and hole plugs, AA batteries, and transmitter carrying case. Everything you need to get racked, plugged, configured and tested.

In Use

Setting up the system and getting sound is pretty easy on a single system - as plug and play as you can probably get with any system.

continued on page 60 ➤

Fast Facts

- ***Applications:***
  Installation, live sound
- ***Key Features:***
  UHF system; 2,400 frequencies; true diversity reception; USB port; Ethernet; AMX/Crestron protocols; Wireless Workbench software; Frequency Selection Wizard; steel receiver enclosure; compatible with many Shure capsules
- ***Price:***
  As reviewed, $3,043
- ***Contact:***
  Shure at 847-600-2000, www.shure.com.

World Radio History

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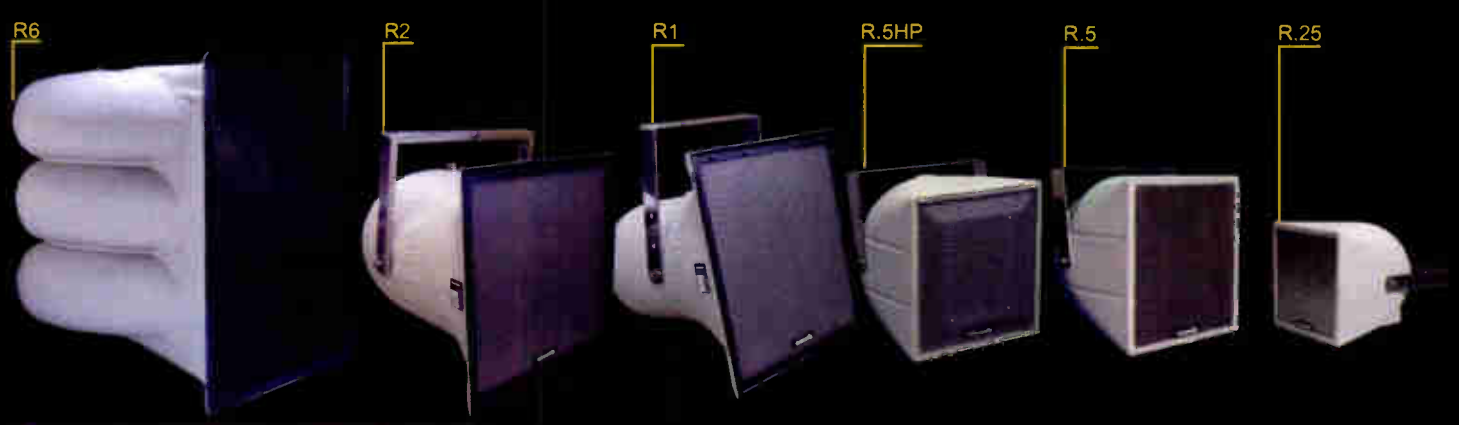
R SERIES



Community

www.loudspeakers.net

For more information, call 1-800-523-4934 or email info@loudspeakers.net.

World Radio History

➤ *Shure from page 58*

Shure recommends using the Automatic Frequency Selection feature to scan the area for best available frequencies to use. A colleague of mine told me he read an article about how these units were used for the Superbowl because of all the RF flying around, and the Stones rocked the dome without a hitch! Anyway, pretty easy, your press radio, scan, channel scan using the nav, turn the wheel to select a group, press scan, once the receiver finds a frequency, press enter and you are in.

Turning on the transmitter is somewhat similar, except you use the IR sync. Point the receiver's IR sensor towards the receiver's sync window, Select sync setup on the transmitter, wait for the sync verification on the receiver, close up the transmitter and you're ready to rock.

The LCD panels on the receiver as well as the transmitters are both backlit and easy to read. The display is segmented into four screens, radio, audio, utility and sync. Pressing the desired menu puts the pertinent parameters in front of you for easy dial access and parameter changes. Another useful feature is being able to transfer transmitter settings from receiver to receiver.

With the networking ability and Wireless Workbench software, this system becomes a veritable RF Swiss Army knife (remember the Superbowl?). Wondering what big scary RF monsters are lurking about waiting to wreak havoc on your 32-channel performance? Breathe easy, turn your rack of UHF-Rs power up the notebook, launch the Wireless Workbench application, and surf the air for those RF nasties. Not only will the unit find them, but it will label what type of registered device is in the space.

The first thing I noticed is how well balanced the handheld transmitter was. Although some may find it a bit on the heavy side, I felt comfortable with its grip and feel. I first tried out the supplied Beta58 capsule. The audio sounded clear, clean and punchy, not unlike the wired Beta58 I had plugged into the other input. Walking around the facility making weird gyrations, I tried to every possible rock-god position I know to try to get the unit to cut out. No luck.

Ahh, but remember the KSM9 condenser mic, I was dying to hear that. This is Shure's answer to requests for a wireless mic that can capture all of the nuances of the most critical vocal performances. Developed primarily for world-class touring sound use it features a dual electret biased diaphragm design that provides switchable cardioid and supercardioid polar patterns and two stage shockmount suspension system to reduce handling noise, which is very low I might add, and boasts a frequency response of 50 Hz - 20 kHz. The housing is made of die-cast aluminum and the grille is hardened low carbon steel. Although this adds some considerable weight to the mic, it will no doubt offer great protection. I accidentally dropped it on a carpeted concrete floor and after checking the floor for damage, tested the mic. No scratches, bumps or skip in the audio and the sound of the mic was just gorgeous, not what I would expect from a wireless mic at all.

Summary

What else is there to say, we have come to expect the best from Shure, and the UHF-R appears as if it won't let you down. Although a bit pricey, you get what you pay for, and what I suspect you'll get is a more restful night's sleep knowing all is well in the land of wireless mics.

Wayne Becker is vice president of sales for Communication Systems, Inc. and has worked in the pro audio and systems integration business for 23 years. He also owns Westwires Digital USA, a music production company based in Allentown, Penn.

World Radio History

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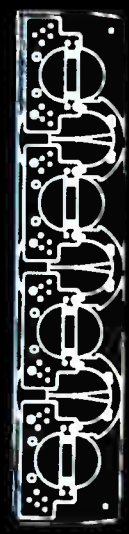

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World Radio History

AKG WMS40 FLEXX Wireless Microphone System

BY ANDREW ROBERTS

Many of us in pro audio have a tendency toward grandiosity. If someone asks me about a sound system for a school or house of worship, my knee-jerk reaction is to think large console, a rack full of high-powered amps, perhaps a small line array with subs… you get the picture. Of course, we should always tailor our equipment suggestions based on the actual physical and economic needs of the venue, but the truth is, most worship houses and schools are small and their SR requirements are relatively modest. Mega-churches are the exception not the norm and most of the schools I've encountered cringe over hundreds, not thousands of dollars when looking at SR budgets.

So when it comes to wireless, 200-channel frequency agility, 25mW transmitters, distribution antennas and fancy readouts are great but they may not be suitable for every application. Yes, the wireless price-to-feature ratio has changed dramatically over the last decade and current systems offer far more bang for the buck than ever - but what about the small congregation that just needs a simple handheld mic or lav without major frequency compatibility issues? Enter the WMS 40 FLEXX system from AKG — an affordable upgrade to AKG's WMS40 series (*PAR* 8/04).

Features

The FLEXX moniker means that this latest generation of WMS products is frequency agile. Operating in the 660 MHz – 865 MHz (751.550 MHz in the U.S.) range, each unit provides three selectable carrier frequencies. The receiver is a half rack space affair and the transmitters come in handheld (as provided for this review), headset, lavalier and instrument.

The receiver is pretty straightforward with power and volume controls, RF LEDs (no ladder, just signal or mute), a diversity antenna LED, AF LEDs (again no ladder, just signal present and clip), and a channel selection switch. The rear panel has balanced XLR and unbalanced 1/4-inch outputs along with a squelch control and a receptacle for the wall-wart power supply.

The handheld transmitter comes with a cardioid dynamic microphone and features a recessed power/mute switch, a hidden frequency selection switch, a power/low battery LED, and a gain control (for which I could find no spec in the manual but I would guess that it's around 6 dB). The transmitter has a modest output of 10mW and it is quite thrifty — the single AA battery is claimed to last for more than 30 hours. The transmitter's chassis is rubberized with a contour that fits comfortably in your grip. As mentioned the WMS40 FLEXX system is somewhat frequency agile. It has three usable frequencies and up to nine can be used simultaneously. This latest generation of the WMS40 can recharge its battery when used with the AKG CU 400 dual-bay charger.

In Use

I used the WMS40 FLEXX handheld system at a number of events including a press conference and a performance by a band at a wedding reception. I also did a gig with renowned folk singer/songwriter John Mc Cutcheon, who happened to have his own personal version that he carries with him.

Overall, I found the mic to have a pleasant, articulate sound with a hint of a slight presence peak in the 6 kHz range (again, no spec - that's what my ears told me). With Mc Cutcheon's band, the AKG sounded full bodied with a detailed signature — on par with all the other wired condenser vocal mics we had on the band. We were able to get a decent stage volume but there were minor instances of feedback that may have been mitigated by a hypercardioid. While the chassis does feel very comfortable when gripped, it transmits some handling noise. As I am used to using systems that have full metering on the receiver (including battery, RF and AF level), I was a bit frustrated by the very basic displays on this model. But at a list price of only $390 you are not going to get all the bells and whistles. However, I liked the insertable color strips to ID each mic — a nice touch.

Summary

The WMS40 FLEXX system is a good wireless alternative for users on a budget. While it has scaled back metering and limited agility, it does have a good sound and a very affordable price. It would be appropriate wherever there wasn't a significant amount of RF congestion and where a small number of units would need to be used. It presents a nice middle ground between those $99 systems you see at the national chain MI stores and the $500+ systems designed for professional use.

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

Fast Facts

- ***Applications:***
  Live sound, sound reinforcement
- ***Key Features:***
  UHF system; diversity reception; handheld, headset, lav, guitar bug packages available
- ***Price:***
  $390
- ***Contact:***
  AKG Acoustics US at 615-620-3800, www.akgusa.com.

Review Setup:

Midas Venice 320, Mackie TT24, Spirit Live 4 consoles; QSC and Crown amps; Turbosound and JBL speakers; Klark Teknik, BSS, Rane, Sabine, Community, XTA processors.

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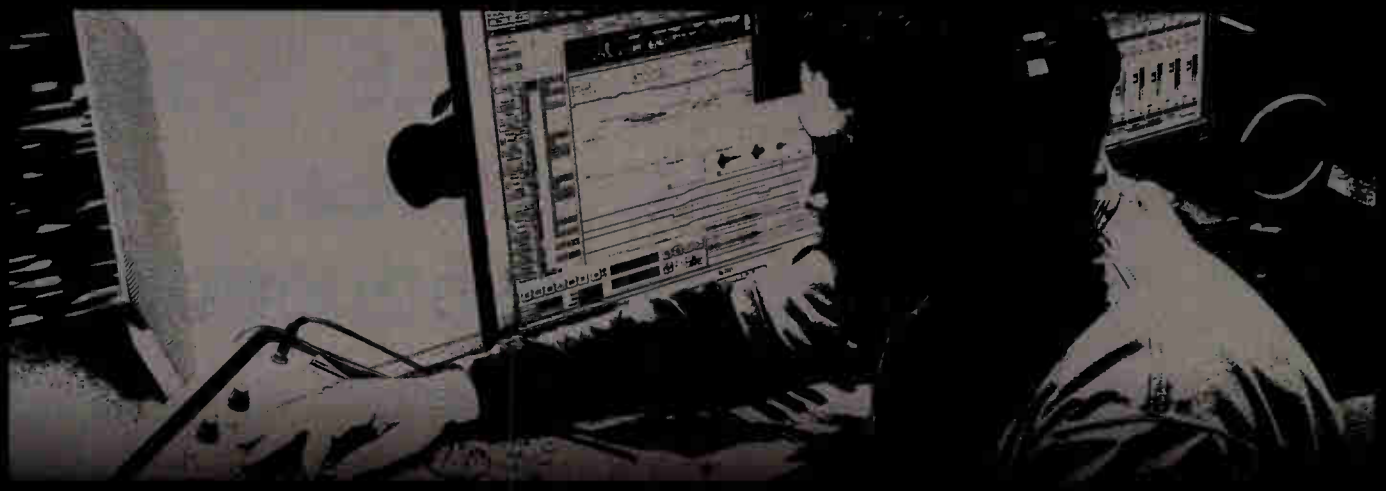

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World Radio History

Aviom Pro 16 System Can Be a Great Tool for Production Sound Mixing

BY MARK ULANO

The further we move into non-linear multitrack technique as a standard method for production sound recording, the more we find ourselves re-applying technologies primarily designed for non-film uses. The use of audio snakes is a good example of this. I am talking about digital snakes, in particular, Aviom's Pro 16 System.

I was preparing *Rocky Balboa*, the next Rocky film and the second half of the schedule was planned for all winter night exteriors in tough urban Philadelphia. Having done my share of winter work, I decided that remoting the main mixing part of the package from the front end would be a good strategy to protect the system (not to mention myself) from the wet and freezing elements. (In the trade this is known as pulling a 'Jim Webb' named for the famous mixer who preferred to remote from his truck with long snakes.)

PLAN A

At first, I was planning to use traditional copper, probably a 12 x 4 snake and started getting bids on custom set ups for my purposes and at once began to feel constrained by the weight, physical size, expense and vulnerability of conventional analog snakes.

Enter Aviom and their proprietary A-Net protocol as an open architecture format for digital snakes, drops and cue mixes. The modular Pro16 system allows for many different configurations (up to 64 inputs), depending on how you hooked up the various input and output modules. All these configurations have one thing in common; they worked on a single strand of CAT 5e (or CAT 6) cable for up to 500 feet. Once this sunk in, I decided on a 16 x 16 setup that would allow mic or line input from the front end. At between 15 to 30 cents a foot vs. $6.00+ per foot, I could treat the cable cost as an expendable item. Not to mention that it was a type of cable available just about everywhere from Home Depot to Radio Shack. An equivalent length analog system, with reduced capacity would cost almost 30% more. It was clear that a digital cable system could reap greater benefits than just rough weather remotes, and in fact might be the best new way to configure the whole system in general.

Me in the driver's seat and my trusty boom operator, Tom Hartig. It's cold in Philly

To explain how useful digital snakes run over CAT 5e cable have become to me, I must first briefly describe my current set up.

At least since *Austin Powers*, I have worked in almost a completely wireless mode; all my miking happens through a wireless link: booms, plants and body mics, PFL, monitoring, etc.

I WORK WITH TWO CARTS

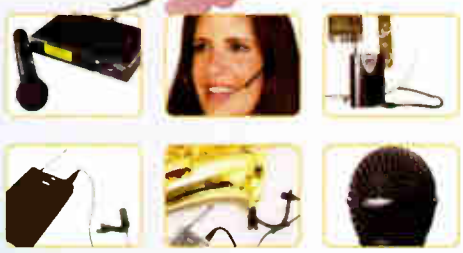
The mixer's cart is a stock Backstage Junior 36 inch magliner-based rolling desk, with a Yamaha 01v96 digital mixer feeding and returning digital I/O via 16 slots of 24-bit AES/EBU to a Zaxcom Deva V nonlinear recorder, a redundant eight-channel, 24-bit send and return chain is fed to the Mac-Mini/Metacorder/MOTU-Traveler combo over very tiny ADAT lightpipe for backup. The Mac-Mini is set in a LaCie Desk rack above two 300GB D2 hard drives as the primary and secondary for Metacorder. I also run another AES/EBU 16-bit digital I/O to a Fostex PD-4 DAT machine as a "hand-holder" for telecine. (I consider this vestigial as more and more telecine gets hip to nonlinear and will phase it out soon). A small (4RU) rack sits on the bottom shelf that has a Furman PL Pro Series II AC conditioner and rack light, the Aviom AN-16/i (line level input module) and an AN-16/o (line level output module). Each of these requires a single rack space. Also, I placed traditionally rackmounted LaCie hard drives with my music collection in here. I use a Mac 15-inch Powerbook for all the other housekeeping chores and running Yamaha's Studio Manager control software for the mixer, BIAS Peak for playback, iTunes etc. Rounding this all out is a ProSyne 1000W inverter/95AH AGM aircraft battery power system providing a pure sine wave AC in the form of a massive UPS which will run the cart uninterrupted for a day or two if someone should pull our plug without warning. This is supplemented with a PSC CartPower for 12V distribution and a Furman 1215 voltage regulator affording

continued on page 66 ➤

World Radio History

RAD-360

This wireless can go the distance!



Handheld and body pack use standard AA batteries

FEATURING 50 MILLIWATTS OF POWER AND OVER 12 HOURS OF BATTERY LIFE

When you first use the RAD-360 UHF Wireless, you ll be tempted to see how far you can go before it actually drops out. Go ahead. Get it out of your system. It will most likely be somewhere between 500 and 1000 feet, depending on your location and line of sight.

The RAD360 is a complete solution for all of your wireless needs, whether it be Live Music, Fixed Installations, Presentations, or Houses of Worship.Handheld systems feature the OM series dynamic mics, critically acclaimed for their clarity, off-axis rejection, and ability to achieve high levels of gain before feedback without distortion. Bodypack systems feature a variety of lavalier and headset microphones, as well as instrument systems for guitar, flute, harmonica, and brass.

You can be sure of drop-out free performance whatever the venue. And best of all, the RAD-360 is simple to set up and use. You'll be up and running in minutes!

Main Features

- Frequency Agile – 193 channels available per system
- Interchangeable capsule assemblies for handheld transmitters
- Metal housing for receiver, bodypack, and handheld transmitters
- Battery power indicators
- RF level metering
- Noise squelch circuitry

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➤ *Aviom from page 64*

soft landings for anything below 95 volts or above 145V.

The front cart or boom operator's cart has an SKB 10-space rack on the upper deck. On top is the Furman conditioner/rack light, then a rackmounted pair of ComTek BST 50b's, one for public/staff/dailies program monitoring and the other for PFL monitoring for my friends and boom operators, (Tom Hartig and Adam Blantz - best guys to be found anywhere, brilliant). These ComTeks are connected to a pair of PhaseRight antennae. Next down in the rack, are two Lectrosonics Venue receivers. These are fed by a pair of PSC bat-wing antennae, passively split and shared to accommodate the two different bands of the Venues. Next is the Aviom AN-16/i-M mic/line input unit with 16 channels of input, 48V phantom power, OL meters and trim controls for each input. Below this is the other AN-16/o for the front side of the 16 x 16

digital snake system. A pair of Shure ULXP receivers for VOG (Voice of God or whoever is in charge) mics. At the bottom of the rack is an Aphex DA for sends to video assist or other destinations such as on-site press.

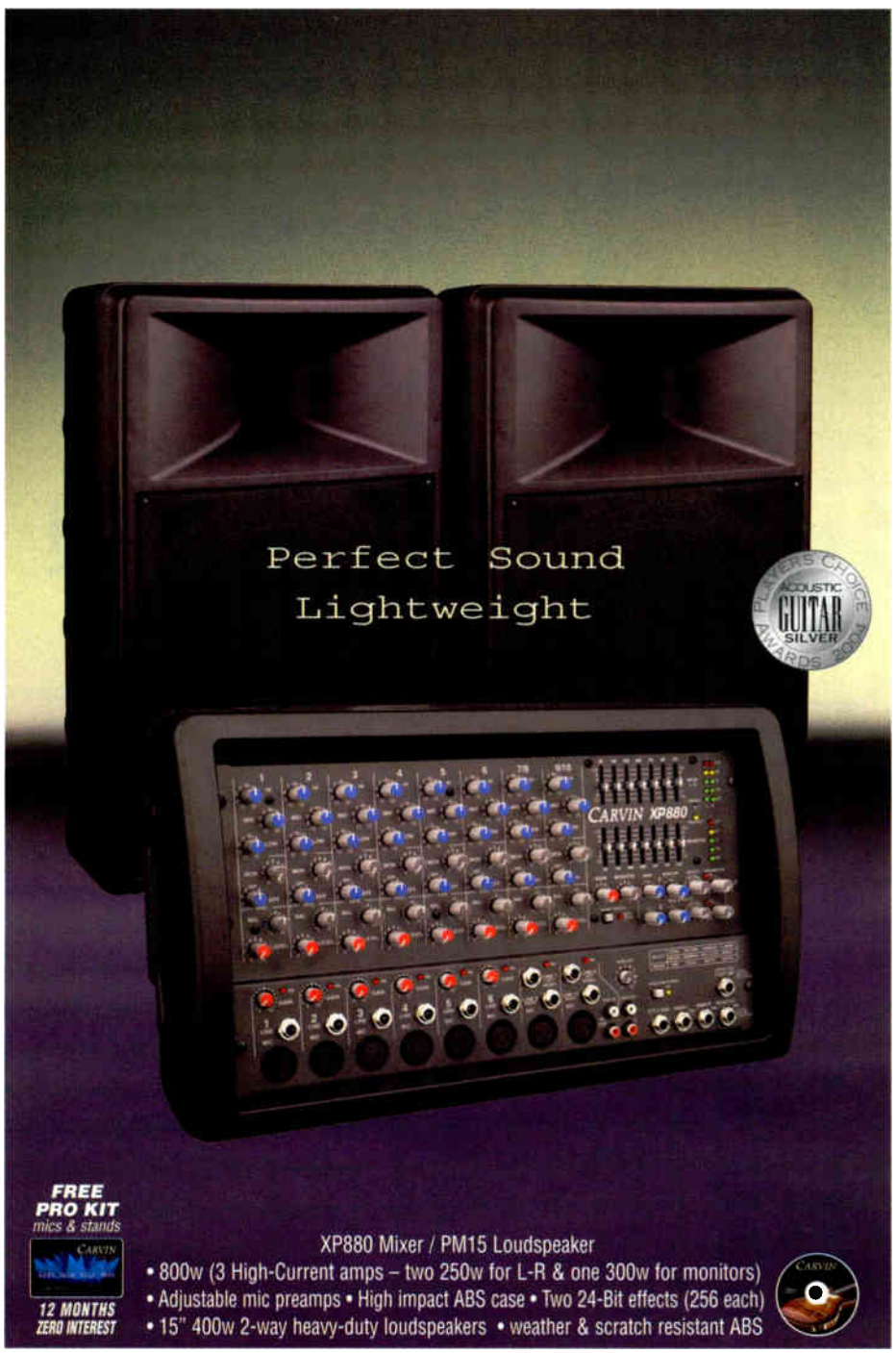
Here's How It Works

The 12 channels of wireless are normaled into the Aviom AN-16/i-M. Channels 1 and 2 are my boom feeds, 3 through 10 for an assortment of UM400, SM and MM400A/B transmitters. Channels 11 and 12 are also UM400s used for continuous PL from Tom and Adam, instantly convertible to primary units if needed. Channels 13 and 14 are for source feeds returning to me from set, e.g., 24-frame video playback (these get plugged straight into the Aviom). The Shure VOG receivers are in 15 and 16.

At my end, the Aviom output unit mirrors all the sends from the front cart, which I route through the Yamaha mixer. I send through the Aviom line input unit, Program on Channel 1 for director/script/producer monitoring and PL monitoring on Channel 2. These get fed into the two ComTek transmitters, Channel 3 gets prefader playback for cue-aids or thumper and Channel 4 gets post fader playback for on-set amplification of music and/or public address into a pair of Mackie SR450 self-powered speakers. Channel 5 is SMPTE timecode.

We had no issues for almost two weeks, then one day we suddenly started to get very loud disturbing transients hitting the whole system. My first reaction was that one of the Aviom modules was failing but we began to trace the lines and discovered a severe slice in the CAT 5e cable (250 feet at Fry's for 50 bucks!). The tough cable had endured countless urban street crossings without incident, vehicles riding right over it, etc. (we were definitely pushing the envelope) at the slice there were mere strands holding on and yet still transmitting bidirectional signal. I couldn't believe it. This system is incredibly robust.

The next question was how could I get



World Radio History

video assist images to me without huge runs of cumbersome 75-ohm coax? I hit the net searching for means of sending NTSC composite video over CAT 5e and discovered a whole class of products based on passive and inexpensive balun (balanced/unbalanced) transformers (about $60 each). These things were being used for security installations, corporate video networking and other non-film uses. They come in different configurations. I ordered a pair made by Muxlab in Canada. The ones I got are about two inches square and about 3/4 inch thick with three BNC connectors on one side and a standard RJ45 Ethernet jack on the other.

They require no power and you could send a single RGB signals or three discreet NTSC composite video signals over a single strand of CAT 5e up to 1,200 feet.

This meant, at worst, I would have two strands of CAT 5e to the set, (one could be considered a backup to the other) but I am greedy and contacted Aviom to see if there was a way to contain the video signal in the one cable along with the audio signal and low and behold there was. Aviom makes a passive system bridge box (the AN-16SB), very small, which takes all four twisted pairs in the cable and breaks them out to individual jacks in the form of a hub. You use one of these at either end of the cable run and you get to use the other twisted pairs in the line as the 16 x 16 snake set up I was using only used one pair for both send and receive. That leaves three more twisted pair for video on the same cable. So now, I have the capability to send two lines of video assist as well as the LecNet2 battery and RF info from the laptop at the front end to my cart. I love this stuff!

Mark Ulano is an Academy Award-winning film sound engineer.

➤ *PrismSound from page 42*

ADA-8XR over the past several weeks I have come to the conclusion that it is the best sounding A/D-D/A box that I've heard. The 8XR's modular format is the perfect solution to today's recording needs. The box allows you to purchase only the features that you need and not the ones you don't. The ADA-8XR has a high price tag but it is undoubtedly worth every penny.

The ADA-8XR offers the cleanest and most transparent conversion available making it the perfect tool for producers, engineers and artists with a desire to produce the finest results when recording, tracking and overdubbing, mixing to stereo or surround, mastering and monitoring. The ADA-8XR is perfect for recording vocal, single instruments, drums or orchestra and is just as much at home providing multiple outputs for external analog summing.

Russ Long, a Nashville-based producer/engineer, owns The Carport recording studio. He is a regular contributor to ***Pro Audio Review****.*

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Yamaha P3500S Power Amplifier

BY ANDREW ROBERTS

Yamaha never ceases to amaze me with how they manufacture such a wide range of products. It seems like they do most of them in four-star fashion too. I struggle to comprehend how the same company that made my classic old motorcycle sitting in the garage (a 1984 RZ350/Kenny Roberts replica racer — the last production street two-cycle made in the US) is also responsible for the superb PM5D digital console I mixed a show on last week. Add to that conservatory-quality grand pianos, digital effects processors, ATVs, saxophones, outboard motors and a slew of consumer electronic equipment. The remarkable thing is that nearly every product they produce is well designed and very competent. Therefore, it was with some degree of curiosity that I chose to examine the P3500S power amplifier.

Features

The P3500S ($689) is part of Yamaha's P series amps with models ranging from 275W per channel to 750W per channel (8 ohms stereo). The 3500 has a chassis that is two rack spaces high and 18 inches deep. The unit weighs in at 15kg (33 pounds) and it features a deep blue faceplate with silver trim. Surprisingly, the two more powerful models (the P5000S and P7000S) weigh less than the 3500. This would lead me to guess that those models are equipped with switching power supplies while the 3500 and smaller sibling, 2500 aren't.

The 3500's front panel features a power switch, status LEDs (temp, protect and power), two 31-step volume controls, clip and signal LEDs, and two beefy handles. The back panel is home to inputs (balanced 1/4-inch and XLR), outputs (NL4, binding post and 1/4-inch) and a configuration section. Within that section, you will find a filter switch and sweepable frequency knob. The filter switch toggles between Off, Subwoofer (a low-pass filter), and Lowcut (a high-pass filter). The frequency range of these filters can be adjusted with the rotary control from 25 Hz – 150 Hz with a fixed slope of 12 dB per octave. Also within the configuration section is a mode switch for stereo/bridge/parallel and a switch labeled YS Processing. Apparently, this stands for Yamaha Speaker processing and it engages an EQ circuit that is designed to improve the sound of some Yamaha Club series speakers. This feature, which can only be used when the previously mentioned filter is turned off, is usable with cabinets outside the realm of Yamaha too.

The P series amps utilize Yamaha's EEEngine (Energy Efficient Engine) technology. It is claimed to make more efficient use of AC power by reducing power consumption and heat generation without degrading output power or sound quality. The P3500 has a power rating of 390W per channel at 8 ohms (1kHz, THD+N = 1%) but it drops to 350W per side when using 20 Hz – 20 kHz and THD+N of 0.1%. The amp also ships with a security cover for the front panel volume controls—a handy feature for install applications.

In Use

While most of my subwoofer applications would require an amp with a greater power output, I was able to put the P3500S to use for monitor duty and to power some mid/high cabinets. One impressive feature is the wide range of I/O connectors on the amp. I did not have to scrounge for adapters or special cables when putting the amp into service. Another handy feature is the amp's sweepable filter. This allowed me to run a biamp monitor mix (with one channel providing lows and the other mid/highs) without external speaker processing. While I realize that this feature is designed to eliminate the need for additional processing equipment, I would prefer a steeper filter than 12dB/octave for such applications. In another instance, I used the filter as a 60 Hz high-pass when running a passive speaker scenario. The amp performed wonderfully and seemed comfortable even when pushing loud

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Fast Facts

- ***Applications:***
  Live sound, installations
- ***Key Features:***
  Two-channel; 350W per channel; EEEngine technology; high-pass, low-pass filters; onboard processing
- ***Price:***
  $689
- ***Contact:***
  Yamaha at 714-522-9011, www.yamaha.com/proaudio.

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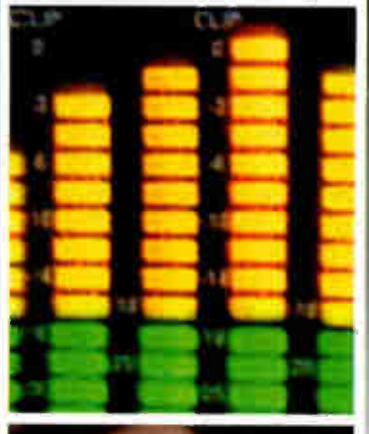

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Ableton Live 5

BY RUSS LONG (AND FRIENDS)

Ableton Live has been widely acclaimed since its release back in 2001. Now with the release of version 5, the program has made the move from being solely a loop and performance tool to being a full-fledged audio and MIDI workstation. Live is the only music production solution that allows the user to spontaneously compose, record, mix, improvise and edit their musical ideas all on the fly. The program combines digital audio recordings with acoustic, electronic and virtual instruments into a single easy to use interface allowing the operator to focus on the music rather than the software.

FEATURES

Live 5 ($499) is compatible with Mac OS 9 (9.2 or later), OS X (10.1.5 or later) and Windows (98, 2000 or XP) machines. It can be purchased from virtually any music store or directly from Ableton's website at www.ableton.com. There is special accommodation pricing to recent buyers of Live 4 as well as an upgrade path from Live 1, 2 and 3.

Live 5 supports internal sample rates of 32 kHz, 44.1 kHz, 48 kHz, 96 kHz, 192 kHz with an internal resolution of 16 or 24 bits. The program supports SoundManager, CoreAudio, DirectX, MME and ASIO drivers and it supports VST and AU audio plug-ins. It plays both uncompressed file formats (WAV, AIF and SDII) and compressed file formats (MP3, Ogg Vorbis, Ogg FLAC and FLAC) and it exports WAV and AIF audio files.

It would take a book to list all of Live's features so rather than attempt to condense them into this review, I've decided to focus on more the features new to Live 5. These features improve functionality yet keep the Live environment simple, stable and inspiring to use.

Live 5 now includes Freeze, Plug-In Delay Compensation, and Launchable Arrangement Locators. Freeze lightens the load on the computer's processor and makes it easier to transfer projects from one computer to another. If a track is selected and the Freeze command is executed, Live creates a sample file for each clip in the track, calculating and freezing the contribution of devices and clip parameters.

Plug-in delay compensation minimizes latency issues by automatically compensating for delays caused by Live and plug-in instruments and effects. The compensation algorithm keeps all of Live's tracks in sync, regardless of what their devices are doing, while minimizing delay between the player's actions and the audible result. Launchable Arrangement Locators allow the access of quantized markers using keystrokes and MIDI commands.

Live 5 includes a host of new remix oriented features including MP3 support, Auto Warp, Complex Warp, and improved clip scrub, nudge and transport controls. The new Auto-Warp algorithm makes longer samples and entire songs available for integration into a project. If a long file is dragged into Live, the program, by default, auto-warps the clip. Complex Mode is a warping method designed to accommodate composite signals that combine the characteristics covered by other Warp Modes. It works well for warping entire songs, which usually contain beats, tones and texture.

The program's new organizational tools feature simple tools for saving, previewing and accessing any idea on your hard drive. The "Live Clip" file format provides better browsing, new preset management, Device Groups, and a new library.

Live 5 introduces a selection of improved and/or new instruments and effects. Included are Beat Repeat, Phaser, Flanger, Auto Pan, Saturator, Arpeggiator, the updated Simpler (Ableton's software sampler) and Operator. The Beat Repeat feature allows for the reorganizing and shredding of beats and vocals. The Auto Pan feature provides for the LFO-driven manipulation of amplitude and panning and the Saturator provides subtle-to-drastic distortion effects.

The Operator is the most intriguing to me of these features. Operator is an advanced synthesizer that combines the concept of frequency modulation (FM) with classic subtractive synthesis. It utilizes four multiple waveform oscillators that can modulate each other's frequencies, creating very complex timbres from a limited number of objects. It includes a filter section, an LFO and global controls, as well as individual envelopes for the oscillators, filter, LFO and pitch. The full version of Operator is not included with the standard version of Live, but is a special feature available for purchase separately.

IN USE

My first introduction to Live was by session keyboardist and programming guru Tony Miracle who has been a longtime user of the

Fast Facts

Applications:
Studio, live performance

Key Features:
Mac, Windows; 32 kHz, 44.1 kHz, 48 kHz, 96 kHz, 192 kHz sample rates; 16, 24-bit; SoundManager, CoreAudio, DirectX, MME, ASIO, VST, AU; WAV, AIFF, MP3, Ogg Vorbis, Ogg FLAC and FLAC; DSP effects; waveform editing

Price:
$499

Contact:
Ableton/M-Audio at 626-633-9050, www.m-audio.com.

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program both in the studio and on stage with his band, Venus Hum. Miracle's recent studio side project, Satellite City, incorporates Live on every track. The Satellite City project began with hours of audio that Miracle had captured on a MiniDisc recorder from all over the world. He fed long streams of this audio into Live, picked out pieces and made segments from them. He then used the warp markers to change the timing and envelopes to alter the pitch that transformed the random audio into musical parts – pretty amazing. Miracle also used Live for recording most of his guitar parts, "Once you have audio in Live, anything is fair game editing-wise, there are parts that started as guitars or swingsets or scraps of paper and wound up as something that never existed before."

Ace session drummer Will Denton is another Live user that convinced me of the program's significance. Denton is currently on the road with Steven Curtis Chapman where he uses Live running on a 1.25 GHz Apple G4 iBook on every song during the show. He uses an M-Audio Oxygen controller to fire the tracks by assigning each key to a master Scene Launch in Session mode. Every song is available at any given time which allows for on the spot set changes.

Denton explained that often an artist will be married to the tracks that were created in the studio while recording the album and they'll want to utilize those exact sounds in their live show. If it was as easy as flying the tracks into a DAW and pressing play it wouldn't matter but Denton's experience is that when the band gets into rehearsals, there will almost always be slight tempo and/or key changes. Before Live existed this was complicated, sounds had to be resampled, time-stretched, and reflown which was a time-consuming process. With Live 4's elastic audio capabilities Denton can speed things up in real time with no discernible loss in audio quality.

Denton has also found Live to be an irreplaceable tool in the studio, where he frequently creates drum loops on the spot, allowing him to create something that is completely unique to the project. He typically records two to four bars and then begins to experiment with various plug-ins, the Compressor II, Vinyl Distortion and Redux are among the most used. Denton explains that the Warp Marker feature alone made Live 4 worth its price, "If I create a loop and then discover that the snare drum on beat four was just a tad on the backside of the click, the Warp Marker feature saves me time and preserves audio quality as well." He explains, "instead of chopping up the audio file, moving the snare drum's waveform forward a couple of hundred samples, and then dealing with the resultant necessities of crossfading, smoothing, and so forth, I simply take the corresponding beat four Warp Marker and move it to the waveform instead." He adds, "Live, in a sense, allows you to move the 'time' instead of the performance, with no destructive editing, no geeked audio, and it plays it back smoothly allowing for the perfect looping and syncing of your human-feel grooves."

After digging into Live 5 myself, I found

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Live 5.2 Update

As this was going to press Ableton announced the release of Live 5.2 The updated version adds native Intel Mac support making Live 5.2 one of the first pro audio applications on the market to run as Universal Binary thus taking advantage of Apple's new Intel Macs.

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➤ *Ableton from page 71*

the environment to be surprisingly simple and easy to use. Being such an encompassing program, I surprisingly only have a couple of complaints. First, there's no surround support. Between SACD, DVD-A, film and TV mixing and video games, the surround market is definitely growing. The ability to work in surround while mixing in Live would be nice. I'm also disappointed that you can't simultaneously edit multiple tracks. This makes editing a full drum kit recorded on twelve tracks a bit slow.

Summary

Live does a tremendous job of providing a means for easily composing, recording and/or mixing audio and MIDI information. The program is relatively easy to use and it is extremely powerful. Whether it is being using as the backbone of a performance or recording rig or to compliment a Pro Tools, Logic, DP or other DAW based studio, the program should be a serious consideration to anyone wanting to build their creative palette.

Russ Long, a Nashville-based producer/engineer, owns The Carport recording studio.

➤ *BIAS from page 46*

projects that I've engineered but after giving it a few tries, I've found myself truly enjoying the process. Peak is highly intuitive and really enjoyable to use. There really aren't many things wrong with this program. I was disappointed that a mastering suite costing well over $1,000 doesn't offer support for surround sound. But even with these complaints, I think that Peak Pro XT 5 is one of the best bargains in the audio industry today.

Summary

When it comes to working with stereo files there is no better tool than Peak Pro XT 5 and the combination of included features makes it an incredible value. If you already have a wide selection of plug-ins and/or you do only light production work, you may not need the full-blown XT. If you are looking to add a suite of polished processors to your effects arsenal, this bundle is one of the best deals on the Mac.

Russ Long, a Nashville-based producer/engineer, owns The Carport recording studio. He is a regular contributor to ***Pro Audio Review.***

➤ *Yamaha from page 68*

wedges for the rhythm section of a 12-piece funk band.

Summary

While the P3500S does not rank among the legendary pro audio products Yamaha has created, its performance level far surpasses its price level. With modest weight, good power and flexible I/O, it has potential for a variety of uses. Whether in clubs, worship houses, schools, or even portable sound reinforcement, the P3500S is a capable player. With a list price of only $689, it represents a superb value.

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

Review Setup

Midas Venice 160 and 320 consoles; JBL SRX 715 and 712 speakers; Audio-Technica AE6100 mics; Rane, Community, TC Electronics, PreSonus processors.

➤ *API from page 38*

As I didn't receive any manuals, and there really isn't a DSM manual (as far as I know), it took a little longer than expected to establish a comfortable command of all the functions (and I even had a leg-up, having used the 2500 on several previous occasions).

From a sonic standpoint, I couldn't have been more pleased with the DSM-24. I understand that the debate rages on regarding the benefits of analog summing versus digital in-the-box summing, and well it should. The API DSM stays out of the fray simply because mixes on the DSM sound like they were mixed on an API console – say no more! And with 24 discrete input channels (plus buss and aux returns), I did not have to do too much digital submixing prior to outputting to the DSM.

From a workflow standpoint, incorporating a 24-channel analog mixer into the mix process does, as to be expected, take a fair amount of extra work compared to mixing in the computer. There are some issues regarding setup time and settings recall that anyone thinking of going the discrete analog route should take time to consider.

Per-channel level, effects and EQ automation in the DAW, of course, make a seamless transition to being output on individual channels. But automated pans and pan placement in general do not – unless you want take the luxury route and dedicate two analog channels as a stereo pair for each mono DAW track (while I am entertaining the idea of selling my Audi to get the DSM-24, I'll have to think really hard before getting a home equity loan for a DSM-72). Clearly this is not the solution for everyone, if for no other reason than its effect on the signal-to-noise ratio.

So, just like in the old days, pans must be dialed in on the DSM for each mix, and paper track sheets become useful (if not a necessity) again. Or you can work only with submixes in the computer sent to stereo pairs on the DSM and retain full recall. I ended up adopting a combination of the two as a happy medium, using center-panned tracks and other tracks that were common to all songs in an album project on their own channels and working with submixes-to-stereo pairs for everything else.

Another thing to consider is your tracking workflow. Although the DSM is primarily marketed as a DAW-to-analog mixing solution, its well-appointed control room monitoring and talkback facilities make it useful for tracking as well. Figuring out how to best incorporate the DSM and your tracking preamps/inputs into a latency-free mix solution takes some consideration and experimentation. Thankfully, the DSM is as thoroughly flexible as a full console and, with a little bit of applied logic, many solutions present themselves.

Summary

While I easily could go on for another several pages raving about the DSM – I have barely scratched the surface here – it ultimately won't answer the question on everyone's mind: Is analog summing better than digital summing? In this context, the better question to ask is: Do I want to do my mixing in the computer or through a genuine API analog console?

And my question to you is: Anyone interested in a lightly used Audi A4 for, say, $15,900…

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.*

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Studio Consoles

API Legacy Console

Features: Up to 64-channel; API 212L mic preamps (48V phantom power, 20 dB pad); API 550L four-band EQ; API input module; test tone generator; talkback function; optional processor modules. Price: starts at $140,000.
Contact: API at 301-776-7879, www.apiaudio.com.

Fairlight DREAM Constellation-ANTHEM

Features: Multiple configuration; up to 192 channels; six-band parametric EQ; Fairlight QDC processing engine; onboard 48 or 96-track recorder/DAW; 7.1 surround sound; onboard dynamics; OLED displays. Price: starts at $125,000.
Contact: Fairlight/MediaGear at 323-460-6857, www.fairlightau.com.

TASCAM DM-3200 Digital Mixing Console

Features: 48-track; 24-bit/96 kHz; four-band parametric EQ; onboard DSP effects; 6.1 surround sound; 100mm motorized faders; jog wheel; USB port; LCD screen; I/O expansion slots. Price: $3,799.
Contact: TASCAM at 323-726-0303, www.tascam.com.

Toft Audio Designs Trident Series T ATB

Features: 16, 24, 32-channel frames; four-band EQ with sweepable mids; six auxes; high-pass filter; talkback section; LED meters. Price: starts at $3,999.
Contact: Toft Audio Designs/PMI Audio Group at 877-563-6335, www.toftaudio.com.

Alesis MultiMix FireWire Mixers

Features: 8, 12, 16-channel; 24-bit; 44.1 kHz, 48 kHz sample rates; three-band EQ; 100 factory FX presets; FireWire port; compatible with Windows, Mac; ships with Steinberg Cubase LE. Prices: 8-channel - $599; 12-channel - $699; 16-channel - $799.
Contact: Alesis at 401-658-5760, www.alesis.com.

Yamaha DM2000 V2

Features: 96-channel; 24-bit/96 kHz; onboard DSP effects; LCRS, 5.1 surround sound; joy stick; 100mm motorized faders; LCD screen; SMPTE; word clock; linkable; Windows/Mac PC control software; I/O expansion slots. Price: app $18,600.
Contact: Yamaha at 714-522-9011, www.yamaha.com/proaudio.

Peavey PV 10 USB

Features: Eight-channel; 48V phantom power; three-band EQ; onboard DSP effects; USB port. Price: $369.
Contact: Peavey at 866-443-2333, www.peavey.com.

Studer Vista 8 Digital Mixing Console

Features: Modular design; 48 - 148 channels; 24-bit/96 kHz; upgradable processors; LCR, LCRS, 5.1 Studer Virtual Surround Panning; Vistonic LCD screen control surfaces; 100mm faders; talkback section; rackmountable I/O. Price starts at $200,000.
Contact: Studer USA/Harman Pro at 818-920-3212, www.studer.ch.

AMS Neve 88D

Features: Up to 1,000 channels; 24-bit, 96 kHz; Encore Plus automation; onboard DSP; "Classic Neve" processing; surround sound; DAW network compatibility. Price: starts at $160,000.
Contact: AMS Neve at 248-591-9276, www.ams-neve.com.

Harrison Trion

Features: Post, live or broadcast architectures; 40-bit internal signal path; digital.engine technology; IKIS technology.
Contact: Harrison at 615-641-7200, www.harrisonconsoles.com.

Solid State Logic AWS900+

Features: 24-channel; SSL G series compressor; SSL Twin Curve four-band parametric EQ; 5.1 surround sound; compatible with DAWs; TFT touchscreens; VU meters. Price: starts at $99,500.
Contact: Solid State Logic at 212-315-1111, www.solid-state-logic.com.

TL Audio M4

Features: 16, 24, 32 input channel frames; tube preamps; four-band EQ; 48V phantom power; high-pass filter; talkback section; 100mm faders; VU meters. Price starts at $9,350.
Contact: TL Audio/Independent Audio at 207-773-2424, www.independentaudio.com.

Soundtracs D4 Console

Features: Modular; up to 320-channel; 16 - 96 100mm motorized fader frames; 48 - 96 kHz sample rates; four-band parametric EQ; LCRS, 5.1, 7.1 surround sound; onboard dynamics processing; touchscreens. Price: starts at $145,000.
Contact: DiGiCo/Soundtracs at 44-13-7284-5600, www.digiconsoles.com.

Smart AV Smart Console

Features: 48/72-channel frames ;programmable function buttons; electronic scribble strips; 100mm motorized Penny & Giles faders; compatible with major DAW programs.
Contact: Smart AV at 615-300-4827, www.smartav.net.

Mackie dXb.200

Features: Up to 192 kHz; timecode; compatible with major DAW programs; compatible with VST plug-ins; talkback section; twin touchscreens; 100mm Penny and Giles faders; USB ports. Price: app. $12,995.
Contact: Mackie at 800-258-6883, www.mackie.com.

Millennia Media Mixing Suite

Features: Rackmounted modular channel design; up to 80 channels; input, aux, master, parametric EQ, compressor/limiter modules available; high-pass filter; True-Mute talkback function; test tone generator; LED meters. Price starts at $5,000.
Contact: Millennia Media at 530-647-0750, www.mil-media.com.

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Wireless Mics

Audio-Technica Artist Elite 5000 Wireless Microphone System

Features: UHF system; up to 200 channels; True Diversity reception; dual compander; Tone Lock squelch; Intelliscan; handheld, bodypack transmitter packages; dynamic and condenser handheld transmitters; choice of capsules for handhelds. Price: starts at $3,119.
Contact: Audio-Technica at 330-686-2600, www.audio-technica.com.

Shure KSM9 Handheld Wireless Transmitter

Features: UHF system; cardioid, supercardioid patterns; internal shockmount; Advanced track Tuning technology; available in black or champagne; compatible with Shure UHF-R system.
Contact: Shure Inc. at 847-866-2200, www.shure.com.

Lectrosonics Venue Receiver System

Features: Dock for up to six UHF receiver modules; antenna multicoupler; reception compatibility modes; Digital Hybrid Wireless technology; LecNet2 PC interface. Price: starts at $1,580.
Contact: Lectrosonics at 800-821-1121, www.lectrosonics.com.

AKG WMS 40 Pro Wireless Microphone System

Features: UHF system; true diversity reception; up to three frequencies per channel; up to nine channels; handheld and bodypack transmitter packages. Price: starts at $250.
Contact: AKG Acoustics at 615-620-3800, www.akgusa.com.

Sennheiser Evolution Wireless G2 Series

Features: UHF system; 1,440 frequencies; frequency scan; bodypack, plug-on and handheld transmitter packages available. Price: starts at $767.
Contact: Sennheiser at 860-434-9190, www.sennheiserusa.com.

Sabine SWM7000 Series 2.4 GHz Wireless Microphone System

Features: UHF system; True Diversity 2.4 GHz Smart Spectrum technology; FBX Feedback Exterminator; compressor/limiter; de-esser; Mic SuperModeling; ships with Audix OM3 capsule; handheld or lavalier/headset bodypack transmitters. Price: starts at $1,200.
Contact: Sabine at 386-418-2000, www.sabine.com.

Revolabs Solo Executive Conference Microphone System

Features: UHF system; 1.9 GHz; rackmount up to eight-channel receiver; eight lapel mic/wireless transmitters; mic docking station; 128-bit encryption; USB port; 30 meter range. Price: $8,000.
Contact: Revolabs at 978-897-5655, www.revolabls.com

Nady Systems UWS-1K Wireless Microphone System

Features: UHF system; 1,000 channels; true diversity; ToneSquelch; infrared communications; bodypack or handheld transmitter packages. Price: $669.
Contact: Nady Systems at 510-652-2411, www.nady.com.

Azden 200ULT Wireless Microphone System

Features: UHF system; two 10BT bodypack transmitters; 200UPR battery-operable, two-channel receiver; dual-antennae; camera-mountable; ships with lapel mics. Price: $850.
Contact: Azden at 800-247-4501, www.azdencorp.com.

beyerdynamic Opus 369 Wireless Microphone System

Features: UHF system; NE 300 S true diversity receiver; SDM 369 handheld transmitter; autoscan; phase lock loop; 16 preset frequencies. Price: $499.
Contact: beyerdynamic at 631-293-3200, www.beyerdynamic-usa.com.

TOA Electronics WT-4820 Wireless Microphone Receiver

Features: UHF system; two-channel; up to 16 frequencies; true diversity receiver; twin antennae. Price: $164.
Contact: TOA Electronics at 800-733-7088, www.toaelectronics.com.

Crown CM-311AE Headworn Microphone

Features: Modified cardioid pattern; Differoid technology; internal pop filter; adjustable headband, boom; 4-foot cable; choice of terminations; compatible with most major wireless systems. Price: $370 (unterminated).
Contact: Crown at 574-294-8200, www.crownaudio.com.

Electro-Voice RE-2E Wireless Microphone System

Features: UHF system; Auto-ClearScan frequency agile; RE97 omnidirectional headworn mic; beige, brown or black color choice for mic; BPU-2 bodypack transmitter. Price: $1,020.
Contact: Electro-Voice at 800-667-3968, www.electrovoice.com.

Sony WRT-8P Plug-on Transmitter

Features: UHF system; selectable output power; 48V phantom power. Price: $995.
Contact: Sony at 201-930-1000, www.sony.com/proaudio.

Zaxcom Digital Stereo ENG Wireless Transmitter

Features: UHF system; 24-bit A/D-D/A; digital dropout compensation; encryption mode; compander; miniature bodypack transmitters; clothing noise reduction filter; battery operable. Price: $3,295.
Contact: Zaxcom at 973-835-5000, www.zaxcom.com.

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DPA Microphones DPA 4088 Headband Microphone

Features: Cardioid pattern; flexible steel headband; ambidextrous stalk. Price: $625.
Contact: DPA Microphones at 303-823-8878, www.dpamicrophones.com.

Mipro ACT-707SE Wireless Receiver

Features: UHF system; single-channel; true diversity reception; 16 preset frequencies; Automatic Channel Targeting; phase locked loop; Pilotone, NoiseLock protection circuitry. Price: $280.
Contact: Mipro/Avlex at 877-447-9216, www.avlex.com.

Media Vision Close-Talk Wireless Conference System

Features: Infrared system; telescoping mic boom; telephone I/O; AMX, Crestron-compatible; Windows control software. Price: starts at $1,099.
Contact: Media Vision USA at 415-391-9090, www.mediavision-usa.com.

CP Communications QR-2000 RX Wireless System

Features: UHF system; 256 frequencies; QT-256 microminiature transmitter; DCS-QT companding; phase locked loop; memory. Prices: QR-2000 RX - $2,695; QT-256 - $1,950 (also available for rental).
Contact: CP Communications at 800-762-4254, www.cpcomms.com.

Studio Consoles

➤ *Continued from page 74*

Calrec Alpha

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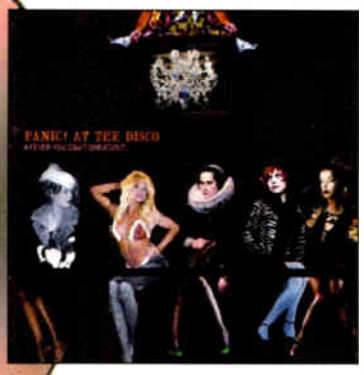

Panic! At The Disco
"The Only Difference Between Martyrdom and Suicide Is Press Coverage"

Single: "The Only Difference Between Martyrdom and Suicide Is Press Coverage"

Album: *A Fever You Can't Sweat Out* (Fueled By Ramen/Decaydance)

Dates Recorded: June to August 2005 at Matt Squire's private studio in College Park, Maryland.

Single Producers: Matt Squire

Single Engineers: Matt Squire

Single Mixer: Matt Squire

Mastering: U.E. Nastasi at Sterling Sound in New York City

Other Projects: Matt Squire has worked with artists including Northstar, The Receiving End of Sirens, Midtown, Thrice, and Junior Varsity, among others.

Single Songwriters: Panic! At The Disco

Console: Trident 70 Series console

Recorder: Pro Tools|HD

Monitors: Genelec 1031A

Select Microphones: Rode NTV, Shure SM57

Select Preamplifier: API 512B

Select Processors: Empirical Labs Distressor, Alan Smart C2 compressor, Valley People Dynamite compressor, Waves Renaissance compressor (plug-in)

Panic! At The Disco — a synth-flavored emo-pop quartet with valuable indie cred — never deemed "The Only Difference Between Martyrdom and Suicide Is Press Coverage" a single. Nonetheless, it has experienced notable success on modern rock playlists nationwide. "It's never been officially added at radio," recalls producer/engineer/mixer Matt Squire of Track 2 from *A Fever You Can't Sweat Out*, an effort completed in no more than four and a half weeks. "Radio stations picked it up on their own volition."

This band of four teenagers from Las Vegas cleverly melds well-performed neo-punk instrumentation, electronica-like breaks, and wordy, smart lyrics within catchy vocal melodies: "The Only Difference..." is a prime example of the band's deft abilities. "I give the band a lot of credit because the vision was there from the beginning," explains Squire regarding the song's unique aural components. "What wasn't set was the arrangement, some of the chord changes, and the way we incorporated the electronics. We tried to find a way to blend it all a bit more so it wasn't like, 'Here's our rock part; here's our dance part.' That was the evolution we made together."

Matt Squire

The project was recorded to Pro Tools|HD and mixed through a Trident 70 Series, a console recently retired at Squire's private studio in Maryland; an SSL 4040G now resides in its place. "The 70 Series sounds awesome, but functionally, it's limited and notorious for falling apart," says Squire, who recently moved, upgraded, and refurbished his studio to meet the increased production pressures of his post-Panic! projects. "The SSL is like a gift from God."

For Panic! vocalist Brendon Urie, various acoustic guitars, cello, and several percussion instruments, Squire relied upon his beloved collection of Rode NTV large-diaphragm microphones. "They don't make them anymore and they sound much better than the Rode NTKs," he offers. "If you don't have 'U87 money,' you can still find a NTV on eBay for $500." The remainder of the lead vocal chain consisted of an API 512B preamp to an Empirical Labs Distressor set to "Opto," then straight to Pro Tools. Finally, a Waves Renaissance compressor plug-in provided final vocal processing. "I came up with a vocal setting on a project two years ago. Now I use it on everybody and it always sounds good. Don't ask me what it is, though!"

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

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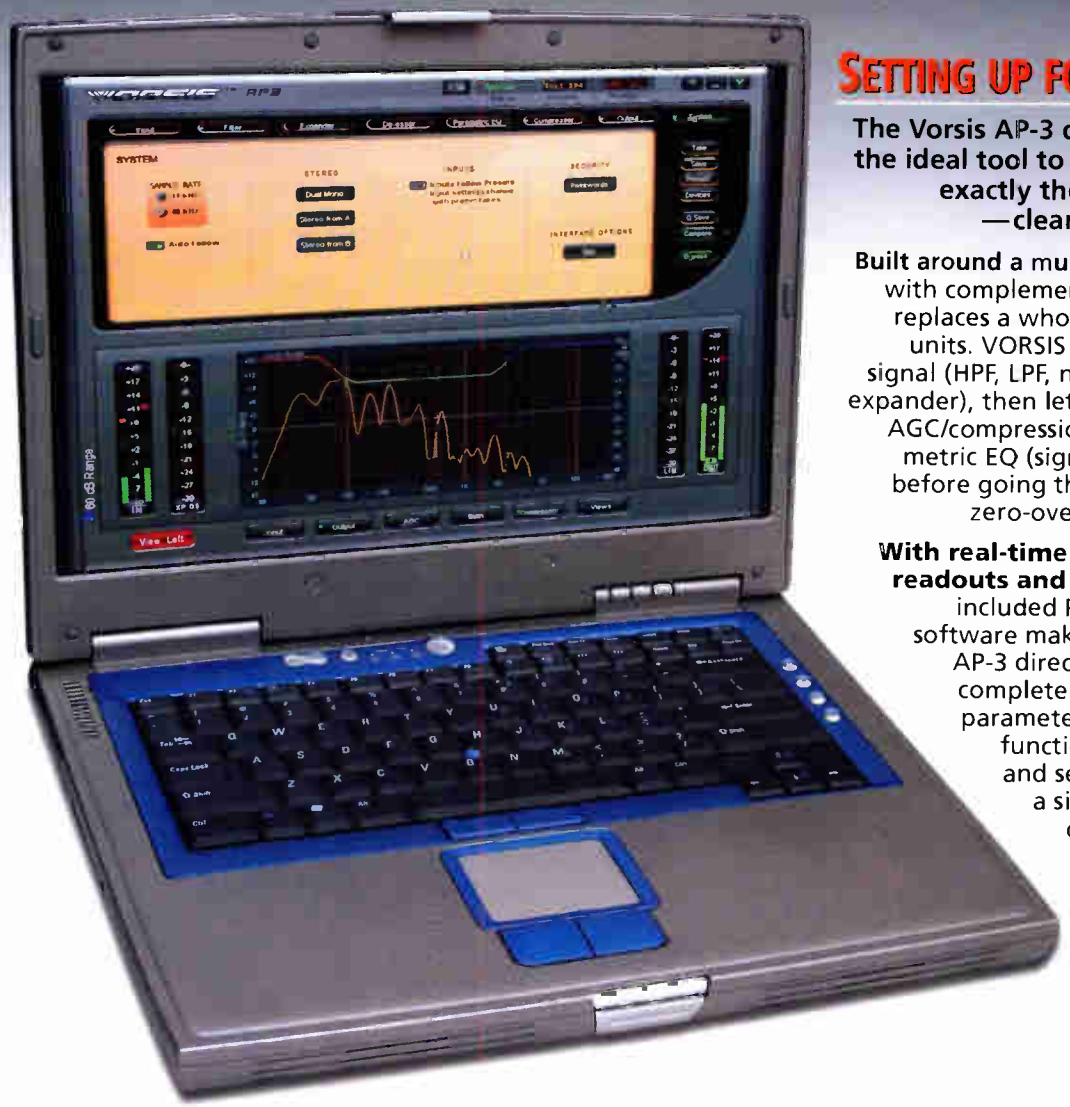

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