

AES Show Report  
New York, October 2003  
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The Usual Disclaimer:

If it's not here, either it wasn't on display, I didn't see it, or I saw it and thought it wasn't interesting enough to spend time at the booth, or it was something that's been around for a while and has been reported before or adequately covered in the magazines and web sites so I didn't have anything to add. Don't ask me if I saw this or that.

Executive Summary:

This is the first NYC show since the rescheduled and foreshortened post-9/11 show two years ago. I'm pleased to report that the industry is indeed alive and healthy. Like so many recent trade shows, there was little revolutionary displayed here, lots of updates of earlier products, lots of "now shipping" products, and with just one exception, no real surprises. I'm at the point where I pretty much pass by the microphone exhibits other than a "hello" to those exhibitors that I know. There's always more of similar and a show is no place to evaluate mics. Not being an active software user, I also didn't spend much time with the software vendors. So what's left? Well, here goes:

Microphones

It seems that just about every show, SE has some new mics out. These are Chinese-built condensers with Class A electronics, and they now offer a pretty full line from a \$100 1/2" diaphragm mic up through their newest Z5600 multi-pattern tube mic for \$700. Like nearly all of this type of mic, they're nicely finished and have good quality circuit boards and components inside. Each mic company finds something unique to brag about. SE's is that they've hired who they consider to be the top seven microphone designers in China. I don't know if they have exclusive or "non-compete" agreements over there, but SE plans to take advantage of this knowledgeable crew in the near term to continue filling out their product line. <http://www.tbkmics.com>

The Ball from BLUE is now shipping and seems to have been passed around to most of the magazines so it's easy to find a review of it. This is a departure from BLUE's traditional (but hardly conventional) condenser designs in that it's a dynamic mic with a phantom powered Class A buffer stage built in to isolate it from loading effects of the preamp to which it's connected. This serves to make it sound pretty much like itself regardless of the preamp used. Originally released in a blue (of course) plastic perforated case looking much like a Wiffle Ball, it's now available in multiple colors. Brand new from Blue, but only available through Digidesign, is the Bluebird, a mic built on the design of the Baby Bottle but with a flatter, more neutral high frequency response. Blue mics, with exception of a couple of capsules for the Bottle, have always had a tailored frequency response

that makes them uniquely appropriate for certain applications (and conversely, inappropriate for others). This one looks, at least on paper and from a description (I didn't hear it) like it will be a good general purpose mic. BLUE has had a couple of bundling deals with Focusrite (also distributed by Digidesign) in the past year, so this seems like a logical pairing – a smooth and flat-response BLUE mic with a very clean series of preamplifiers. <http://www.bluemic.com>

### Preamps:

There's been a little secret around Nashville for a while. Ask the right people there about their favorite mic preamp and you'll hear the name "Gordon." Most of us would say "who?" and move on, but now the secret is out, and the Gordon Instruments mic preamp has made its first trade show appearance. This is one of those things that just about everyone who had anything other than "nope" to say when asked if they've seen anything interesting at the show yet said I had to see. First, the bad news – it costs \$3,500 for two channels. But the good news is that there's really some design innovation here, and an attention to detail and quality that you don't find in even most premium grade audio products. It's completely discrete, balanced throughout, with no transformers or ICs.

Unlike most preamp circuits that operate at maximum gain and provide attenuation when less gain is needed, the Gordon uses variable gain so only the required amount of gain is used at any time. This is particularly significant when it comes to low noise at low gain settings, with an equivalent input noise (EIN) that's essentially constant (about -127 dB) from 30 to 70 dB of gain. An automatic output load compensation circuit reduces distortion introduced in the output stage due to differing loads, particular when connected to a device with a transformer input. Input impedance is selectable between a fairly conventional 1K ohm and a highly unconventional 2 Megohms, essentially no loading on the microphone.

Construction and components are all first rate with liberal use of polystyrene capacitors (some custom made) and foil resistors. The circuit board is a low loss ceramic composite material (think "space capsule") rather than the usual Fiberglas. The preamp is actually comprised of two single rack space boxes, the preamp itself and the control unit with stepped gain controls, mute, and polarity reverse switches. The two units are connected with a standard mic cable which can be pretty long, allowing the preamp to be located close to the microphone, minimizing the effect of the mic-to-preamp cable. A clever chassis design allows the preamp to be rack mounted with the connectors facing front or rear, or the rack mount ears can be replaced by an "outrigger" allowing it to be stood on edge near the microphone. The control unit has four channels worth of controls so you can use a single controller for two preamps. Designer Grant Carpenter is one of those rare birds in audio who strives for his own brand of perfection.

<http://www.gordonaudio.com>

While not as exotic as the Gordon, PreSonus introduced the Eureka channel strip, a solid state Class A transformer input preamp followed by a FET

compressor and three-band parametric equalizer. The compressor is selectable between hard and soft knee characteristic, and a variable high pass filter is provided in the side chain for de-essing. The preamp has a switchable input impedance control (50 to 2.5K ohms) as well as a 1 Megohm instrument input. There's a "saturation" control, a characteristic of other PreSonus preamp designs. At the press of a button, the equalizer can be put before the compressor in the chain. A balanced insert send and return jack pair allows adding another processor in line, should you decide you need it, or the insert output (send) can be used as a direct monitor output for no-latency input monitoring in a digital audio recording chain. An optional 24-bit 96 kHz A/D converter is available. The single space rack panel is lovely sculpted aluminum with an analog VU meter switchable to read gain reduction in the center, reminiscent of the Grace look. <http://www.presonus.com>

The Liquid Channel is another new channel strip from Focusrite. Like the PreSonus Eureka, it too includes a mic preamp, compressor, and equalizer and while the apparent features are similar, the inner workings are completely different. The name "Liquid" is taken from the fact that both the preamp and compressor are modeling devices which can be made to take on the subtle characteristics of many well known (and some unknown) products. It's a hybrid device with the preamp modeling being strictly analog – there's a whole box full of transformers, resistors, capacitors, and inductors in there that are switched in groups to simulate the input characteristics of 40 different preamps, some transformer coupled, some transformerless.

The mic preamp is followed by an A/D converter and a fully digital compressor which, like the preamp stage, has 40 different compressor characteristics modeled and selectable by a knob and with all the standard parameters controllable by another set of knobs. All settings can be saved as a user preset. One of my secrets of attending trade shows is to try to sound like I know something about the technology I'm hearing about, and when the rep showing me around the unit told me that the modeling technique was based on measurements of the impulse response of the genuine article, it brought me to mind of another device I had seen at a previous show that worked the same way. As I was racking my brain trying to think of the product, I looked up and saw Mike Kemp of Sintefex standing there and I smiled, pointed to Mike and said "Like his stuff works?" Yup, Sintefex Audio is a development partner with Focusrite, providing their Dynamic Convolution technology for the Liquid Channel.

At the tail end is a new Focusrite designed digital three band parametric equalizer. A USB port allows for both remote control and uploading of new models as they become available. At \$3,500, it's less expensive than a few vintage units that it replicates, but somehow it loses the cool factor of big VU meters and black panels of days of yore. <http://www.ffliquid.com>

Signal Processors:

Crossing the line from mic preamps plus to in-line processors, we see a few new items worth mentioning. With all the clones of Neve 1073 style mic preamp/equalizers around today, Wunder Audio decided to do something a little different and re-created a modular replacement for the Neve preamp and three band equalizer that was originally designed for a custom console in the '80's. The PEQ1 is a drop-in replacement in a vintage Neve console, or is available to those not so well endowed as a rack or lunchbox mounted outboard. Custom transformers, gold plated switches, and audiophile grade components are used throughout the all discrete circuitry. The construction is top notch, with very attractive milled aluminum knobs reminiscent of, but not direct copies of the Neve style. If you want a clone of a clone instead of just a plain clone, check it out.

<http://www.wunderaudio.com>

Great River Electronics displayed their long awaited EQ2-NV equalizer, a single rack space unit providing two channels of 4-band parametric equalization and frequency-selectable high pass filter. The filters are intended to have the musical sound characteristics of the 108x series Neve console module. The EQ2-NV can stand alone, but it's also designed to work together with Great River's MP2-NV preamp. An input selector switch allows it to operate in the preamp's insert loop, where the instrument DI input of the preamp (as well as the microphone, of course) can be routed through the equalizer. Since the insert connections are separate jacks from the stand-alone inputs and outputs, you can also connect its inputs and outputs to a patch panel or dedicate them to other routing in your system, and select the inputs and outputs with a front panel switch. The external inputs and outputs can match either +4 dBu or -10 dBV operating levels. Coming soon is a single channel version. <http://www.greatriverelectronics.com>

Eventide introduced the H8000, an eight channel version of their Ultra-Harmonizer. With eight channels of AES/EBU, ADAT Lightpipe and stereo S/PDIF I/O, plus stereo analog inputs, this is the ultimate (for a while anyway) in the Eventide processing technology. With a library of 1000 presets made up from over 230 effect modules, it's a good thing that they built in a search engine to help you find and organize both the factory settings and your own custom ones. Building blocks, routable between anywhere and anywhere, offer Eventide algorithms for reverb, chorus, filters, modulation effects, pitch shifting, and automatic pitch correction. Comparison with the bargain priced 8-channel Kurzweil KSP-8 is going to be inevitable. Kurzweil was conspicuously absent from the show, but they were giving off-site demos of their new Rumor processor that I didn't get around to seeing.

A couple of years back, some of the folks from the Eventide family introduced Plugzilla, a hardware box that runs VST software plug-ins designed to work with DAW software. This is just the ticket for the traditional studio that wants to take advantage of some of the goodies that the DAW crowd demands (or for a traveling producer or engineer who wants to use some of his favorite plug-ins to mix in a patchbay studio or the musician who wants to take a VST synth out on a

gig. Now we have a friendly competitor, the Receptor from Muse Research. Like Plugzilla, Receptor has a front panel LCD with soft knobs to adjust plug-in parameters so it can be used as a stand-alone box, but it adds an SVGA monitor, keyboard, and mouse port. With those attached, the user interface for the plug-in is displayed and it can be adjusted just as if it were running on a DAW. In addition, it can connect to a computer via Ethernet and function as an outboard DSP unit to add processing horsepower to a native DAW. This is a really deep product, capable of much more than I can describe or even understand. For further information, go to their web site. <http://www.museresearch.com>

On the software side, TASCAM introduced a new Giga product, the GigaPulse a VST reverb plug-in for Windows. Using the convolving technology to sample the impulse response of a room, it also includes microphone modeling so you can choose not only the mic position in your reverberant space, but what kind of mic it is. It's a tweaker's delight, or choose one of the many presets provided with the program. TASCAM touts its efficiency, stating (and pointing to the little "resources" indicator) that it uses very little CPU power. <http://www.tascam.com>

#### Computer Audio Interfaces:

USB 2.0 is still hanging around the starting gate with Edirol's UA-1000 (introduced at January's NAMM show) still being the only contender, but USB 1.1 still has a following and we're seeing some new interfaces that are pushing the envelope. New this show is the Omega from Lexicon. This is a micro-tower plastic cased handful that provides four inputs and two outputs at 44.1 or 48 kHz, 24-bit resolution. There are four line input jacks and two mic inputs on XLR connectors with phantom power, and one S/PDIF (stereo) input, with each pair of inputs assignable to USB inputs 1-2 or 3-4. Like the TASCAM interfaces that pioneered this application, inputs can be assigned to a built-in analog mixer for direct no-latency monitoring, and mixed with a stereo playback from the computer for overdubbing. A Lexicon designed DSP engine, the Pantheon, provides a built-in reverb based on classic Lexicon algorithms. <http://www.lexiconpro.com>

While it wasn't actually on display at the show, but rather lying casually on a table, Mackie has a very similar product about to be released, the Spike. Also a USB interface with line and mic inputs, analog monitoring, and built-in DSP, it's a tabletop unit with rather striking styling, sort of a cross between the Digidesign M-Box and the tail fin from a 1957 DeSoto. <http://www.mackie.com/products/spike/index.html>

#### Recorders:

Hardware recorders aren't dead yet, they're just changed in form. Otari introduced two new recorders at the show. The DR-10N is a two channel hard disk recorder designed for broadcast production applications. There's a built in hard drive plus a removable MO drive. An optional editing controller turns it into a production facility. It records in Broadcast WAV format, and operates at sample

rates of 44.1 to 96 kHz at 16- or 24-bit resolution. On the other end of the scale is their new DR-100 48-track hard disk recorder (24 tracks at 96 kHz) which interfaces to the outside world through MADI. It's a rack mount box combined with a tabletop controller that looks and works very much like the remote control of an analog multitrack recorder. With the proliferation of DAWs blurring the lines between professional and hobbyist studios, it's refreshing to see a major player in the pro recording market still making fully professional hardware based recorders. <http://www.otari.com>

I'm still in search of something to replace my portable DAT recorder. It's not here yet, but they're getting close. Sound Devices and Fostex both showed incomplete versions of portable stereo and four-channel digital recorders, both targeted toward the film production market. The Sound Devices units use an internal hard drive or flash memory card, and can record on both simultaneously for backup and quick transfer of the recording to another device. The Fostex FR-2 has a PCMCIA slot for a micro disk drive or memory card. Both record in an uncompressed audio format (broadcast WAV files) and record in 6- or 24-bit up to 96 kHz sample rate. Phantom powered mic inputs of course. The Fostex has a ten second buffer that's always on, so you can catch the first few words if you're a little slow on the button. Details will be forthcoming, probably between now and the next trade show.

<http://www.sounddevices.com>

<http://www.fostex.com>

Core Sound, known for their miniature binaural mics and portable recording accessories, introduced their PDAudio flash card S/PDIF audio interface designed to convert a PDA into a digital recorder. There are several software programs supporting it, currently running under Linux and Windows CE, and perhaps other systems. See <http://www.core-sound.com> for details on developments.

### Miscellaneous Cool Stuff:

Now that we have good mics, good monitors, and essentially flawless recording technology, more project studios are focusing on improving room acoustics so they can take advantage of their high quality gear. What's been either voodoo or pronouncements by guys in white lab coats in the past has been distilled down to some principles and pre-built materials that do a good job of controlling reflections and standing waves in most environments, and can be installed without a construction permit. Two exhibitors at this show that offer these products are Ethan Winer's RealTraps, and Media Specialty Resources' StudioPanel, a collaboration between acoustician Tony Grimani and engineer/producer Keith Olsen.

RealTraps is the simpler system with the Mini Trap as the building block. This is a broadband absorber that's an attractive 2 by 4 foot panel about 3 inches thick

that can be hung on a wall using a single hook. Following the guidelines on the company's web site, you figure out how many you need, where you should place them for most effective treatment, place your order, and hammer away.

<http://www.realtraps.com>

The StudioPanel is a more comprehensive system consisting of five elements, a broadband absorber, a diffuser, a resonant bass absorber, a piston absorber (traditional "bass trap") and a ceiling absorber. Kits containing an assortment of these elements are available in three sizes for (essentially) a bedroom, a living room or basement, or a garage, the three spaces most commonly used for a home project studio. They have an interesting marketing concept. You buy a kit based on the size of your space (in square feet) and what you take home from the store is a box about the size of a software box containing a registration code, instructions, a CD with reference data and test material, and a string and bubble level for laying out straight lines. You phone the company with your registration code and they ship out the material. In the mean time, you survey your room, mark the location of the various pieces, and when they arrive, hang them up.

<http://www.msr-inc.com/studiopanel.html>

Everyone should have some test equipment around the studio, but it's either expensive or cumbersome. TerraSonde, maker of the Audio Toolbox and Digital Toolbox, two comprehensive multi-function test tools, has introduced the Studio Toolbox, designed for the studio owner. It includes an audio voltmeter, audio signal generator, sound level meter, polarity tester (including acoustic polarity of microphones and speakers), real time spectrum analyzer, reverb time analyzer, VU meter, and oscilloscope. It reads and generates SMPTE time code, and has a time code calculator. There's a MIDI monitor, MIDI data analyzer, MIDI data generator including MMC transport controls, and a musical features such as a tuner, pitch pipe, click track source, and tempo meter. Measurements can be stored and transferred to a computer for printing. <http://www.terrasonde.com>

I've been a fan of NTI's (Neutrik's test instrument branch) Minirator and Minilizer ever since I got them for review a few years back. I've frequently used their measurements when reviewing products as well as doing repairs and maintenance, but I've always had to keep a pencil and paper handy to take notes on what I saw on the display. Now there's a small add-in board for the Minilizer called the MiniLink which allows operation and more important, storage of the analyzer's displays and data on a computer through a USB port. I ordered one and now I can send pictures with my articles rather than having to describe the shape of a curve. <http://www.minstruments.com>

The proliferation of new microphones the size and weight of a Chihuahua means that we need to start thinking about sturdier mic stands. It's been a while since anyone's come up with any new ideas about how to make a mic stand, but now we have the micKing from Jeff Roberts of Latch Lake Music (a friend, neighbor, and occasional collaborator of Great River's Dan Kennedy). The stand features

newly designed clamps that hold better than those on the more common stands for no-sag boom mounting. The clamping arrangement allows multiple booms to be put on a single vertical pole to reduce floor clutter when setting up a singer/guitarist or miking a drum kit. The unique base weighs 30 pounds but rather than a heavy cast disk, the weight is concentrated at the circumference of the base in three segments (think Mercedes-Benz emblem). A pair of wheels that hit the floor when you tilt the stand back slightly make it easy to move. A large counterweight easily balances 7 pound mics, and Jeff says he can do chin-ups on the extended boom (and he's not a little guy). This is the work of a craftsman in a machine shop and it's priced accordingly, about \$700, but if you want to get your big stereo mic up high to record a choir and not worry about it falling, it can be a worthwhile investment. Information isn't up yet, but check later at <http://www.latchlakemusic.com>

As projects get more complex and musicians get more fussy about their headphone mixes, a way of easily customizing headphone feeds is becoming more important. New from Trident at this show is their S140 8x8 headphone amplifier. Eight inputs can be mixed to eight pairs of headphone outputs using real controls. The panel has enough white writing space so that you can mark the sources and destinations, and let the musicians adjust their own mixes. Data some day at <http://www.tridentaudio.co.uk>

#### New Technology Applications and Services:

While not hardware you can take home from the store, one of the highlights of the show for me was the Plangent Time Traveler Process. This is a number cruncher that processes recorded audio and removes flutter from a tape recording. Developer Jamie Howarth wasn't satisfied with simply reclocking a digital audio stream. He doesn't think it sounds good enough, so his process actually recalculates the position of every sample. It's not real time by any means (a few hours for a couple of minutes of audio) but it's absolutely amazing. Not only is gross flutter removed, but also small mechanical variations such as scrape flutter between the heads and tape of a tape deck that cause audible distortion. The process involves extracting bias off the tape and using that as a time reference. It works since, at least for short intervals of time, the bias frequency is essentially constant. The process moves each sample based on where it would have to be in order for the bias to play back at a constant speed. Since bias is at least five times higher than the highest frequency recorded on tape, there's sufficient resolution there to correct the audio. The idea isn't new – George Massenberg has been talking about it for a while, but someone's finally made it work, and is using it for restoration and remastering projects. At the moment, you send him your tape (he has a tricked out Ampex ATR-100 for playback) and pay by the finished minute of program material. Take the time to download some before-and-after examples at <http://www.plangentprocesses.com>

How do you get your multitrack master tapes transferred to digital format? Where do you find a tape deck that's at least as good as the one you used for

recording? Long time analog (mostly Ampex) hobbyist Steve Puntolillo has set up shop as Soniccraft, offering the highest quality transfers of just about every multitrack format to digital format using lovingly restored tape decks and the best A/D converters he can find. It's a labor of love that he hopes will be somewhat profitable as the industry moves toward digital archiving and remixing of old masters. Check out the A2DX section at <http://www.soniccraft.com> to see how to do it right.

X:

The big surprise for me (and others) was Mackie's introduction of the dXb, a new digital console. Teasers with nothing more than a mysterious looking "X" started showing up in publications and on the Mackie web site just before the show and those of us who follow Mackie (I worked there for a short while) were curious. With rumors of the demise of Mackie digital recording products, seeing a new console was a surprise, and more than anything else, a statement of commitment by the company that was recently renamed Loud Technologies (retaining the Mackie name for audio products). They didn't have a booth on the show floor, but rather were giving scheduled sign-up-in-advance demonstrations in one of the downstairs demo rooms.

There's a lot to the console, a lot of work still to be done, and very little technical literature published yet, but there's quite a bit of discussion among those who saw it (and those who didn't but are speculating) on Mackie's support forum. Here are some highlights from memory, but of course nothing is promised yet, particularly not a delivery date. My guess is late Summer if everything goes well.

The dXb is laid out pretty much like you'd expect for a digital console, but instead of the modest sized LCD displays found on competing tabletop consoles, it has two 15" color touch screen LCDs which are placed directly above a horizontal row of rotary knobs, one for each channel, above the 24 channel faders. This arrangement allows the knobs to function as a complete channel strip for the selected channel, with a label for each knob shown directly above it on the LCD, and an appropriate graphic, for instance for the equalizer or the dynamics. Adjustments can be made either by turning the physical knobs or by dragging the on-screen knobs which act as indicators. I believe you can also drag the graphics, for example to draw your own EQ curves. An on-screen QWERTY keyboard pops up for tasks like labeling channels, but traditionalists can plug in a standard keyboard and mouse. There's a built-in mouse pad area. There's a fader for each channel and a master, plus a set of transport controls with a jog/shuttle wheel, and buttons for selection of automation functions, solos, mutes, or selecting a channel for the full-function display.

Inputs and outputs are totally a'la carte, with a rear panel card cage that accepts analog, AES/EBU, Lightpipe, or TDIF cards, eight channels to a slot with the exception of a 24-channel Firewire card. The total capacity is 72 inputs and 72 outputs, mixed as you see fit.

Everything is assignable anywhere, so you can have both analog and digital inputs and outputs. One important feature is the ability to assign I/O cards as inserts to the channel path, including channels that have digital inputs, so you can send the return from your digital recorder out to your 1176 compressor through an analog I/O card, and bring it back to the channel just as if you plugged it in via a patchbay. The currently planned set of cards could leave one a bit shy on analog inputs and outputs if you like to use mic preamps in your console, but there are other cards planned, including some by outside developers. At the show, Mackie announced that iZ Tehcnology (the RADAR folks) will be making a card for two for it. You could do worse than their S-Nyquist converters (pant! pant!) for analog inputs and outputs.

Another powerful feature is the ability to run VST plug-ins. The console is planned to ship with a Universal Audio UAD-1 DSP card, and there are slots for up to three more for additional plug-in horsepower. Mackie will have certain approved plug-ins which will display logically on the internal touch screens and operate with the console's knobs, however the intent is that any VST plug-in will run, and those that don't fit the console's layout (or haven't been modified to do so) can be operated with a mouse in the same manner as they would be used with a DAW.

It's 24-bit throughout, operating to full capacity at up to 96 kHz, and with half the channels at 192 kHz. At a projected price of around \$20,000 equipped with a typical set of I/O cards, it's in a tough place in the market. It will be interesting to see where it goes. Keep in touch with it at

<http://www.mackie.com/products/dxb/index.html>

#### Wrapup:

That's about all the news that's fit to print this time around. One observation about this show is that I sensed a move back to a more professional AES. In recent years, there's been such a crossover between the pro audio and MI manufacturers that other than the booming basses and crashing drums, it was hard to tell whether I was at an AES or a NAMM show. Perhaps it's because of the belt-tightening and the general slowdown in the industry that feeds the project studio, but there were a number of regular recent AES exhibitors that were conspicuous by their absence, and those who serve both the pro audio and MI markets scaled their presences to serious audio products. I kind of liked it. I hope the trend continues.