

Recording *Aerosmith* Live

EQ

PROFESSIONAL
PROJECT
RECORDING
& SOUND

AUGUST • 1998

New Gear Reports:

beyerdynamic
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E-mu Audio
Production Studio
Drawmer Gate
Focusrite
Platinum Series
Soundscape DAW
and more

Ed Cherney & Friends'

SURROUND SESSIONS

*Top producers explore the
future of multichannel music*

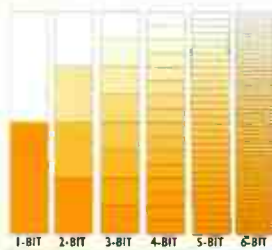
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World Radio History

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Every bit you add doubles the resolution of a digital recorder. Compared to 16-bit formats, ADAT Type II's non-compressed, linear 20-bit recording offers a wider dynamic range, less quantization distortion at low levels, more headroom and even lower noise. Result: detailed, full-spectrum audio fidelity that far exceeds the quality of any analog recorder.



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Most importantly, the intuitive ease-of-use, comprehensive features and incredible affordability of the ADAT Type II systems put no limits on your creativity. Because, after all, the final frontier is really your imagination.

adat TYPE II

There are over 110,000 ADATs in use today, and the new ADAT Type II recorders are compatible with all of them. The XT20 and LX20 will work with your 16-bit ADAT tapes, and you can combine the Type II recorders in a system with any model of older ADAT.



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World Radio History

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ALESIS recording

DTS

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Panasonic is taking digital further today with the DA7 digital mixer, an entirely new standard in quality, flexibility, affordability, ease-of use and value. 24-bit converters, 32 inputs, 8 buses, 32-bit processing, moving faders, instantaneous recall of all settings, surround sound mixing...nothing this fully featured has been this easy to use or affordable... and it's available NOW! Incredible sound quality, Internal 32-bit processing and 24-bit A/D and D/A converters give this mixer sound worthy of consoles costing several times its price.

Easy-to-use. The DA7 is one powerful mixer. If you know how to run a traditional mixer, you already know how to run a DA7, since it has a smart, user-friendly design. To access any of the 32 channels, just press its select button and all parameters for the channel-EQ settings, bus and aux assignments, and dynamics and delay settings come up on the large backlit LCD screen. To access individual parameters, just touch the appropriate knob in the console's master section. This automatically calls up the sub-menu on the LCD screen and zooms in on the appropriate function. No more digging through menus or getting lost in functions; just adjust EQ, Pan/Assign, Dynamics/Delay, or Aux... and you're there.

The power to control. The EQ section offers 4 true overlapping parametric bands active on every channel (with the top and bottom bands switchable to low or high peak/shelving, or low pass, or high pass filters). Each Aux return also provides two bands of fully parametric EQ. The dynamics section offers variable attack/release times and levels for threshold and ratio on each channel, and delay is adjustable up to a maximum of 300ms. 50 Memories each are provided for EQ, Dynamics and individual channel settings. In addition to full dynamic moving fader automation of 32,000 events, there are 50 "snapshot" or "scene" memories. Plus, a Macintosh and

windows software package (that greatly expands the capabilities of the DA7), will soon be available.

Surround sound at your command. You'll be mixing surround soon.

The DA7 is equipped to mix 5.1 channel today. The DA7 has 3 built-in panning modes, and all modes provide full dynamic control of panning, and can be copied, stored, and transferred to any other channel. An optional MIDI joystick gives you yet a fourth method of surround control.

MIDI and more. The DA7 features 4 up/down/left/right cursor keys that can be switched to output MIDI Machine Control commands to MDMs, sequencers, or workstations. Data entry is done through the large parameter dial or an alphanumeric keypad. There's also an undo/redo button, a solo-mode set, and a built-in Talkback mic.

Take on the world. The rear panel sports 16 analog mic/line inputs (8 XLR with individual software-switched phantom power, and 8 with TRS); 16 channel inserts (pre-A/D); and 6 auxiliary send/return jacks (1,2 use S/PDIF; the rest use +4dB 1/4inch connectors). Along with the 2 digital and 4 analog Aux returns, the DA7 has 38 total inputs. Digital I/O, provided via XLR connectors switchable between AES/EBU and S/PDIF, offer the master out signals and they can be assigned to inputs 15 and 16.

The DA7 rear panel also offers MIDI In and Out, word clock I/Os, both a 9-pin RS-422/485 serial port and PC port for Mac or Windows with software support for both, a 1/4 inch footswitch jack for controlling Talkback on/off or automatic punch in/out, and a D-15 subconnector for the optional meter bridge. So, take your digital mixing further today by going to the nearest Panasonic dealer and auditioning the DA7 for yourself!

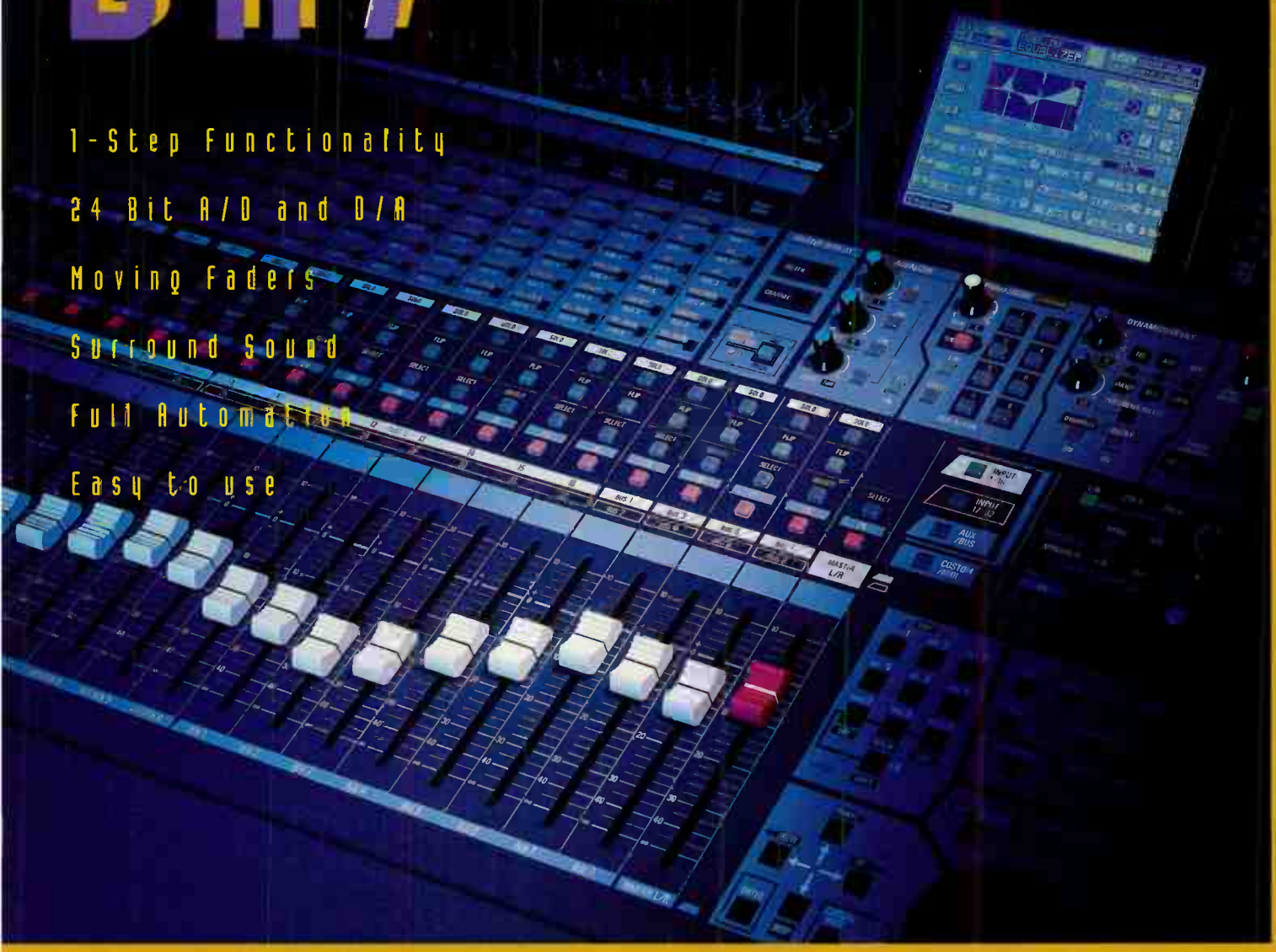


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- Moving Faders
- Surround Sound
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- Easy to use



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Panasonic
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EQ

PROFESSIONAL PROJECT
RECORDING & SOUND
VOLUME 8, ISSUE 8
AUGUST 1998



FEATURES

SURROUND SOUND: ARE YOU EXPERIENCED? *By Ed Cherney and Friends*.....64

The Music Producers Guild of the Americas (MPGA) hosted a surround sound summit designed to provide a forum on the expectations and realities of the growing format. Hosted by Ed Cherney, guests included Al Schmitt, Phil Ramone, Alan Parsons, Michael Bishop, and many others. Check out what these industry leaders have to say about the future of multichannel audio.

FOCUSRITE GOES PLATINUM *By Zenon Schoepe*.....98

If you own a project studio and do a lot of hard-disk recording take note: Focusrite's ToneFactory and VoiceMaster are designed to provide a quality signal chain for hard-disk recording. Do they do the job? EQ finds out...

EQ LIVE

SURROUND EMOTION: AEROSMITH'S 5.1 LIVE RECORD *By Bobby Owsinski*.....109

ROAD GEAR114

ROAD TEST: DRAWMER MX40 QUAD PUNCH GATE *By Mike Sokol*118

TECHNIQUES / WORKSHOPS

SLOPPY SECONDS (ENGINEERS) *By Phil Ramone*.....52

DAVID PENSADO: BUILDING A BETTER R&B MIX *By Bobby Owsinski*56

AL DI MEOLA: BURNING DESIRE *By Rich Tozzoli*.....60

COLUMNS / DEPARTMENTS

MI INSIDER: VOCALS AND EMOTIONAL DYNAMIC RANGE *By Craig Anderton*40

KOOPER'S KOUCH: THE DEVOLUTION OF KEYBOARDS '98 *By Al Kooper*.....44

BONZAI BEAT: JEFFREY C.J. VANSTON *By Mr. Bonzai*.....46

THE FEZGUYS: WHY RETURN TO YOUR WEB SITE? *By Jon Luini & Allen Whitman*.....140

MAINTENANCE: PANNING FOR GOLD FOR THE DIY AUDIO GEEK *By Eddie Ciletti*.....144

FAST FORWARD: NO GOOD DEED GOES UNPUNISHED *By Martin Polon*.....159

ACROSS THE BOARD: LASTING RELATIONSHIPS *By Roger Nichols*.....162

EDITORIAL8

LETTERS TO EQ10

EQ&A.....12

PRODUCT VIEWS.....18

STUDIOWARE.....24

ROOM WITH A VU: AUDIO ONE30

MICROPHILE: RCA TYPE 88-A.....32

FIRST LOOK: E-MU AUDIO PRODUCTION STUDIO34

FIRST LOOK: BEYERDYNAMIC MCD DIGITAL MICS36

IN REVIEW: SOUNDSCAPE DAW MODEL 8 I/O120

IN REVIEW: MARANTZ CDR-620 CD RECORDER126

IN REVIEW: CLM DYNAMICS DB400S MIC PREAMP132

IN REVIEW: OPCODE STUDIO 64 XTC SYNCHRONIZER134

AD INDEX131



ON THE COVER:

*Ed Cherney, host of the MPGA surround panel.
Photo by Edward Colver.*

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A Few of Us Turned Left



I love New York. Bright lights. Theaters. Music venues of every imaginable nature. There's a certain intensity that pervades all its inhabitants. Many of the world's great recordings originate here. Perhaps Billy Joel said it best when he sang, "I'm in a New York state of mind."

For many in the fine and applied arts, New York is where you go when it's time to put up or shut up. This is where careers in the creative arts begin. This is where innovation resides. With the New York Philharmonic, Jazz at Lincoln Center, Broadway, and a slew of other equally impressive New York bastions of artistic excellence, it's hard to imagine being anywhere else if you really intend to "give it all you've got" and carve a niche for yourself.

Well, excuuuuuuuuuse me! Gee golly — somewhere along the road a few of us must have accidentally turned left. And believe it or not, there is life west of the Hudson! As a matter of fact, the West Coast is where you go when it's time to put up or shut up. This is where careers in the creative arts begin. This, too, is where innovation resides. With Disney, Dream-Works, Apple Computer, Microsoft, and a slew of other West Coast bastions of creative excellence, it's simply impossible to overlook the contributions emanating from this vital region of the country.

The fact is, more than 50 percent of the nation's high technology producers call the West Coast home — and that percentage climbs even higher when you look specifically at those companies producing music and audio equipment and services. For those of us in the music and recording fields, Hollywood and Silicon Valley have provided opportunities for artistic expression that are every bit as significant as those accomplishments of our brethren back east. Perhaps we just think differently. Hmm...I wonder where that comes from!

The television, film, and record industries have relied upon music and audio professionals for decades — and in these disciplines, the name Hollywood comes to mind before all others. In recent years, those producing audio for multimedia, the Internet, and other new frontiers have found Silicon Valley to be the nerve center of these highly specialized and burgeoning fields. No matter how you look at it, music, audio, and the recording arts play an integral role in the creative and artistic embodiment that constitutes the West Coast.

No, I'm not pitting the East and West Coasts against one another — quite the contrary. I'm thrilled to be part of a generation that has experienced such phenomenal and exponential growth in the technology sector — regardless of where it originates. The recording quality that can be achieved in today's project studio is nothing short of astounding — and project studios are upping the ante even further. Just a few years ago, recording to a computer's hard drive, adding effects, automating the entire project, and mixing directly to CD or DAT seemed unthinkable. Nowadays, it's a common occurrence. When I consider long-distance recording projects like Frank Sinatra's *Duets* or streaming audio for the Internet, I never cease to be amazed at how far we've progressed.

Many of the tools that we, as audio professionals, take for granted are truly revolutionary. These, combined with advances in telecommunications, have brought artists from across the country and beyond in closer contact than ever before and have facilitated a level of artistic cooperation that is nothing short of miraculous. Yes, there are glitches, systems crash, and there's room for improvement — but isn't this characteristic of every evolving technology?

As the new Senior Editor, West Coast, my aim is to pursue those technologies and methodologies relevant to the recording arts and to examine their potential impact. Never before has the pace of product development been more accelerated — and the results more exciting. The potential to "score big" is, in many ways, better than ever. The opportunities for creating your niche are everywhere, and with the help of my East Coast associates, we at *EQ* aim to provide you with the information you need to further your success. It's one hell of a challenge, and I can't wait to get started. Now, if only I could figure out a use for these leftover subway tokens....

—Roger Maycock, Senior Editor, West Coast



Two-track digital recording

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Individual track editing

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On the road with
Davey Johnstone and John Jorgenson,
 the red lights always mean go.



Sometimes it's hard to tell where the road ends and a song begins. That's why Davey and John are recording every chance they get during their world tour with Elton John. Their new acoustic release is going from the Sony MDM-X4MKII MiniDisc multitrack direct to CD. "The editing features make the possibilities endless," says John, "but the sound quality was really the determining factor for this project." Hear what the Sony MiniDisc multitrack recorder can do and you'll be running some red lights, too. And to find out more about their new CD, Groovemasters Vol. 2, visit www.acousticmusicresource.com.

To get a **FREE CD** sampler of their MiniDisc recording call 1-800-635-SONY ext. MD



www.sony.com/proaudio

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RADICAL THINKING

Regarding independent distribution [*EQ*, May, '98]: Forgive me for presenting a mad-scientist type of theory, but a major label deal is entirely undesirable for many songwriter/musicians because of its dictatorial restrictions and fame-game marketing techniques.

Independent distribution isn't much better because the indie-distro is either a carbon copy of the major labels, or a two-bit "Larry, Larry, and Darryl" fiasco. So I suggest the following:

Today the U.S. has more songwriters, musicians, engineers, and producers than coalminers, steelworkers, WWII veterans, and schoolteachers combined. This mass of artists could acquire tremendous investments and build an honest, fair-minded distribution system to out-compete the major labels.

This requires two things: First, the knowledge of how to build the system, and, second, the artists getting off their behinds and doing the hard work instead of bickering over commercial studio vs. project studio, rap vs. hip-hop, and grunge vs. metal.

EQ Magazine is in the position to provide us the information on the nuts and bolts of building our own distribution system. Then it would be up to the artists to sink or swim. Think of it as *Gilligan's Island*. *EQ* is the Professor: tell us how to build the boat, and let us discover America or ram it into an iceberg.

Jeff
via Internet

BREAKING THE CODE

My company, Crystal Clear Sound, has advertised in *EQ* for several years and appreciates the service it provides to the music community. (We are one of the largest CD and cassette manufacturers in the Southwest.) A customer pointed out Dylan Magierek's article to me earlier today ("Do-It-Yourself Distribution," May '98). I'm writing you in regard to page 85, concerning information on how to obtain a UPC code.

It is true that you can obtain a UPC number directly from a CD manufacturing company, unfortunately this is a clear violation of the Uniform Code Council guidelines. In the UPC Guidelines Manual, page 4, paragraph 4, it states, "The manufacturer identification number is a 5-digit number assigned by the Uniform Code Council Inc. The UPC manufacturing identification number is for the

sole use of the applicant and is a restricted asset of the member to whom it is assigned. Any other use of the number is prohibited, including but not limited to renting, leasing, or subdividing all or a portion of the UPC number." Selling your number for \$50 or even giving it away for free would violate this policy.

So while manufacturers do issue their number to customers, this violates the UPC policy. Unfortunately, this causes problems for companies like mine that are trying to play by the rules. That is why I'm concerned about the information in the article. When this practice is mentioned in a respected national magazine like *EQ*, it gives the impression that this is OK and correct, when in fact it clearly violates UPC policy. This does not help when I try to explain the true facts about obtaining a UPC to my customer.

Jim Cocke
Crystal Clear Sound
via Internet

TAKING OFFENSE

I found Roger Nichols's most recent column extremely offensive (June '98). In this article, Mr. Nichols seems to have an unfounded hatred for mid-priced studios, especially ones with Neve consoles and 2-inch tape machines. Well Roger, my partners and I have run a studio with a vintage Neve and a Studer tape machine for years now, and, yes, we do charge about half to a third of what larger studios would charge. In fact, in our particular market (approx. 1,000,000 total pop.) we offer the best equipment in the area and still charge less than larger studios in other cities.

But contrary to Roger's article, our studio does have excellent acoustics, tons of great mics, and is maintained in top shape at all times. We even have extra modules for the board and anything that is not working 100 percent is fixed right away. We do not have a French chef, however, we do have a microwave and are not located in a chateau but in an industrial park.

We opened up this studio because we were tired of going to so-called giant stu-



ILLUSTRATION BY MIKE SPERANZA

dios and getting charged 100 much to watch a bank of 48 faders on a 96-input console do nothing — only to find out later that in order to patch in a Neve 1073, there would be a supplemental rental charge. We felt that a studio could be built where bands with small budgets could make albums that sounded just as good, if not better, than the big boys (or girls).

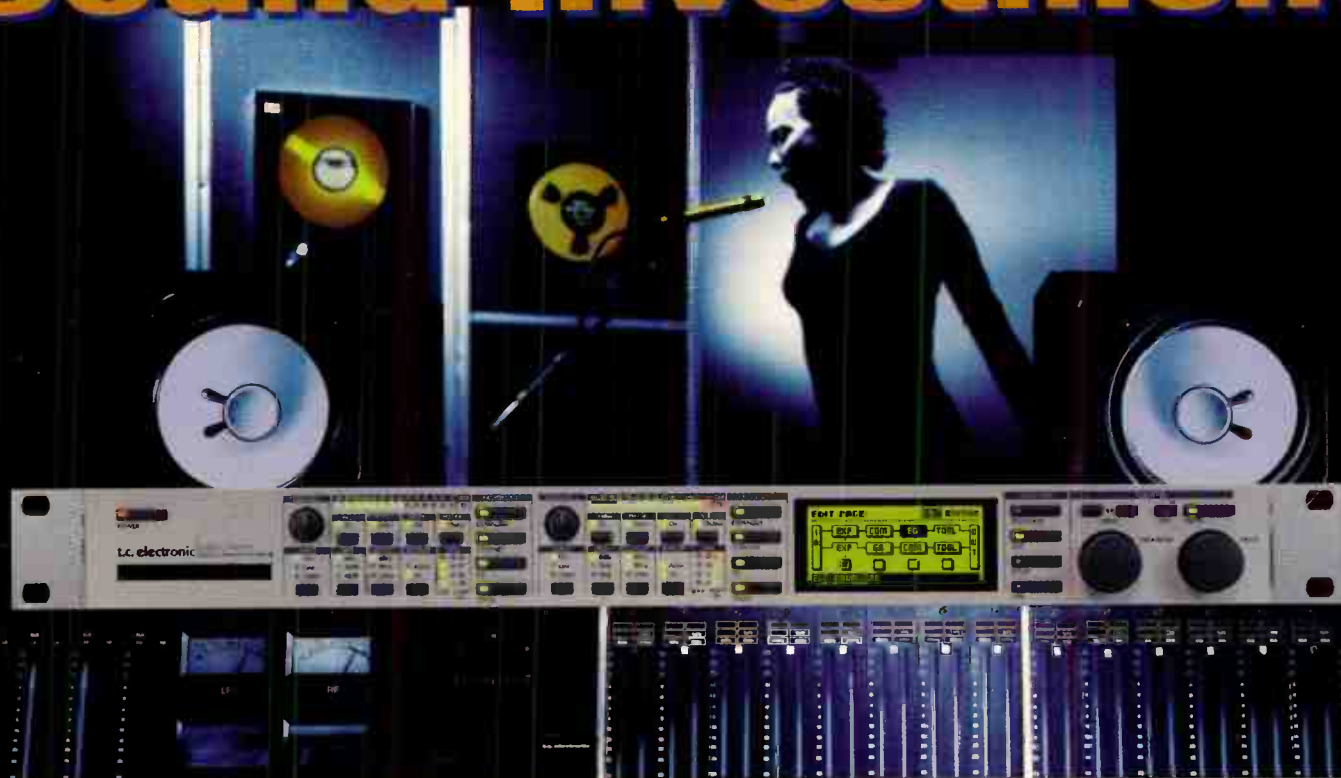
You mentioned wisely that if you are thinking of recording anywhere you should listen to product from the studio. We agree! So why single out studios like ours as potential money pits. Surely every studio should furnish potential clients with demo CDs no matter how large or small. We believe that bands and solo artists should have the option of not wasting their money on expensive chefs and champagne and instead spend the money on a great sounding record. I am sure that we both agree that it is possible to make a fantastic sounding album without spending the GNP of a small country.

Marty Jones
Sound of One Hand Studios
Ottawa, Canada

BUTLER REMEMBERED

As this issue of *EQ* went to press, it was with great sadness that we learned about the death of engineer Bob Butler, 48. An integral part of the country music community, Bob will be best remembered by *EQ* readers as the front-of-house engineer for Brooks & Dunn. *EQ* extends our condolences to Bob's family and friends.

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- ◆ M/S ENCODING/DECODING

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POWER TO THE PEOPLE

Q I plugged my Yamaha SPX90 into my balanced power system in the studio and blew the power supply in the SPX. Are you aware of any such inherent problem with the SPX? Also, where can I get parts? I can't seem to locate the two transistors that were destroyed (D1207 (EGC2363) and C2555 (EGC2308)).

Eddie Ciletti's articles in EQ are great. I hope he never retires.

David & Crystal
via the Internet

A First let's define what [a] "balanced" [power supply] means. I assume you are referring to a device that takes the incoming 120-volt AC line (where only one line of the plug has voltage potential) and converts into a system where both "hot" and "Neutral" have 60 volts of potential. This type of system would not cause any problems with the SPX90. The only hazard would be, should the system fail to provide the proper ground, the possibility of damage to the unit or, at the least, electrical shock.

Assuming your power system is properly wired, the failure of the SPX90's power supply is more likely due to a factor of time, rather than to a problem with the balanced power system. That is, your SPX90 is at least ten years old, and as the components inside cool and heat over the years, their specifications drift. This type of drift is normal and was accounted for when the circuits were originally designed. At some point, however, when these variables get too wide, failures will occur. It sounds as though the SPX90 was powered up this one time and the variables, or drift, had become too severe for the circuits to handle.

Yamaha normally stocks the parts you mentioned, and both parts

are available as of this writing. Please call our toll-free number, 888-926-2424, and you can order them directly from us. Plus, you can get a service manual that will guide you through the whole process.

John Schauer
Product Manager, Pro Audio
Yamaha Corporation of America

[Eddie Ciletti also replies: There should be no reason why a balanced power source upset the power supply of your Yamaha SPX90. (Sometimes these things just happen!) I assume you're working from a schematic? If not, you should be.

Switch mode power supplies are serious biz. You can get a manual and parts directly from Yamaha or from suppliers such as Consolidated Electronics (800-543-3568; www.ceitron.com/) or MCM (800-543-4330). There are cross-reference and supplier links at my Web site: www.tangible-technology.com

Eddie Ciletti
Contributing Editor
EQ magazine
edaudio@interport.net]

LIFE'S A SCREECH

Q My Panasonic SV-4100 DAT machine makes a very loud noise when its door opens or closes. It is very disconcerting to hear this several times a day—we're talking a loud screeeech each time the door opens or closes. For the most part, the unit works well—only on a couple of occasions has it "chomped" a tape. The noise is annoying and gets some real concerned looks from clients when they see their master going into this "Man Eater." I am going on vacation soon and thought this might be a good opportunity to have it looked at. Please advise.

Ray E. Murphy
Ray Murphy Creative
Austin, TX

A Hmmm, a screeeech, you say? The "screeching" has nothing to do with the "munching" unless it's a really bad batch of tape going across the heads. If a machine eats a tape more than twice, it's time for service.

As for de-squeaking, there's one spot I always lubricate. It is a grey pulley linked to a motor via black belt. It's at the right-rear corner of the loading mechanism. I remove and clean it. I am not recommending that you do so, but with a pinpoint oiler, apply a drop to the tip of the shaft in the center. Oil will migrate to where it needs to be. Wipe off excess with a cotton swab.

There are other spots, too, such as the inner cams of the two large gears on each side. Try putting lithium grease (Lubriplate, available from Radio Shack) in the cam. There are other more elusive spots that require the loading mech to be removed. Worst case, tape a typed list to the lid of the deck. When the unit is taken in for service, the tech will have a checklist.

Never overlubricate!

Eddie Ciletti
Contributing Editor
EQ magazine



CIRCLE 68 ON FREE INFO CARD

AUGUST 1998

World Radio History

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CIRCLE 75 ON FREE INFO CARD

OLD TIMER

Q Regarding my TASCAM DA-30 Mk I: After fast forwarding, rewinding, or skip play (any high-speed transporting), when starting to play there is a nasty distortion similar to the sound of a ring modulator. I use a head cleaning tape, but I'm thinking that the tape isn't aligning correctly. Is it time for a service visit?

Glenn Grant
via Internet

A Yes! Any DA-30 that has survived this long is due for a visit to the techno-spa. For starters, there is accumulated dirt that can not be removed by a cleaning tape. In addition to dirty heads, there can be unbelievable crud build-up on the capstan, plus oxide will collect in the "rabbet," the ledge that guides the tape around the heads.

Wear-items like brakes and clutches can make reverse-play (always used when locating start IDs) a real challenge. On the electronic side are two status switches that, when worn, report erroneous messages back to "system control."

If you want to get a closer look at what to do, my Web site (www.tangible-technology.com) details many of these issues.

While the original DA-30 rarely goes out of alignment, isn't it about time you delivered it from evil?

Eddie Ciletti
Contributing Editor
EQ magazine

I SYNC, THEREFORE...

Q I was looking on the TASCAM Web page for some info about their digital 8-tracks, but couldn't find what I needed and there didn't seem to be a contact e-mail address. Can you help me with a couple questions? First: is it possible to chain together multiple DA-38's? Next, do you need a sync card to chain together multiple DA-88's?

Mike Benson
Web Development
via Internet

A Any combination of DA-38/-88/-98 will sync together with nothing more required than a sync cable (available from TASCAM). In order to lock to an incoming signal — SMPTE from a video deck or MIDI timecode (MTC) from a sequencer — sync capability is required. Sync is built into the DA-98, optional on the DA-88, and not available

on the DA-38. A sync card is only required for the first machine unless your tapes are destined for a post house, in which case, use only DA-88's and DA-98's. [Don't forget TASCAM's FAXBACK system, which provides detailed information on their product line and its uses: 1-800-827-2268. —HGL]

Hope this helps.

Eddie Ciletti
Manhattan Sound Technicians
NYC, NY

SIX SECONDS OVER PARAMUS

Q I was about six seconds away from needlessly sending one of my DA-88's off to Paramus, NJ (TEAC service center) because of an "S-err 11" that had rendered it dysfunctional. I had called the factory to see if there were remedies I could attempt. "Ship it to us," they said.

I found [Eddie Ciletti's] site through Jens's "Unofficial DA-88 homepage." (Jens is a Swedish musician living in NYC www.panix.com/~jens/da-88/.) After reading the section on "DTRS," which explains how to enter the Test mode, I applied it and was back in business.

So, what would have been a time-consuming, expensive, and really frustrating experience, has been circumvented via the aid of an upfront, knowledgeable audio guy to whom I owe a big favor.

Tom
via Internet

A Translating error messages isn't always easy, but the machine takes "control" to avoid damage to your tape. Entering Test mode keeps the mechanism from initializing so that no error messages will be generated and, therefore, the transport is not "frozen" or restricted from activity. Pressing Eject is then possible, assuming there are no "real" transport problems.

From time to time I do see tapes whose clear plastic flanges break off from the hub. This causes the tape to jam; the machine halts and displays an error message. Unless you know for sure that it was the tape that caused the problem, keep an eye out for future problems. I'd be curious to know the serial number of your machine....

Eddie Ciletti
Contributing Editor
EQ magazine
edaudio@interport.net

Sweetwater will pay you TOP DOLLAR to trade in your old recorder towards a brand new 20-bit Alesis ADAT Type II Multitrack!

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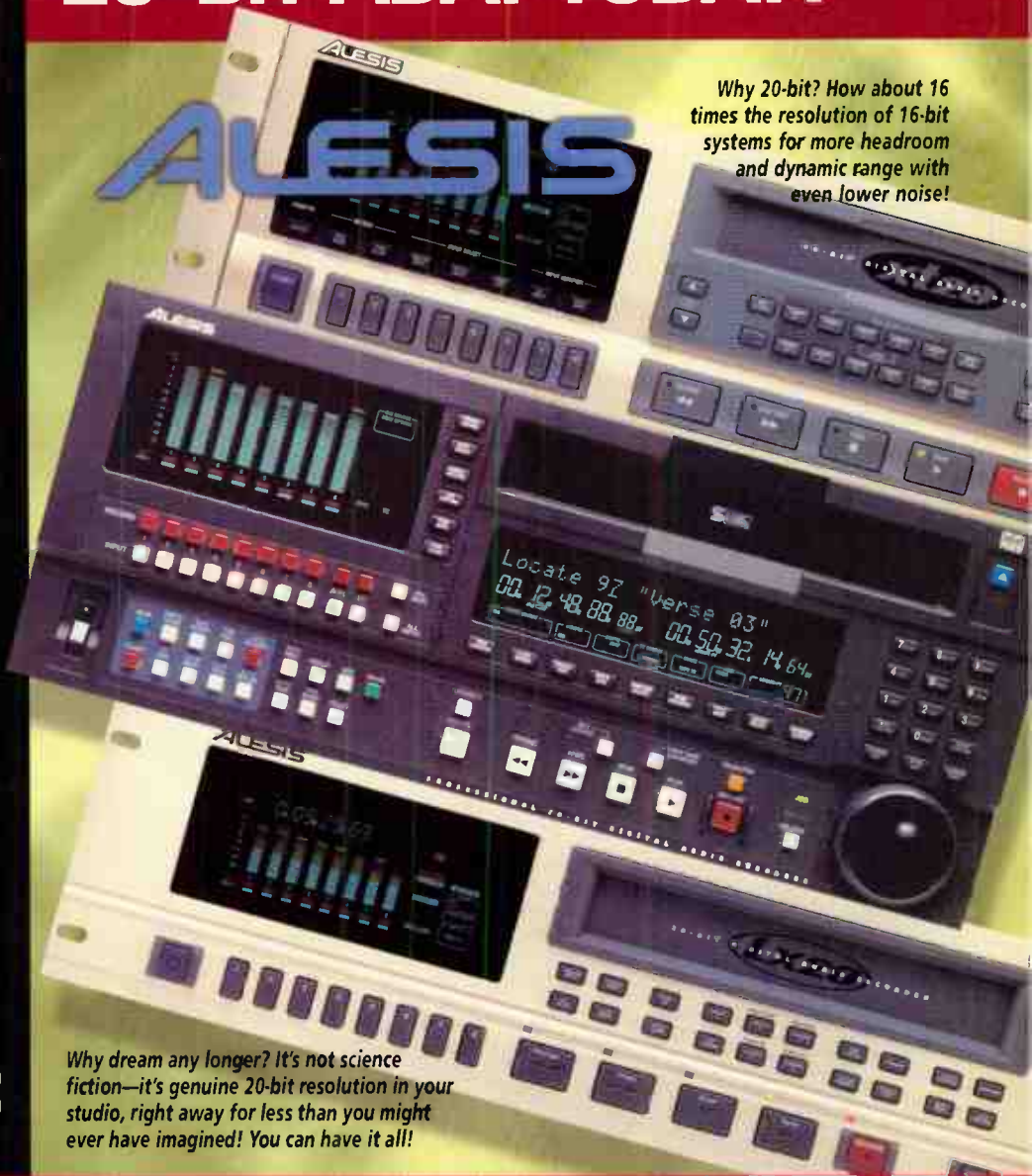
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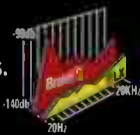
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CIRCLE 57 ON FREE INFO CARD

EQ PRODUCT VIEWS

LISTEN UP

The Quested F11 monitor is a compact, fully magnetically shielded, 2-way design with a 165 mm (6.5-inch) bass driver and a 28 mm (1 1/8-inch) softdome HF unit. The electronics are housed in a pod at the rear of the cabinet and can deliver 110 watts RMS and 40 watts RMS into the bass and HF units, respectively. The cabinet is a molded construction, utilizing a new mineral loaded acrylic material that is extremely dense and hard-wearing and offers good acoustic properties. The speaker has built-in mountings to allow fixing to wall or ceiling, and is designed for installations, surround sound, and as monitors covering nearfield, broadcast, workstations, mobile vans, and project studios. For more information, contact Quested Monitoring Systems, Unit 2A, West Easling Business Centre, Alexandria Road, London W13 0NJ. Tel: +44-0-181-566 2488. Circle EQ free lit. #106.



TWO FROM DOD

The DOD SR823 and SR834 stereo/mono crossovers have undergone recent improvements. Active 24 dB/octave Butterworth crossover filters in a state-variable configuration assure a flat frequency response

when the outputs are summed acoustically, and have the benefit of coherent phase response of adjacent outputs. Over-excursion of low-frequency drivers in vented box enclosures is prevented by 15 Hz high-pass fourth-order Butterworth filters, which may be bypassed by internal DIP shunts if desired. Also, DOD has opted to switch to +1 percent components in the critical filter areas for extremely precise performance. The two units provide exacting frequency dividing for multi-amped speaker applications. Both models offer individual controls for two bands in stereo mode and three bands in mono mode, with a selectable low-frequency summed output available for a mono subwoofer connection in stereo applications. All inputs are RFI filtered and outputs are electronically servo-balanced. For more information, contact DOD, 8760 S. Sandy Parkway, Sandy, UT 84070. Tel: 801-566-8800. Web: www.dod.com. Circle EQ free lit. #107.

GREEN FLAMINGO

Crane Song's new Flamingo is a 2-channel discrete Class A microphone preamp. It offers switch-selectable "vintage" and "iron" sounds. Gain is adjustable in 6 dB increments up to a maximum 66 dB, with fine-tuning via a trim pot. A large 2-channel, 22 element LED VU meter is readable from across the room. Flamingo is 1 rack space tall with balanced analog inputs and outputs. Suggested list price is \$2025. For further information Crane Song, 2117 East Fifth St., Superior, WI 54880. Tel: 715-398-3627. Web: www.cranesong.com. Circle EQ free lit. #108.



READY, AIM, LISTEN

Sound Alignment-System's Checkpoint Laser Tools is a unique kit to help accomplish the full performance promise manufacturers designed for their speakers. This sonic potential is achieved through a proprietary laser tool that enables exact directional placement of any monitor, satellite, or home theater sound system relative to the exact seating or listening station with consistency and accuracy. The consumer version of the SA-S system (\$149.95) features a specialized alignment laser tool, accessories, procedures, and documentation to let the user align and directionalize sound systems with pinpoint laser accuracy. The tool allows the user to quickly move from speaker to speaker, locking in the directional sound to an exact listening



location. For more information, contact Sound Alignment-Systems, 4025 Spencer St., Suite 304, Torrance, CA 90503. Tel: 310-793-5500. Fax: 310-793-5504. Web: www.checkpoint3d.com. Circle EQ free lit. #109.



FOR THE SOUNDS THAT SURROUND

Klipsch Professional's new line of in-wall and in-ceiling speaker systems offer full-range, high-fidelity performance and are available in a variety of sizes and power ratings. The in-wall systems are comprised of three two-way models; the IW-50 features a 5 1/4-inch woofer, the IW-150 features a 6 1/2-inch woofer with tweeter level controls, and the IW-250 features two 6 1/2-inch woofers with tweeter level controls. Hardware and grilles are weather-proofed and paintable. The in-ceiling systems are also comprised of three two-way models, with neodymium tweeters that can be swiveled and aimed; the IC-525 features a 5 1/4-inch woofer, the IC-650 features a 6 1/2-inch woofer, and the IC-800 features an 8-inch woofer. Hardware and grilles are also weather-proofed and paintable. For more details, contact Klipsch, L.L.C., 8900 Keystone Crossing, Suite 1220, Indianapolis, IN USA 46240. Tel: 317-574-3866. Web: www.klipsch.com. Circle EQ free lit. #110.

ACTION, CENTER STAGE

Designed for surround sound, the new Genelec 1038AC is an active three-way, 640-watt triamplified center-channel speaker designed to be used horizontally and can be mounted on top of a projection TV or placed under or above the projection screen. The 1038AC incorporates Genelec's proprietary Directivity Control Waveguide (DCW) technology. The 1038AC uses dual 10-inch woofers and the DCW incorporates a proprietary Genelec 5-inch mid and 1-inch metal dome tweeter to handle the mid and high frequencies. For more information, contact Genelec Inc., 7 Tech Circle, Natick, MA 01760. Tel: 508-652-0900. Web: www.genelec.com. Circle EQ free lit. #111.



THE FALCON IS LANDING

General Music's new Falcon digital mixing console integrates a new 40-bit internal dynamics processor with a user-friendly real-time control interface. This console has the look and feel of a traditional analog mixer by providing knobs and faders in abundance — making the Falcon's operation fast. The mixer provides 20-bit A/D and D/A converters, 3-band full parametric EQ, up to 12 different processors, 128 snapshots for instant recall, a motorized data-entry controller, ten analog/two digital inputs and six analog/two digital outputs. An optional ADAT optical board is available. For additional information, contact GeneralMusic, 1164 Tower Lane, Bensenville, IL 60106. Tel: 630-766-8230 or 800-323-0280. Web: www.generalmusic.com. Circle EQ free lit. #112.



EQ PRODUCT VIEWS

PHONE BOX

The Q-Mix HM-6 headphone matrix amp/mixer lets six musicians create their own individual headphone mixes from up to five sources — plus effects. Plug your main stereo mix into Q-Mix and drive six high-output headphone amps. You can route four more mono inputs to the Q-Mix. For example, four mixer subgroups such as drums, background vocals, or keyboards. Or an assortment of aux sends, individual channels, or a click/scratch track. Suggested retail is \$349. For more details, contact Oz Audio, 1102 Bonneville, Unit B-2, Snohomish, WA 98290. Tel: 360 568-3636. Circle EQ free lit. #113.



RED SQUARE FARE

Sovtek is proud to announce the release of their new 6L6WXT+ vacuum tube. Modeled after the vintage RCA 6L6GC "blackplate," the Sovtek 6L6WXT+ features larger plate dimensions and improved grid structure for increased power handling capabilities. The 6L6WXT+ also features mica spacers with metal springs to eliminate tube rattle and microphonics. The Sovtek 6L6WXT+ yields a 20 percent higher output than the Sovtek 5881WXT and offers superior tone and overall performance to any 6L6 or KT66. For more information, contact New

Sensor Corporation, Sovtek/Electro-Harmon, 20 Cooper Square, New York, NY 10003. Tel: 212-529-0466 or (800) 633-5477. E-mail: info@newsensor.com. Web: www.newsensor.com. Circle EQ free lit. #114.

MIXING MATURITY

AMEK's Digital Mixing System (DMS) digital console is centered around a 32-bit floating-point DSP core, highly flexible chassis design, and fully modular I/O system. Within any given application, the console can be reconfigured to match specific requirements; adding more busses or auxes, for example. The DMS offers the same degree of integrated control as AMEK's Soho board, with STARGate protocol and Virtual FX, dynamic and snapshot SuperTrue automation, and UVS



matrices. The AMEK chassis enables extensive workstation integration, allowing third-party DAW controllers such as Akai DDI500, AudioFile, and DAR SoundStations to be housed within the console. For more details, contact AMEK at 818-973-1618 (Los Angeles) or 615-360-0488 (Nashville). Web: www.amek.com. Circle EQ free lit. #115.



5.1 IN HAND

Studio Technologies has addressed the need for monitoring "surround sound" sources with the StudioComm for Surround Model 68 Central Controller and Model 69 Control Console. Multichannel monitoring features such as source selection, level control, and dim are in an easy-to-use, cost-effective system. The Model 68/Model 69 combination is expressly designed to support 6-channel (5.1) monitoring, with the channels designated as left, center, right, left surround, right surround, and subwoofer. A StudioComm for Surround system starts with the Model 69 Control Console, a compact "command center" that is designed to reside at the operator's location. The Model 68 occupies just one rack space but allows connection of two multichannel inputs, two stereo inputs, and a channel monitor output. For more information, contact Studio Technologies, 5520 West Touhy Ave., Skokie, IL 69977. Tel: 847-676-9177. Web: www.studio-tech.com. Circle EQ free lit. #116.

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The LSR28P is an 8" bi-amplified near field monitor, ideal for multichannel mixing in small to medium-size production environments.

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LSR12 Subwoofer (Vertical)



LSR28P



LSR32 (Vertical)
Mid field Reference Monitor



LSR32 (Horizontal)
Mid field Reference Monitor

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EQ PRODUCT VIEWS

ROAD WARRIOR

The Sony MDM-X4MkII multitrack is designed to offer the same flexibility as the original MDM-X4. Some of the new features of the MkII include improved sonic performance with the latest version of ATRAC (4.5); sync to incoming MIDI timecode; and "hot start," which allows instantaneous playback without delay. Those wanting to hear the machine may check out the Groovemasters CD series recorded by John Jorgenson and Davey Johnstone recorded entirely on the MkII on the road. Road Reports can be found on the Web at www.hellocasters.com/rr_jj13.htm. For more information, contact Sony Electronics, 1 Sony Drive, Park Ridge, NJ 07656-8002. Tel: 408-955-5456. Circle EQ free lit. #117.



THE PERFECT PATCH



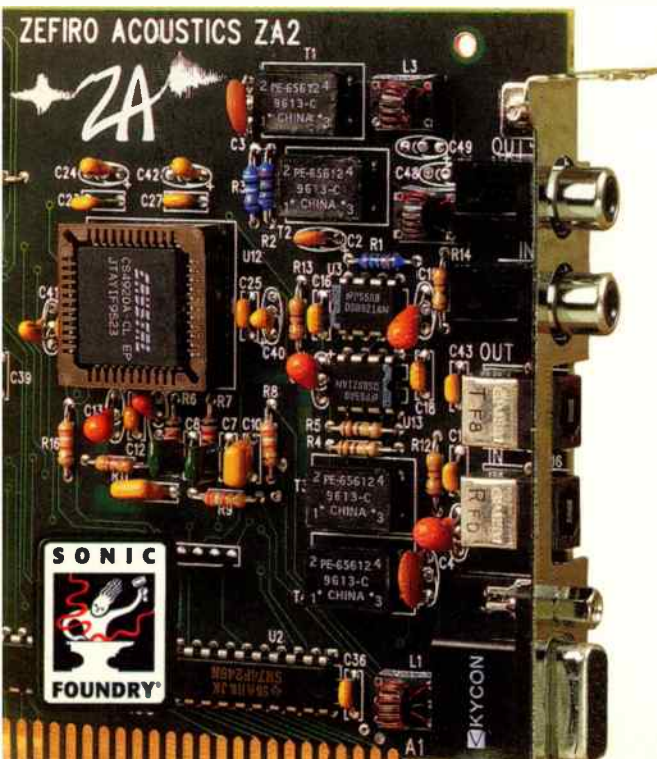
Each unit may be easily customized to allow any vertical patch pair to be half-normaled, non-normaled, or multed. Features include modules to accommodate 1/4-inch TRS phone jacks that may be used with balanced or unbalanced systems; and modular construction and removable front panel that makes customizing easy, even while the unit is rack mounted. For more details, contact Furman Sound, Inc., 1997 South McDowell Blvd., Petaluma, CA 94954. Tel: 707-763-1010. Circle EQ free lit. #118.

The Furman PB-48 and PB-48D are professional patch-bay systems featuring a full 48 patch points. Each is

housed in a sturdy, heavy gauge steel single-rack-space chassis.

No Other Card Can Touch It.

With built-in Sample Rate Conversion and Multi-I/O the **Zefiro Acoustics ZA2** is the Master of CD Mastering.



The ZA2 includes the professional features the other cards leave out. Its powerful 24-bit DSP sample rate converter lets you take inputs directly from a 48kHz pro DAT or a 32kHz LP DAT, and converts them on the fly to perfect 44.1kHz for CD mastering. Its Multi-I/O configuration gives you AES/EBU on real XLR cables and S/PDIF (both optical and coax) inputs and outputs, plus analog outputs for monitoring. You can use all the inputs and outputs simultaneously to do sample rate or format conversion (for example, S/PDIF in and AES/EBU out) or tricks like managing SCMS, or manipulating DAT start ID's or CD PQ codes — and you can switch back and forth between inputs with just a few mouse clicks.

The ZA2 delivers up to 24-bit recording — beyond the range of any commercially available A/D converters. It also works as a Windows sound card, converting all wave audio data (even mono, 8-bit, or 11kHz) to 16-bit stereo. You get drivers for Win95 and NT, plus Sound Forge XP 4.0 editing software and a promotional offer for upgrading to CD Architect.

Basically, the ZA2 packs in more features than we can cover in an ad. Check it out at <http://www.zefiro.com> or call 949.551.5833 and find out how affordable the right card can be.

CIRCLE 71 ON FREE INFO CARD

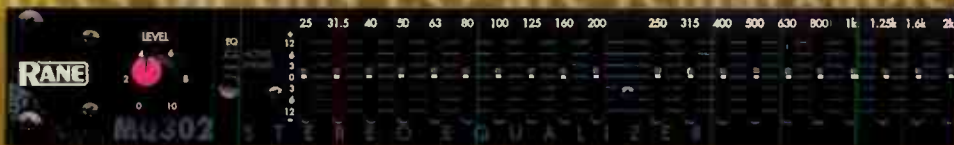


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“NO FRILLS, NO FLUFF, JUST GOOD SOUND.”

- RECORDING
MAGAZINE

The specs on this EQ are remarkable



“The specs on this EQ are remarkable. The distortion is so low and signal to noise ratio is so high that you’d think they had all digital parts in there.”

- RECORDING
MAGAZINE

“It’s sometimes nice to have the compressor (MC22) do the thinking for you – especially when it is as smart as this one.”

- GUITAR PLAYER
MAGAZINE

“I was truly astonished at how hot an input signal I could crank into the MH4...”

- ELECTRONIC
MUSICIAN

“The MX22 & MX23 crossovers offer a winning combination of great sound quality, functional controls and nice perks ...subwoofer out.”

- PRO AUDIO
REVIEW

ENOUGH SAID.

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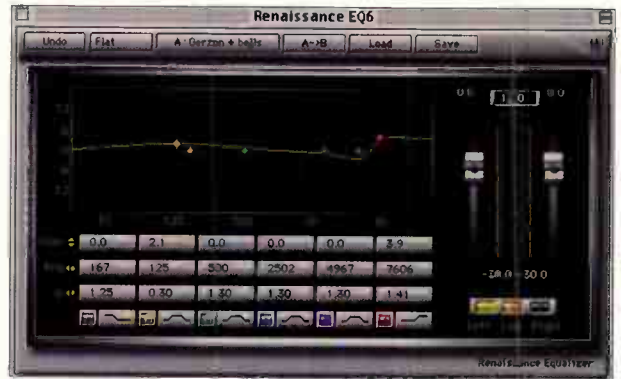


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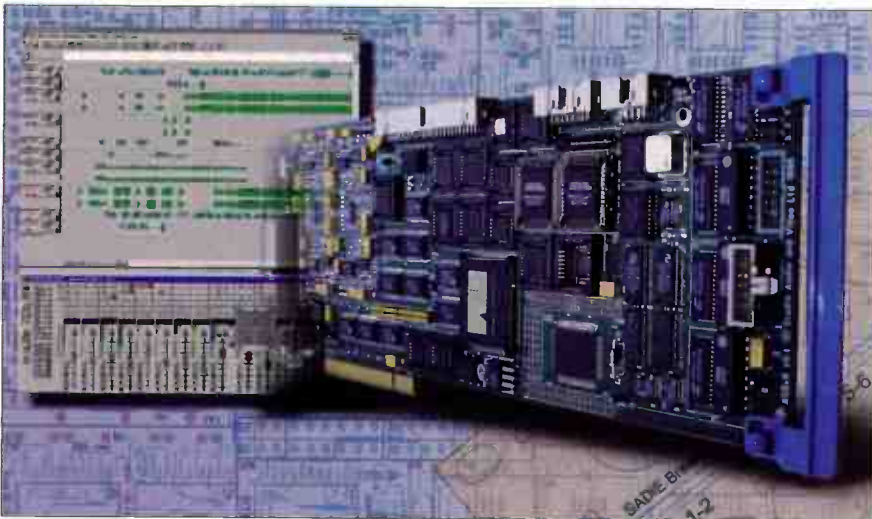
RENAISSANCE FARE

The Renaissance Equalizer, the second of Waves' Renaissance series of DSP plug-ins, is available for Digidesign TDM, MultiRack, and Macintosh native processing environments, including Adobe Premiere and Steinberg VST. The Renaissance Plug-Ins are a series of high-end digital audio processors that re-create the warm sound qualities and simple operation of classic analog hardware in the digital domain. For more detail, contact Waves, 6716 Central Ave. Pike, Suite 8, Knoxville, TN 37912. Tel: 423-689-5395. Web: www.waves.com. Circle EQ free lit. #119.



SWING WITH SADIE

The new SADiE 24 96 DAW multiple I/O workstation is capable of 192 kHz editing and mixing, full surround sound panning, and can be configured to provide up to 32 inputs and outputs. Each SADiE 24 96 PCI card is equipped with 8 inputs and 8 outputs and can replay 24 tracks of edited 16 bit audio. Twenty-bit A/D-D/A converters are included with the system as well as AES/EBU digital I/O on every channel. Support for 24-bit 96 kHz and 192 kHz audio is standard, making every SADiE 24 96 system DVD-ready. The 8 channels of I/O make the card good for surround sound editing and mixing, which is supplied as standard in the SADiE software. All internal audio processing utilizes 32-bit floating-point accuracy. Included in every 24 96 system is the CAT card, providing a timecode reader/generator and four channels of RS422 interface. The optional Breakout Box 800B adds balanced XLR analog inputs and outputs at standard operating levels. Price is \$9995, including the computer. For more information, contact SADiE, Inc., 1808 West End Avenue, Suite 1119, Nashville, TN 37203. Tel: 615-327-1140. Circle EQ free lit. #120.

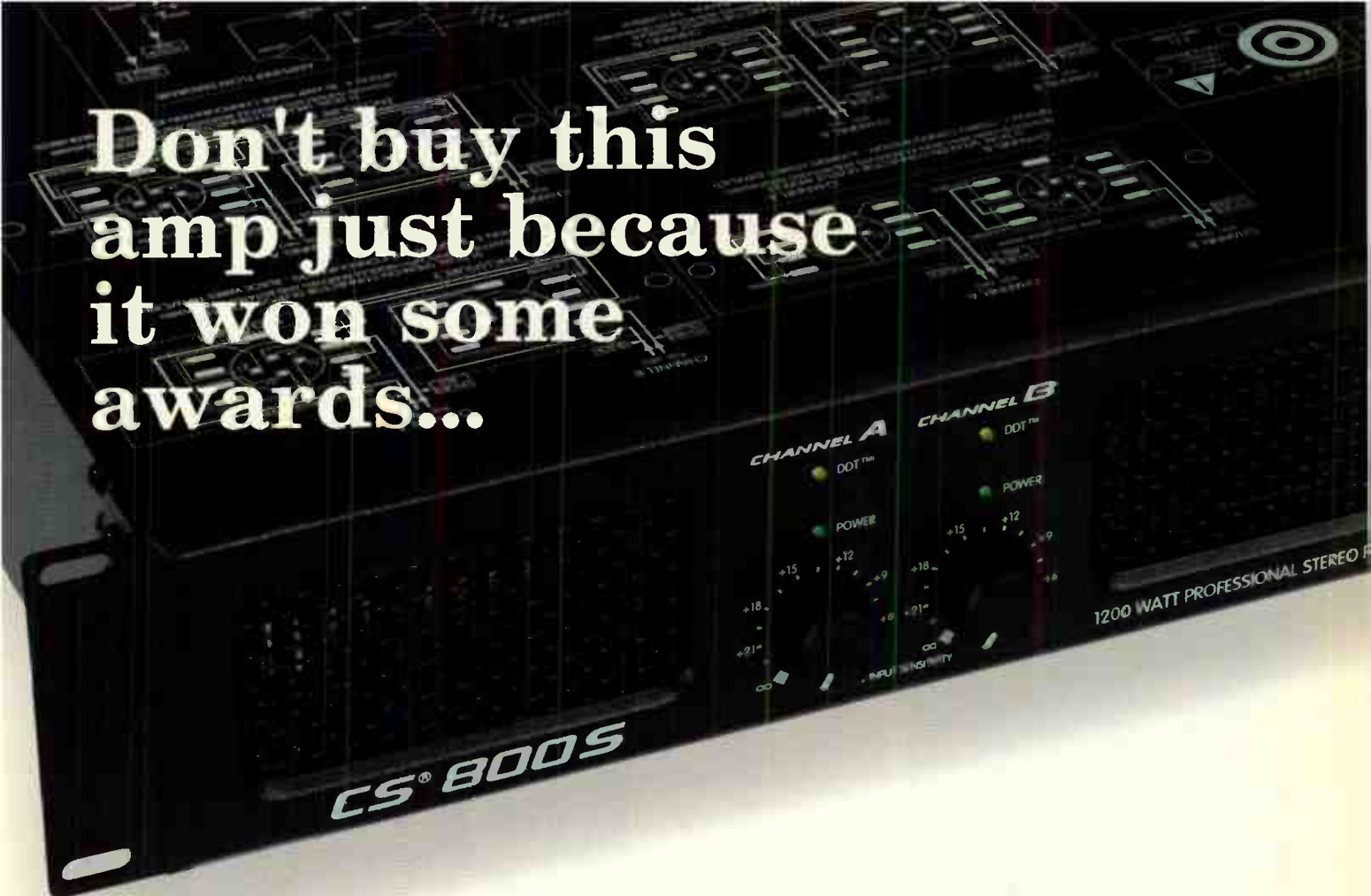


NATIVE PROGRAM

TC Native Reverb for Mac OS, a VST-compatible version of TC Electronic's Reverb plug-in, provides reverb for users of native recording environments supporting Steinberg's widely accepted Cubase VST plug-in format, such as Emagic's Logic Audio or BIAS Peak. TC Native Reverb's intuitive user interface recreates a familiar hardware look. Parameters like Color, Diffuse, and Shape integrate all aspects of reverb tail sound design into a highly graphical interface. The package includes two plug-ins, a mono-to-stereo version for send/return configurations, and a stereo-to-stereo version for use in the master of Cubase VST. A free demo is available for download at www.tcworks.de. Retail price is \$549. For more details, contact TC Electronic, 790-H Westlake Village, CA 91361. Tel: 805-373-1828. Web: www.tcelectronic.com. Circle EQ free lit. #121.



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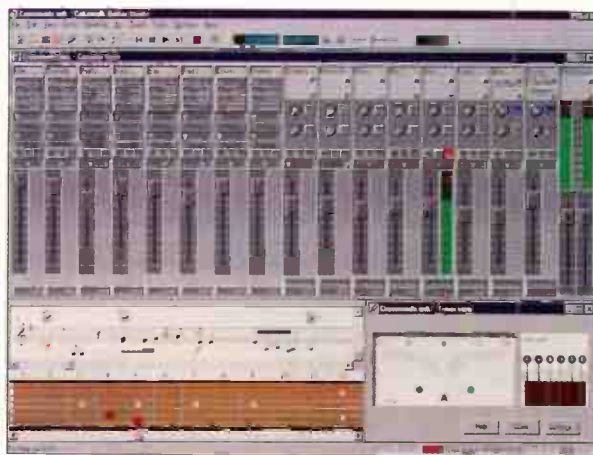
EQ STUDIO WARE

DIGITAL COOL

CEDAR's new D/EQ is a dynamics processing and equalization package that can mix and match, simultaneously, up to 120 real-time stereo reference quality IIR equalizers and dynamics processors across 16 channels of audio. The D/EQ's EQs offer a frequency accuracy of better than 0.1Hz, and the parametric nodes offer a superb Q of 100 at 50Hz. The shelving filters are maximally flat and offer roll-offs of up to 100 dB/octave. It runs on CEDAR's 40-bit ProDSP boards, up to eight of which can be installed simultaneously. For more details, contact CEDAR Audio USA, 43 Deerfield Road, Portland, ME 04101-1805. Tel: 207-828-0024. Circle EQ free lit. #122.

HAVE YOUR CAKE...

Cakewalk's new Guitar Studio provides an intuitive set of tools for recording, editing, mixing, and notating guitar-based music on a PC. It provides a software interface and tools specifically designed for recording, mixing, and arranging guitar tracks. Guitar Studio provides an on-screen multitrack



recording and mixing console that works like a hardware-based, multitrack recorder. From this console view, users can record as many as eight tracks of audio and 256 tracks of MIDI; add real-time effects processing like chorus, reverb, and delay; and perform final mixdowns. Plus, users can modify MIDI tracks in real-time. Estimated price for Guitar Studio will be \$199, available in the Fall of 1998. For more information on Cakewalk Guitar Studio, call 888-CAKEWALK or visit Cakewalk on the World Wide Web (www.cakewalk.com). Circle EQ free lit. #123.

DIGITAL WARMTH

Steinberg's new Q-Metric is the first multiband digital equalizer that emulates the characteristics of the best sounding analog equalizers currently available.

A new approach creates the highest level of sound shaping by doubling the internal sampling rate. The special filter design prevents distortion that can occur in transferring curves at higher frequencies. Q-metric offers a total of seven bands, comprising three full parametric midbands with adjustable Q-factor, variable high/low shelving with switchable slope, and flexible high/low-pass filters. The different bands can be activated separately and real resulting frequency response displayed for an overview while fine-tuning the filter shape. MSRP is \$499.



For more information, contact Steinberg North America, Chatsworth, CA 91311. Tel: 818-993-4091. Web: www.steinbergna.com. Circle EQ free lit. #124.



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of all mixer settings, optional 8 channel digital multitrack I/O and the pristine sonic performance of the Yamaha 02R. You even have the ability to link two 01v mixers for true 48 track mixdown. All for just \$1,999. With the new Yamaha 01v you don't have to have big bucks to make the big bucks.

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World Radio History

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No, We Didn't Forget A Zero.

Introducing the **TASCAM TM-D1000 Versatile Digital Mixer**. It's fully loaded, has incredible specs and will arrive at your dealer this summer. At this price, you've gotta go all-digital!

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The "One" for Surround

David Frangioni
and Audio One
have their clients
surrounded in beautiful
South Florida

STUDIO NAME: Audio One

LOCATION: Boca Raton, FL

MAIN PEOPLE: David Frangioni and Jennifer Frangioni, studio owners; Robert Pride, chief engineer

PROJECTS RECORDED: Recent projects include the remix of Billie Myers's *Growing Pains* album into DTS 5.1 surround sound; Kevin Elson mixed the latest *Age of Impact* album with Billy Sheehan, Terry Bozzio, and Dream Theater; mastering of *Orleans Live* and *Shoeless Joe* in DTS surround.

CREDITS: David Frangioni has worked as a studio consultant and/or engineer for Aerosmith, Bryan Adams, Elton John, The Rolling Stones, Tommy Shaw, Olivia Newton-John, Garbage, Chick Corea, Paula Abdul, Nile Rodgers, and many more.

CONSOLE: Yamaha 02R with meter bridge [2] and a ProMix 01V all loaded with AES and ADAT cards.

RECORDERS: 20-Bit Alesis ADAT machines [6] and TASCAM DA38 machines [2]

KEYBOARDS: Kurzweil K2000VX; Ensoniq VFXsd; Dynacord ADD-ONE and ADD-Drive; Simmons SDSV with MARC MIDI mod; Yamaha TG77, TX802, TG500, and TX816; Roland MKS-20, JV-1080, D-550, JD-990, and R8M; Korg M1Rex; Alesis DM5

SAMPLERS: Akai S3200XL (fully loaded); E-mu E4X with 128 MB of RAM, 2 GB HD, fully loaded

MONITORS: Genelec 1031A speakers with subwoofer [5]; pair of Yamaha NS10M with Hafler P3000 amp

COMPUTERS AND SOFTWARE: Apple PowerMac 9600/350 with 384 MB RAM, 4 GB HD [2], CD-ROM, Iomega Zip and Jaz, CD-R, and 4mm backup; SCSI accelerator; Digidesign Pro Tools|24 with 888/24, DSP Farm cards [3], and all available Plug-Ins for Pro Tools; MOTU Digital Performer 2.4; Opcode Studio Vision Pro 4.01; Opcode Galaxy 2.5 GMR; Mezzo backup 3.1.5; Interval TransferStation 2.1; Steinberg Time-

Bandit 2.5; Zeep Project Manager for 02/R 2.0; JL Cooper Vdesk for 02/R 1.0

DAT MACHINES: Panasonic SV3500 and SV3700; TASCAM DA30

SYNCHRONIZER: MOTU Digital TimePiece

MASTER CLOCK SOURCE: Aardvark AardSync and SyncDA

OUTBOARD GEAR: Lexicon 480L with dual engine and AES, 300L with LARC,

PCM81, and PCM91; TC Electronic TC M5000 with DSP cards [3] with MD2; Roland R880 reverb; Korg A1; Eventide DSP4000 fully loaded; Fairchild 666 limiter; GML CH mic pre [2]; ADL1000 tube compressor; Apogee AD8000 with 8-channel D/A, ADAT AMBUS, and AES AMBUS; Prism 2024 digital interface for DA38; Otari UFC-24 format converter



EQUIPMENT NOTES: David Frangioni states: The entire studio was wired by Audio One and me with ProLink Monster Cable and Neutrik connectors. Monster cable makes such a huge difference in the sound that I consider it as important as the other components in the studio. The patchbays are Signal Transport, and we also have all of the digital equipment on its own separate Audio Accessories patchbay system custom designed by me. All digital connections in the room can be routed anywhere in seconds. The Aardvark provides master Word Clock for the entire studio, and

everything slaves to it. It works great and is definitely the "heart" of this all-digital studio. All surround sound monitoring is done through the Millennium 2.4.6 DTS decoder/preamp. This unit sounds fantastic and is an integral tool for mixing in surround sound.

STUDIO TIPS: Frangioni continues: The design of this room was based on mixing in 5.1 digital surround as well as traditional 2-channel. I am working on quite a few projects for Brad Miller and the HDS label, a leader in 20-bit, 5.1 surround. The label specializes in DTS-encoded material.

The DTS format is capable of reproducing a wide dynamic range as well as a transparent soundfield, which means that the studio needs to be able to mix with a very high level of resolution. Not an easy task!

John Arthur did a wonderful acoustic room design that allows product to leave our studio and stay true to what the engineer and producer heard. There have been only two major changes in modern recording history. The first was mono to stereo, the second was analog to digital, and the third will be stereo to 5.1 surround.

EQ



PHOTO BY KEN NELSON

RCA Type 88-A

A '50s throwback
designed to handle
pressure

MICROPHONE NAME: RCA Type 88-A
FROM THE COLLECTION OF: Terry Hughes, Rubber Ball Productions
YEAR OF MANUFACTURE: ca. 1950
TYPE OF MIC: Pressure microphone
POLAR PATTERN: See notes
FREQUENCY RESPONSE: 60 Hz to 10,000 Hz, ± 5 dB
EFFECTIVE OUTPUT LEVEL: -55 dBm for a sound pressure of 10 dynes per square centimeter
OUTPUT IMPEDANCE: 250 ohms standard (may be changed to 30 or 150 ohms)
DIMENSIONS: 2 1/16 (diameter) x 4 5/8 (length) inches
WEIGHT: 3 pounds including cable
MIC NOTES: Small enough to be handheld or stand-mounted, this interesting specimen from RCA was designed for broadcast announcing and remote pickup. Vertically orienting the Type 88-A effectively results in a nondirectional pickup pattern with uniform attenuation of the higher frequencies. Mounting the mic horizontally results in a nondirectional pickup below 2000 Hz and increased high-frequency attenuation as the sound source moves off-axis. Coupled to the diaphragm is an acoustic circuit designed so that diaphragm velocity basically remains the same under constant sound pressure levels from 60 to 10,000 Hz.
USER TIPS: Although the Type 88-A was shipped with its impedance set to 250 ohms, it can be changed to a 30- or 150-ohm impedance by rearranging a set of terminal connections found in the rear case. Removing a screw on the rear cover allows access to a terminal board on which the cable leads are connected. Note that on the original cable, the black lead is electrically positive, the white is negative, and the red is the cable shield.

Technical data courtesy of Clarence Kane, Enak Mic Repair



PHOTO BY EDWARD COLVER

EXPERIENCE THE WARMTH OF AKG'S SOLIDTUBE MICROPHONE.

John Guss and AKG's SOLIDTUBE Microphone Bring The Warmth of Sound to The Studio.

As a leading producer and studio engineer, John Guss appreciates the rich sound, ruggedness, high SPL capability, and extremely low self-noise of AKG's new SOLIDTUBE microphone.

The heart of AKG's SOLIDTUBE is the combination of the capsule and tube. The capsule features the same gold-sputtered mylar material as used in the legendary C12. The ECC 83 (12Ax7) tube is field replaceable and available at most pro studio dealers.

Try out the new AKG SOLIDTUBE and experience the warmth.

"AKG's SOLIDTUBE is the best overall value of any high performance condenser tube microphone that I've ever used."

John Guss



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H A Harman International Company

E-mu Audio *Production Studio*

E-mu's new package is designed to make your PC into a powerful processor

BY ROGER MAYCOCK

Sound cards for music and audio have come a long way in the past year or so, and now E-mu ups the ante even further with the introduction of its new Audio Production Studio. Shipping on or about the time you read this, the Audio Production Studio combines well-designed audio signal input/output flexibility, an expandable sound palette, MIDI interface, and considerable DSP power — all in a package that sports elegant design both in terms of hardware and software.

From a hardware perspective, the system consists of two primary components — the PCI-based audio card, which E-mu calls the E-Card, and a separate audio patchbay known as the E-Drive Audio Access Bay. The E-Card requires one PCI slot while the E-Drive Audio Access Bay occupies an open bay typically used by CD or removable media drives. The two components are interconnected by a series of included cables.

The E-Card provides two TRS (Tip-Ring-Sleeve) balanced analog inputs, two TRS balanced analog outputs, S/PDIF digital I/O terminated in coaxial (RCA) connectors, and a bracket for the MIDI interface ports. The MIDI interface does not require an additional PC slot.

The E-Drive Audio Access Bay provides two 1/4-inch TRS balanced mic/line analog inputs with studio quality preamps and trim control, a second set of S/PDIF digital I/O terminals, and a headphone amp terminated with a 1/4-inch TRS output and an associated level control. This unique access bay makes it easy to input signals from microphones, electronic instruments, CD or tape players, and digital audio sources.

The most obvious benefit of the system's architecture lies in the fact that after making your initial connections to, let's say, your DAT machine, MIDI key-

board controller, and your studio monitors, you will rarely have to crawl around behind your computer again. By having both analog and digital inputs and outputs at the front of your computer (not to mention the headphone output), the Audio Production Studio facilitates easy signal access for recording. Patching microphones, guitars, or line level devices into the system takes place out front — making the system well-suited for musicians, multimedia content developers, and others needing an efficient system for digital audio and MIDI-based music.

The Audio Production Studio enables you to expand your sound library beyond the limits of the fixed sound ROMs common on many consumer-grade sound cards. The system uses what E-mu refers to as SoundFont banks, which can be downloaded for sound library expansion. E-mu and other third-party developers offer a huge library — with many sounds available on CD and others via the Internet. As the SoundFont library uses the sample file format, you also have the option of integrating your own sounds. The Audio Production Studio enables you to use your system RAM for SoundFont storage — eliminating the need for dedicated RAM.

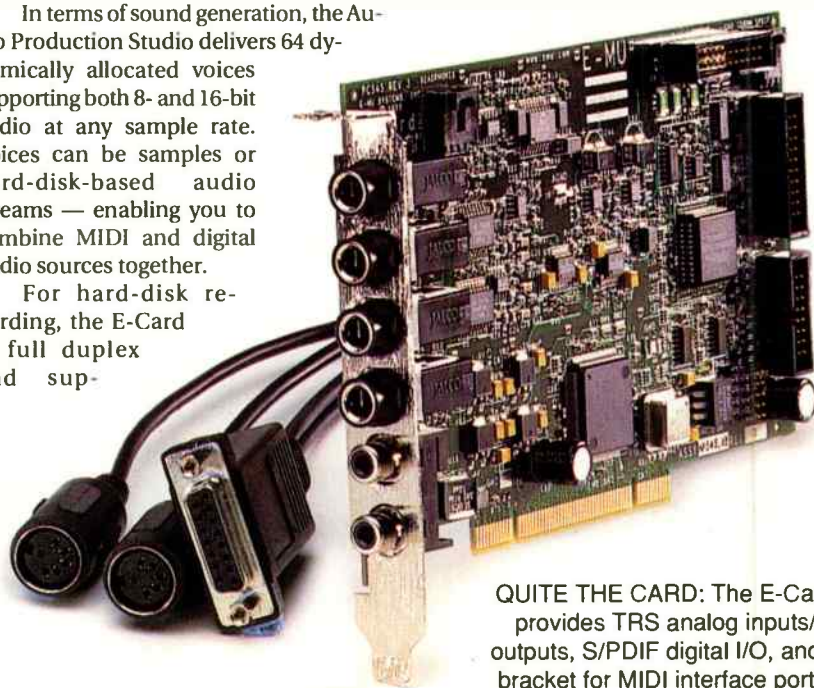
In terms of sound generation, the Audio Production Studio delivers 64 dynamically allocated voices supporting both 8- and 16-bit audio at any sample rate. Voices can be samples or hard-disk-based audio streams — enabling you to combine MIDI and digital audio sources together.

For hard-disk recording, the E-Card is full duplex and sup-

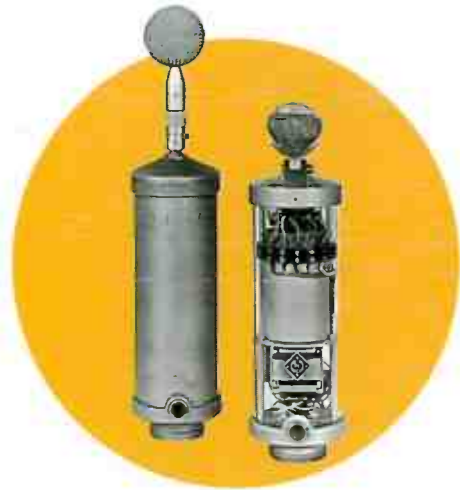
ports simultaneous recording and playback at eight common sample rates ranging from 8 kHz to 48 kHz. The system is fully compatible with all the major digital audio or combined digital audio/MIDI software packages available for Windows 95/98. The default audio file format is WAV — making it easy to have your work compatible with just about everyone.

Included on the E-Card is a proprietary chip that facilitates much of what makes the Audio Production Studio unique. The system includes a dedicated effects engine (DSP) for on-board signal processing. Multiple channel, simultaneously available real-time effects include Reverb, Chorus, Echo/Delay, Flanger, Distortion, Envelope Follower, real-time Pitch Shifter, and Compression, plus multiple shelving and parametric EQs. Bear in mind that all DSP functions are processed by the E-Card and not by your computer. This translates to increased efficiency whereby your computer's resources are free to process screen redraws and other operational aspects that might otherwise be compromised.

The Audio Production Studio also includes a unique software suite for controlling the system's effects, SoundFont library, and the integration of MIDI



QUITE THE CARD: The E-Card provides TRS analog inputs/outputs, S/PDIF digital I/O, and a bracket for MIDI interface ports.



1928: CMV 3 First Condenser Microphone
(The Neumann Bottle)



1949: U 47 Variable Condenser Microphone



1951: M50 Condenser Microphone and M 49
(remote switchable)



1953: KM 53 Miniature Microphone
1954: KM 54



1957: SM 2 Stereo Microphone



1960: U 67 Switchable Condenser Microphone



1964: SM 69 Stereo Microphone



1966: KM 83...85 Miniature Microphones
for Phantom Powering



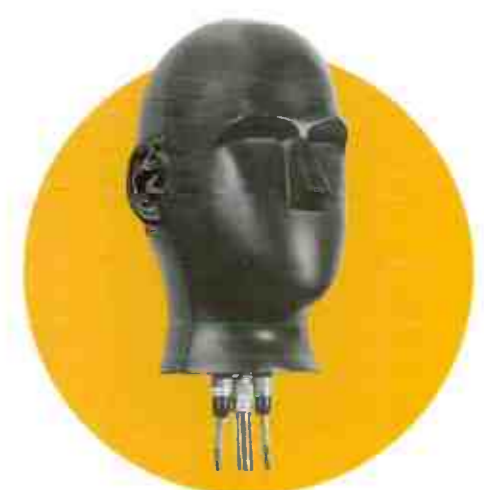
1967: U 87 Variable Studio Microphone



1968: KM 86 Variable Miniature Microphone



1969: U 47 fet Condenser Microphone



1973: KU 80 Dummy Head



1980: U 89 Variable Studio Microphone



1983: TUM 170 Transformerless Variable
Studio Microphone



1993: TUM 193 Studio Microphone



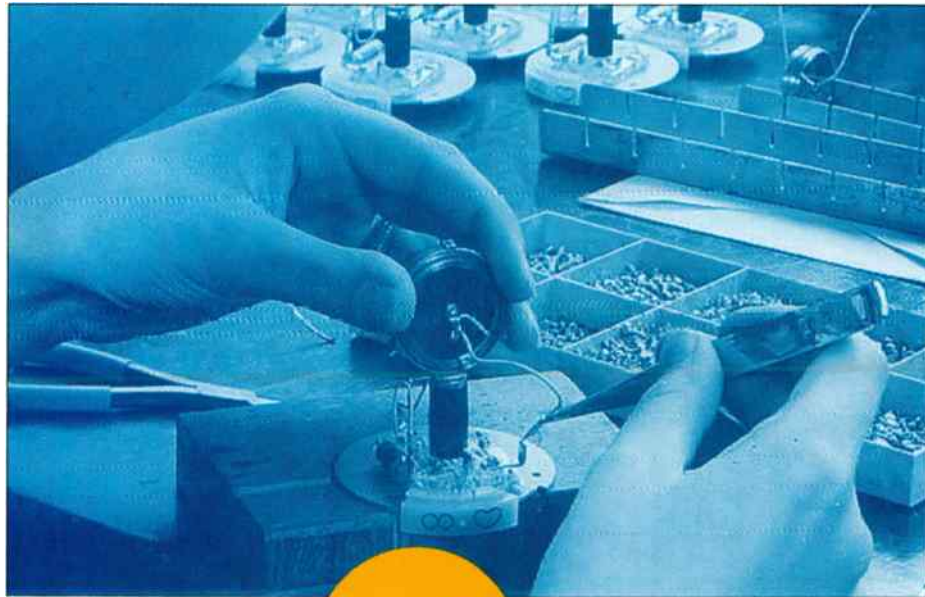
1994: KM 184 Miniature Microphone



1995: M 149 Tube



1997: TUM 103



It was just after World War II that some of the most famous and sought-after microphones ever made were produced by Neumann. The long reign of the ribbon microphone came to an end with the widespread acceptance of the U 47, introduced in 1949. This microphone was the first with variable polar patterns (cardioid and omni) and has remained one of Neumann's most famous creations. The majority of the Beatles vocals were recorded with the U 47 and its close brother, the U 48. The U 47 is still in wide use today and commands many times its original price on the vintage market.

Other microphones fetching high prices and high praise from engineers include the M 49 and its omni relative, the M 50, both introduced in the early 1950s. The M 49 was designed by an engineer in German Radio as a remote controllable variable pattern microphone. Like the U 47, the M 49 used the M 7 capsule but unlike it, the circuit contained the AC701k tube (the U 47 used a metal tube, the VF 14). This miniature triode tube was also used in the KM 50 and KM 60 series mics and became the standard in all circuits for microphones specified by German Radio.

The M 50 was developed with a unique capsule employing a pressure transducer mounted in a small plastic sphere. Practically all "Decca Tree" orchestra recordings from the 1950s to the present rely on the M 50 for its unique polar and frequency response. While consoles have gone from three channels to 128 and tape machines have gone from monaural to 48 tracks, the venerable M 50 can still be found hanging above string sections in film scoring and classical sessions today.

Neumann's small-diaphragm microphones have earned their keep in innumerable studios for their clear sound, excellent off-axis characteristics and value. The KM 54,

introduced as a small microphone for television/ broadcast use in the mid-1950s, remains in service today as a premier mic for acoustic instruments, especially steel-string guitar. The KM 84, introduced in 1966 as the first phantom-powered condenser mic, was an enormously popular mic right up through its discontinuation in 1988 and is already considered a "classic."

Today, scarcely a studio would consider itself serious without at least one Neumann mic on hand — usually the U 87, introduced as a successor to the U 67 (which employed a tube) in 1967. After 30 years, the U 87 still remains the cornerstone of the pro studio.

The current product line, including such microphones as the M 149 Tube and TLM 103, pays homage to the company's rich history while pushing the limits of what is possible in microphone design. The M 149 Tube, with its nine polar patterns, extremely low noise and transformerless electronics, was instantly accepted as a new benchmark in high-end tube microphones after its introduction in the fall of 1995. The TLM 103 was released to a higher level of demand than any

Neumann product in history. The growing project and home studio markets have fueled the need for a truly high quality microphone at a reasonable price. Rising to the occasion, Neumann engineers created one of the most outstanding performing and sounding microphones available anywhere, regardless of price. Another "instant classic" from the Neumann team in Berlin.

70 years of Neumann

mics

It all began in 1928, when Georg Neumann split with Eugen Reisz, with whom he had collaborated to design the historic Reisz Microphone, and founded his own firm, Georg Neumann & Co. That year saw the company's release of the first commercial condenser microphone, the CMV 3. With its omni capsule (and later with directional capsules) and distinctive tube amplifier, this ground-breaking mic is known as the "Neumann Bottle" and is still sought after today for its sound.

Shown above is hand assembly work on a U 48 microphone during the 1950s. Following World War II, the condenser microphone became the tool of choice for music recording, quickly supplanting the long-established ribbon microphone.

Shown above is hand assembly of a U 87 as it is done today at Neumann in Germany. Although many of the materials now used are more advanced than those of the past decades, the techniques for certain production steps have changed little in 70 years.

and digital audio sources. Known as E-Control for APS (Audio Production Studio), this software resides in the Windows system tray and is readily available. While the included software will let you sequence MIDI tracks and record digital audio, most advanced users will elect to use one of the many available software packages from a variety of well-known third-party vendors. For the most part, these software tools function as the go-between interface — tying the sound management and combinations of hardware and software together.

Of particular note, the user interface for the included software is not only friendly, it also looks way cool. All screens have a three-dimensional brushed aluminum look with teal, red, and amber highlights for the various software parameters. Making adjustments to pan positions, reverb levels, and so forth is a pleasure. For example, when working with the Reverb control panel, clicking the on-screen pot for level control calls up a horizontal slider that moves in addition to the rotary pot as you affect changes. The on-screen knobs and faders not only look great, they work very smoothly and yield changes as expected.

There are several elements that constitute the E-Control software suite. For auditioning, loading, saving, and other aspects of managing the SoundFont library, there's the SoundFont Bank Manager. This control panel incorporates an on-screen keyboard for auditioning sounds in the event that no suitable controller is currently connected. You can affect values for the modulation and pitch bend wheels as well as volume and pan. This is also the screen where you work with individual presets.

The Mixer Control panel has provisions for managing all input and output routing in the Audio Production Studio. This is the screen where signals from the analog and digital inputs, in addition to hard disk audio and MIDI-controlled elements, all come together. Each channel strip has a stackable insert, two effects sends, volume, pan, mute, and solo controls to enable you to control everything from simple single channel EQ to multi-destination routing of effects signals. Channels can be linked for stereo parts — enabling, for example, changes in EQ settings to affect both right and left sides of the sound.

The Audio Production Studio's MIDI capabilities are equally impressive. Internally, the system supports 32 MIDI

channels for use with sounds from the SoundFont library. Externally, there's support for an additional 16 MIDI channels — enabling you to integrate your favorite synths and samplers. With a total of 48 MIDI channels, the system provides substantial creative opportunity.

E-mu's Audio Production Studio is an impressive package that unites MIDI, external analog audio signals, and external digital audio signals, plus digital audio from the computer's hard drive into a unified sum. The front-panel ac-

cess bay makes great sense for accessing signals that pass through the system and the card itself is an engineering achievement both in terms of its DSP functions and the fact that analog and digital signal paths are completely isolated from one another.

MSRP is \$699. For more details, contact E-mu Systems, PO Box 660015, Scotts Valley, CA 95067. Tel: 408-438-1921. Web: www.emu.com. Circle EQ free lit. #125.

M-1

MICROPHONE PREAMPLIFIER

(ACTUAL SIZE)

Gloria Estefan, Dolly Parton, Neil Young, Lou Reed, Laurie Anderson, Bob Dylan, Madonna, Eric Clapton, George Harrison, Paul McCartney, Paul Simon, Joe Henderson, James Carter, Ernie Watts, Bill Hollman, Saturday Night Live, The Muppets and many others have done great work with the M-1. The M-1 is clearly superior, *satisfaction guaranteed*. Here's why:

The Jensen JT-16-B Input Transformer. The world's best mic-input transformer. If you thought transformers were a compromise, you haven't heard the JT-16-B!

The 990 Discrete Op-Amp. The 990 discrete op-amp is superior to the monolithic op-amps found in other equipment.

No Coupling Capacitors in the Signal Path. DC servo circuitry and input bias current compensation circuitry eliminate all coupling capacitors and the degradation they cause.

Standard features: LED-illuminated push-buttons; phantom power switch; polarity reverse switch; conductive plastic gain pot and high-gain switch; shielded toroidal power transformer with 6-position voltage selector switch; gold plated XLRs; ground-lift switches.

Options: VU-1 meter (shown); PK-1 meter; Jensen JT-11-BM output transformer;

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AUGUST 1998

World Radio History

beyerdynamic MCD *Digital Mics*

The digital age of microphones has arrived with beyerdynamic's latest product introduction

BY STEVE LA CERRA

Here at *EQ*, we're big on microphones. Dynamics, condensers, ribbons — we love them all! But over the past, say, 50 years, there really hasn't been anything new in microphone design, save for development of the transistor. There have been a lot of improvements and refinements in capsule design and construction materials, diaphragm stability, and manufacturing technology. However, the basic function of a microphone has essentially remained unchanged until now. beyerdynamic's MCD Series of digital microphones introduces that change.

beyerdynamic's goal in developing the MCD Series is to bring the analog audio signal directly into the digital domain at the earliest possible stage of the signal chain — the mic. The company's initial introduction consists of two microphones: the MCD 100 (cardioid) and the MCD 101 (omni-directional). The company will shortly introduce the MCD 800 Series with interchangeable capsules (omni, cardioid, and supercardioid), and a variable-pattern, large diaphragm condenser mic is under development.

The audio chain

in the MCD 100 and MCD 101 microphones starts with a large-diaphragm, gold-foil condenser pickup element with a dynamic range stated to be greater than 100 dB. From the capsule's output, the audio signal is sent to an impedance conversion circuit that also provides analog pre-attenuation for the capsule in the form of a -10 or -20 dB pad. This allows MCD mics to handle SPLs greater than 130 dB without overloading.

After passing through the preamp stage, analog audio from this capsule is sampled at 48 kHz with 24-bit resolution *within the microphone*. A minor modification can be made to convert the sample rate to 44.1 kHz, and beyerdynamic maintains that the mic can be adapted in the future to a 96 kHz sample rate.

Now think about all of those things that a delicate mic signal must battle before actually getting

on tape (or disc or whatever). A feeble mic signal typically runs through 50 to 100 feet of cable on its way to the console, fighting cable impedance and capacitance issues all along the way, not to mention all of the RF and EMI interference circulating in our busy airwaves. MCD microphones convert the signal into a bit stream about as close as physically possible to the capsule, which means that the output of the microphone may be maintained accurately for the entire length of the signal chain.

After conversion, the bit stream can optionally be routed to an internal DSP for gain control or filtering functions. The filter algorithm lives on an EPROM within the mic. Since beyerdynamic is capable of programming custom filter

continued on page 138



DAWN OF A NEW AGE?: Never leave the digital domain with beyerdynamic's MCD 100 microphone and MPD 200 Digital Phantom Power (inset).



SKIMP ON EVERYTHING BUT THE MUSIC. Even if your clothes say "I live in a van" your demo can say "gold record." Just be sure to use the tape more gold records are recorded on, so your music has every opportunity to sound its best. Ask for the Quantegy Professional Studio Series.



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CIRCLE 87 ON FREE INFO CARD

HR824 ACTIVE NEAR FIELD

■ UNFLINCHING ACCURACY.

We've claimed it. Reviewers and power users are confirming it: the HR824 is the most accurate 8-inch 2-way near field monitor you can buy. It lets you hear exactly what was recorded — from microphones right through to your mixdown deck. You'll suddenly discern fine nuances of sonic texture, dynamics, equalization and stereo perspective that were sonically invisible before. As one owner put it, "I am correcting a lot of mixes I have made in the past."

Because the HR824 is active, we can precisely match each transducer's actual output. During final assembly, each HR824 is carefully hand-trimmed to ± 1.5 dB, 39 Hz 20kHz. As proof, each monitor comes with its own serialized, guaranteed frequency response printout.

■ EXTREMELY WIDE SWEET SPOT.

Instead of a traditional, narrow "sweet spot" directly between the monitors, you'll discover that the HR824s have a wide, "sweet zone." They maintain a wide, coherent, stereo panorama that lets you move from side to side — and share what you hear with others.

Again, *Mix* magazine...

"[HR824s] also have a wide off-axis listening range, due to the high-frequency dispersion of the waveguide...the mids and highs were tightly focused, and the stereo image well defined."

■ EXTENDED LOW FREQUENCY RESPONSE (sub woofer is built in*).

The HR824 has the lowest frequency response of any 8-inch near-field monitor. It really IS capable of flat, accurate, articulated response below 39 Hz and usable response to 30Hz — low frequency accuracy that simply can't be achieved with passive speakers. Bass notes start and stop instantly, without

*A large honeycomb composite piston mounted on the back of the cabinet couples with the front woofer, acting as a subwoofer.



AC power and input connectors (1/4" & XLR) extend directly from the bottom of the amplifier down, allowing the cabinet to fit flush against any surface.

overhang, distortion or "tubbiness."

Mix further states...

"The HR824s handled the ultra-low bass remarkably well... Mackie asserts that the HR824s are smooth from 39 to 20k Hz (± 1.5 dB), and our tests corroborated the claim. This is no mean feat for monitors this size, and at this price."

■ BRING ON THE HR824s. HOLD THE ICEBERGS.

Simon Franglen and his cohorts worked on the blockbuster hit *Titanic* at Castle Oaks Studio in Calabasas, CA. The studio was equipped with expensive studio monitors (one each for left, center and right) and a matched sub

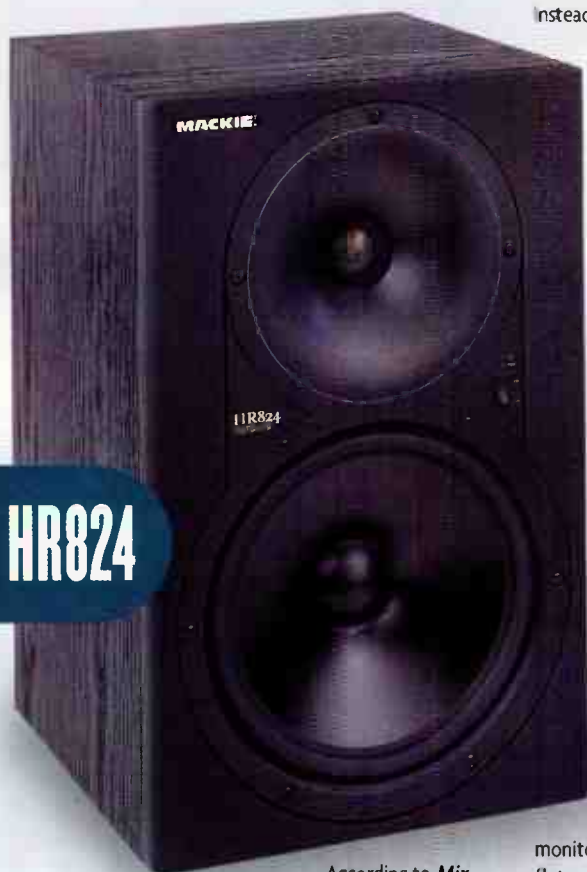
woofer. When Simon received three Mackie HR824s, he immediately did a series of rigorous listening tests against the old monitors. The unanimous decision: replace the studio's previous near field monitors with the HR824s.

"The difference was extremely pronounced," explains Simon. *"Three HR824s gave us better bass response than the larger monitors with a sub woofer. The HR824s were louder, had more dynamic response, and the imaging throughout the room [was incredible]."* Simon says the HR824's sweet spot is much larger, which made listening to things easier, *"when you were off to the side of the room."* *"Apart from very expensive speakers,"* says Simon, *"I've not come across any other speakers that sound as good. They absolutely tell me what I'm putting on tape."*



■ One person who's taken Mackie to heart is British-born synth player/producer SIMON FRANGLEN. You may not know his name, but you most certainly know his work. Simon Franglen's curriculum vitae includes work with Grammy winners Eric Clapton, Madonna, and Celine Dion (including the single from the blockbuster movie *Titanic*), rockers Yes and Crash Test Dummies, and legendary performers such as Michael Jackson and Barbra Streisand. Simon's done work in the movies, too, including *Titanic*, *The Client*, *Dances With Wolves*, *Mission Impossible*, *Seven*, and *Contact*. He's won seven Clio

Awards for his work in television commercials—his clients have included Nike and Lee Jeans. His talents as a session synth player and programmer, as well as producer, are well-known throughout the entertainment world. With such credits, you'd think the guy was using incredibly esoteric, expensive gear. How else could he get such award-winning results? Well, Simon will be the first to say: you don't have to spend wads of money to get tough, quality sound gear. Not with Mackie.



HR824

According to *Mix* magazine's recent field test of the HR824...

"Frequency response was the flattest we have measured so far... there can be no question... they speak the truth."

"The HR824s performed admirably, allowing us to distinguish very fine shades of tonal color and to establish subtle timbral and harmonic relationships between sounds. When the mixes were played on other monitors, including some that cost more than twice as much, they translated very well. The overall imaging was extraordinarily clear and detailed."

MONITOR—WELL WORTH DISCOVERING.

How much is unflinching accuracy worth to you?

As we talk to more and more professional engineers who have converted to Mackie HR824s, one

thing is becoming especially apparent — our near field monitors can uncover nuances that other speakers miss. In fact, one Very Prestigious Major Los Angeles Studio Complex has now installed HR824s in its Quality Control

Department — because our monitors can uncover miniscule audio flaws that were undiscovered during the tracking and mixdown process on “big studio monitors.” When you value the quality of your creative product, HR824s should be in your studio, too.

HUMBERTO GATICA, TRIPLE GRAMMY AWARD- WINNING ENGINEER/ PRODUCER

Being at least nominally humble we thought it would take years for mixing/producing legends like Humberto Gatica to publicly admit — much less proudly proclaim — to prefer our HR824 near field monitors.

We're delighted the esteemed Mr. Gatica proved us wrong. After being turned on to HR824s by Simon

Fraglen, Humberto

now uses them at his private

facility and has

carrying cases for a second

pair so he can get the same accuracy

in studios that haven't yet become

HR824 converts. Talk about a traveling ad!

Humberto's stellar ear for mixing has served him well as a producer: Grammy awards and nominations

for engineering (Chicago, Michael Jackson, Streisand) led the way to

a Grammy for producing Celine Dion's "Falling Into You" and

mixing/producing her 18X platinum album "Let's Talk About Love."

Mix Magazine quotes from Mix Magazine Field Test by Barry Cleveland, April 1998. Reprinted by permission. And this isn't the only glowing review we've gotten. Check out the February 1998 issue of Recording Magazine, beginning on page 30; the April issue of Pro Audio Review, page 16; and the October 1997 issue of Audio Media, page 46.

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CIRCLE 46 ON FREE INFO CARD

World Radio History

Vocals And Emotional Dynamic Range

How to enhance vocals by knowing the lyrics and applying some production tricks

BY CRAIG ANDERTON



Vocals are the emotional focus of most popular music, yet many self-produced demos don't pay enough attention to the crucial importance of the human voice. Part of this comes from the difficulty in being objective enough to produce your own vocals — so in this column, we'll look at some ways to step back and improve your self-production chops. Ready? Set up your mic, push Record, and let's get started.

EMOTIONAL DYNAMIC RANGE

Dynamics isn't just about level variations. It's also about *emotional* variations. No matter how well you know the words to your song, begin by printing out or writing a double-spaced copy of the lyrics. This will become the road map for guiding your delivery through the piece.

Grab a blue pen, a red pen, and analyze the lyrics. Use the blue pen to underline words or phrases that should be emphasized, and red to indicate words

that are crucial to the point of the song. For example, fig. 1 shows notes on some lyrics I recorded a few years back:

The song's "plot" is about two people who stray from each other, but acknowledge their mutual mistakes and decide to start over. So the focus of the song is turning a negative situation into a positive one.

In the first line, "treated you better" gets emphasized because that was the mistake that drove the partner away. In the second line, "never" gets a major emphasis. Although "run to him" is secondary, it still needs a bit of emphasis to carry the line into the 2-bar instrumental figure.

In line 3, stressing "I" and "you" underscores the no-fault nature of the problem (emphasizing "make a mistake" isn't necessary because it's repeated twice anyway).

In line 4, "cancels" is important because it's what the solution is all about, but the strongest phrase that requires the most emphasis is "let's start again," because that's the payoff of everything that's happened so far.

Get the picture? By going through a song line by line, you get a better idea of where/how to make the song tell a story, create a flow from beginning to end, and emphasize the most important elements.

WHAT DO WE MEAN BY EMPHASIZE?

Emphasis is not just about singing louder. Some ways to emphasize a word or phrase are:

Bend Pitch. Words with bent pitch will stand out compared to notes that are sung "straight." For example, in the first line mentioned above, sliding around the pitch on both "treated" and "better" made them stand out even though the levels didn't really change.

Clipped vs. Sustained. Following a clipped series of notes with sustained sounds tends to raise the emotional level. Think of Sam and Dave's song "Soul Man": The verses are pretty clipped, but when they go into "I'm a soul man," they really draw out "soul man." The contrast with the more percussive singing in the verses is dramatic. Even Steve Cropper gets into the act: the little guitar fill after Sam and Dave sing "Soul Man" starts off with three quick notes, followed by a sustained note that bends up.

Throat vs. Lungs. Pushing air from the throat sounds very different compared to drawing air from the lungs. The breathier throat sound is good for setting up a fuller, louder, lung-driven sound. Abba's "Dancing Queen" highlights some of these techniques: the section of the song starting with "Friday night and the lights are low" is breath-

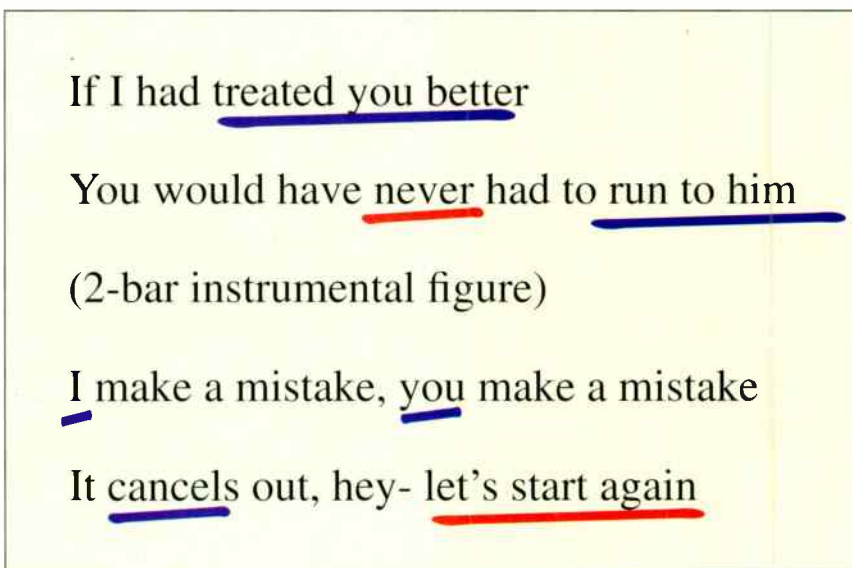



FIGURE 1: Reviewing a song and showing where to add emphasis can help guide a vocal performance.



Roger Sanchez –
world renowned
remixer/producer and
Sony recording artist.

‘I’ve tried
them
all...’



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CIRCLE 24 ON FREE INFO CARD

ier and more clipped. As the song moves toward the "Dancing Queen" and "You can dance" climax, the notes are more sustained and less breathy.

Timbre Changes. Changing your voice's timbre draws attention to it (David Bowie uses this technique a lot). Doubling can also make a vocal stronger, but be careful: the delivery of the two parts has to be *identical* to avoid diluting the emotional impact. Place the doubled vocal back in the mix compared to the main vocal — enough to support, not compete.

Vibrato. Vibrato is often overused as a way to add emphasis. You don't need to add much; think of Miles Davis, who almost never used vibrato, electing instead to use well-placed pitch bending. (Okay, so he wasn't a singer...but he used his trumpet in a very vocal manner.) I prefer to hear vibrato used sparingly, and mostly when it's not going to be followed immediately by another phrase. Generally, vibrato "fades out" just before the note ends, like pulling back the mod wheel on a synthesizer. This adds a sense of closure that completes a phrase.

ADDITIONAL TIPS

Here are some other vocal production tips. The problem with composite vocals. Composite vocals, where you record multiple takes and piece together the best parts, can indeed produce "perfect" vocals. But is perfection more important than flow? This reminds me of a line from *Spice World* (having a three-year-old does broaden your cultural horizons!) where someone working with the Spice Girls says, "That was absolutely perfect, without being actually any good." Very few vocalists are accomplished enough to maintain the same flow through multiple takes of a tune.

To counteract this, after assembling your "perfect" track, listen to it repeatedly — say, 10 or 20 times — until you've learned the composite version. Then try recording the part over again. At best, you'll end up with a performance that flows better than the composite. Or you might end up with a part that's suitable for doubling. While it might not be as "perfect" as the composite, doubling may help obscure some of the cut-and-paste nature of the composite track.

"Better" is not always better. Paradoxically, really good vocalists can find it difficult to hit a wide emotional dynamic range because they have the chops to sing at full steam all the time. This is par-

ticularly true with singers who come from a stage background, where they're used to singing for the back row. Lesser vocalists often make up for a lack of technical skill by craftier performances, and fully exploiting the tools they have. If you have a great voice, fine — but be careful you don't end up like the guitarist who can play a zillion notes a second, but ultimately has nothing to say. Pull back and let your performance "breathe."

Sneaky tricks. If you're ever producing a vocalist, here are three sneaky tricks.

- If you think the vocalist is building up to doing the best take of the night, turn up the levels feeding the headphones by 1 or 2 dB. The extra volume boost will often unconsciously take the singer to the "next level."

- Send a compressed monitor signal to the vocalist's earphones even if the signal going to the multitrack is dry. Because the compression brings up the soft parts and tames the loud parts, this encourages the singer to vary the dynamic range without feeling like the soft parts are weak or the loud parts are "over the top."

- Finally, here's a tip from Michael Stewart (who produced Billy Joel's "Piano Man"). If the singer can play an instrument, have him or her play while doing vocals. Don't record the instrument; you don't even need to plug it in. But playing the instrument gives the performer's conscious mind something to do other than say, "You came in too loud on that note... Was the pitch okay there?... I bet you could do that line better... I wonder if the producer is going to want me to redo the chorus...." You get the idea. The vocal will often end up being more spontaneous and less affected because the conscious mind is being occupied elsewhere.

Remember that vocals are the primary human-to-human connection in most pieces of music. Reflect on every word, because every word is important — and if some words simply don't work, rewrite the song rather than relying on vocal technique or artifice to carry you through.

*Craig Anderton is the author of **Home Recording for Musicians, Multieffects for Musicians, and Do-It-Yourself Projects for Guitarists**. He has just finished doing a summer seminar tour, "Digital Audio Demystified," and is producing a harpsichord/classical guitar project by Michael Kac and Linda Cohen.*



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The Devolution Of Keyboards '98



PHOTO BY JONATHAN POSTAL

Synthesizers have their place in the studio and in live sound, but they are *not* replacements for the real thing

BY AL KOOPER

If you're gonna play blues or R&B, there's really only two keyboards you need: a Hammond B3 and a vintage Wurlitzer or Rhodes piano. For many years I dabbled in synths for live playing. The advantages were helpful: no lugging Hammonds, Leslies, and Wurlitzers around (oh how I envied harmonica players!); loud, blaring fake horns (no one shooting up in the van between shows); and a plethora of other tonal choices for each song. The guitarists in the bands I played in would glower at me, and some — the deep purists — would fire me (I never ever held it against Michael Henderson, however!). One night, about five years ago my own musical director, Jimmy Vivino said to

me: "I hate it when you don't play a B3. It's such a high for me to play guitar with you playing B3 behind me. These synths cheapen your sound and provide flaccid support for the rest of us in the band."

Jeez. I felt so bad, I stopped buying CDs and magazines for a month so I could afford to rent a Hammond on our next gig. And I haven't looked back since.

At first I kept a synth on top of the Hammond, but every time my fingers dallied on it, Vivino would glower at me. Finally, I left it home and replaced it with a Wurlitzer piano one night. The synth never returned. (When I play solo gigs, i.e., just me and no other musicians, a Hammond is inappropriate and a Korg Trinity is perfect.) In my project studio I'd be lost without my synth arsenal. But playing out with my band — synths have become a thing of the past. And I miss 'em sometimes when I want to imitate a horn section behind Jimmy, but he doesn't glower at me onstage anymore and it's worth it.

The Wurlitzer has its own unique sound. It works as a dark musty tone color when you play chords in a low-to-medium range (Ian McLagan owns rock Wurly playing). It can sparkle when you play the 16th note tinkles at the very top of the keyboard à la Otis Spann. And to summon up the ghost of '50s Ray Charles, well, it can't be done without a Wurlitzer. Yeah, it's heavy as hell and takes up the whole trunk of the car, but it's authentic.

There's not enough space in this column for me to sing the praises of a well-kept-up Hammond B3 with two growling Leslie speakers on "11." Nowadays, I make the clubowners rent all that for me. Hell, I'm 54, I've earned it. I've humped enough gear in my life. Thank God those Brits invented a higher strain of roadies. It helps.

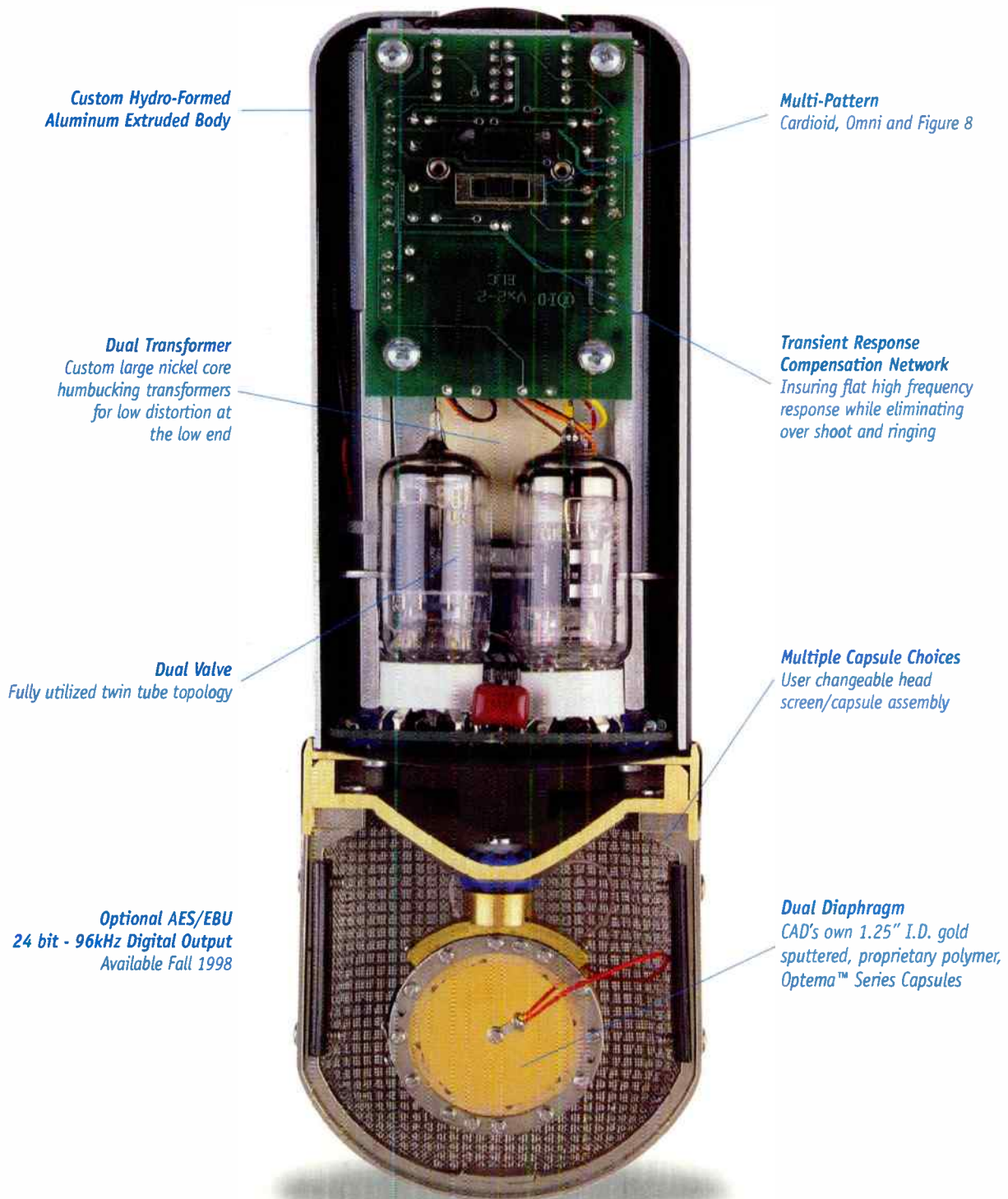
A Hammond organ can play a bassy, subtle pad like no other instrument. It can scream a super high C better than Maynard Ferguson used to on Gabriel's trumpet. No organ sample has duplicated either of these wonderful traits for me. When organs are sampled, they always screw up the velocities. As you play higher on the upper keyboard of a B3, it gets louder for some inexplicable reason. No one samples it like that — in fact, the reverse is true. As you play higher on the best organ samples to date, the sound just gets weenie. No screaming, full-throated high C's on any sample I ever heard. No jazzy pads that sound like the 3rd and 4th drawbars pulled out on the lower keyboard of a real B3 either. *But:*

If you're a keyboard player in a blues or an R&B band on a low budget, I understand why you are relegated to a synth. It's economics. Just don't

delude yourself into thinking that you could ever attain a competitive sound with someone who plays a B3 and a Wurly and we'll get along fine. It also gives you something to look forward to. Like my next column, hopefully. **EQ**

I understand why you are relegated to a synth... Just don't delude yourself into thinking that you could ever attain a competitive sound with someone who plays a B3 and a

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World Radio History
CIRCLE 11 ON FREE INFO CARD

Jeffery C.J. Vanston



PHOTO BY ED FREEMAN

At home on the road or in his project studio, this keyboardist/composer is looking to score big

BY MR. BONZAI

Bonzai: Which do you prefer: touring or working in the studio?

Vanston: I grew up performing and love the instant feedback, but it usually means playing the same music every night. The studio is now the creativity spot for me.

What are your main recording tools here at The Treehouse?

Yamaha 02R's with ADATs and Pro Tools. But a lot of what I do here is kept in the virtual zone and doesn't get committed to tape until the end.

What are your hot new creative tools these days?

The Wurlitzer, B3, Fender Rhodes, Clavinet — the old shit. I put them through weird effects and create new sounds with them. I'm trying to rope off the MIDI section for a while.

What gear do you haul around when doing session work?

My whole rig packs up in about ten minutes. Two racks with 25 synthesizers, the Mac, and then maybe a B3 or a vintage synth from my collection, depending on the project.

What is your most valuable synthesizer? Oberheim 4-voice, the best sounding synth I own.

What was your first synthesizer?

The Mini-Korg. I've never seen one since I sold it to pay my rent years ago. I'd love to get it back.

What is the most powerful electronic instrument today?

The computer, although it's not truly an instrument in the classic sense.

If you were just getting started, what would be the best piece of gear to first invest in?

For film scoring and writing, the Roland JV-2080. As for new sounds, I'd get the Yamaha EX-5. It uses "Physical Modeling" and takes the synth beyond being a stat-

ic instrument so that it has movement in the sound, adjusts to how hard you play it, and approaches the complexity of real acoustic instruments. This is the biggest leap in years.

What music would you like at your funeral?

A hundred bagpipes playing "Amazing Grace."

What do you listen to while you're driving? On the open road when I can go over 80, I listen to Radiohead and Björk. In traffic, the Brandenburg Concertos or talk radio.

If you could go back before the birth of recording, what would you like to hear?

The opening night of Stravinsky's "Firebird Suite," which caused riots. And Abraham Lincoln delivering the Gettysburg Address.

What is the first music you remember hearing?

My dad, Paul Vanston, playing piano with a jazz trio in Saginaw, Michigan. Our apartment was above the nightclub, and I had my ear glued to the floor every night. The jazz guys would come up after the gig, like the Kenton band when they were in town, and I could never figure out why all these successful musicians shared one cigarette.

What did you learn from Ed Cherney? Be patient and wait for the vibe. Ed knows

Suspect: Jeffery C.J. Vanston
Occupation: Keyboardist, Arranger, Composer
Birthplace: Denver, CO
Residence: Los Angeles
Location of Interrogation: The Treehouse (Vanston's project studio)
Vehicle: "My other car is an Acura NSX."
Cuisine: Limited to five-star restaurants.
Identifying Marks: Large scar on back from heart surgery performed at 8 months old. Suspect claims, "That's where I learned the blues."
Credits: Vanston has contributed to over 1,500 jingles, 100 albums, 20 film scores, toured with Spinal Tap in '92, and was musical director for Joe Cocker's 1994 world tour. He has worked with Tina Turner, Barbra Streisand, David Foster, George Michael, Prince, Ringo Starr, Celine Dion, Ed Cherney, and Jann Arden. He recently composed soundtracks for Christopher Guest's *Waiting For Guffman* and Chris Farley's swan song, *Almost Heroes*.



PHOTOS BY MR. BONZAI

there is a human interaction that must happen before music can be made. He knows when the time is right, and that's when the Record button is pushed. I also learned from Ed that on the back nine I tend to flatten my back swing. He's taught me to keep my swing upright.

Who were your musical heroes when you were getting started?

Herbie Hancock, Chick Corea, Frank Zappa, Weather Report, Brian Auger, Led Zepelin, Deep Purple. When I heard John Lord distort a B3, I knew I wanted to make my living as a musician. John Lord and Keith Emerson gave balls to the image of keyboard players. A great moment for me was

when Keith Emerson joined us on stage during the Spinal Tap tour.

What kind of audiences did you attract? Seemed like Star Trek fans on drugs.

Who do you respect and admire today? Björk. Mitchell Froom. And there's a new band called Mono that I really like. But there are too many to list — music today is so eclectic and healthy.

If you were a musical instrument, which would you be?

A synth, because I am a chameleon. I've played so many styles that I think of myself as the keyboard Davey Lopes, the Cubs [and Dodgers] utility man. He could field, he could hit, he could run.

Is there anyone in the world you would like to collaborate with?

Björk. She is on a search for the perfect song, and I want to help her find it.

What is your strangest characteristic as a human being?

I'm an incorrigible storyteller.

How would you like to be remembered in history?

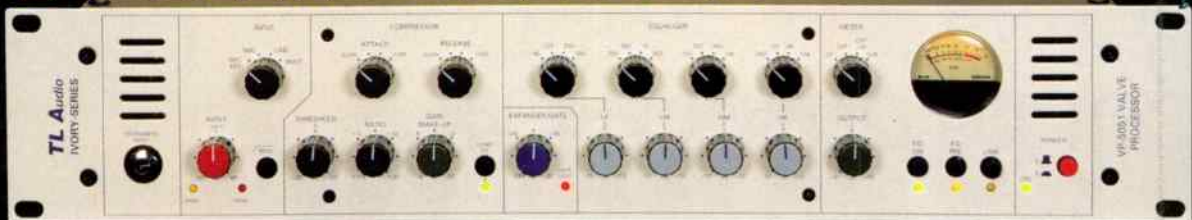
CJ knew where to find the best restaurants. **Do you know any interesting business tricks?**

It's all perception and marketing. When I first moved here I had no staff, but I would send faxes and letters signed with fake secretary names. I actually made phone calls with an



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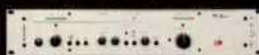
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English accent, posing as my own agent.
What was your most ridiculous experience in a recording studio?

For this movie I just finished, they gave me two days in the studio with an orchestra to do 53 minutes of music. That was ridiculous. Another one: I was called in once to program a track and replace the real parts recorded by Jeff Porcaro and Lee Sklar.

Who do you think you were in past lives?
 A saloon pianist in the Wild West.

Performance highlight of your life?
 Playing "Smoke On The Water" on the

pipe organ in the Royal Albert Hall with Spinal Tap. I knew it right then that it could never get better than that.

What old saying do you hate the most?
 "It's just a demo." Or, the producer says, "Yeah, it's a nice part, but we have to think about Ma and Pa K-Mart." I could puke.

What animal do you identify with?
 A mutt at the dog pound.

Who is the most amazing artist you've worked with?

Hmmm...I remember being completely blown away by Dolly Parton — what a

voice, what a woman. Joe Cocker's voice has never ceased to amaze me. Seeing Tina Turner tear up "Proud Mary" in the studio during the "What's Love Got To Do With It" soundtrack was a huge moment because I had learned to hate that song from playing in wedding bands years ago. I finally "got it" when I saw her sing it three feet from me. Wow. Also, Christopher Guest, the film director and "Nigel" in Spinal Tap is completely brilliant and constantly inspiring. A truly sick man. My kinda guy.

What makes a great producer?
 Picking the team and finding the vibe.

Have you ever witnessed a miracle?

Yes. In the bands I used to be in we usually had two cars — one for the straight guys and one for the drug guys. We drove once from Chicago and arrived at a gig in Milwaukee, and when the drug guys arrived they had put 4000 more miles on their car than ours. Never figured it out.

What is the biggest mistake of your life?
 Selling my Echoplex.

Any advice for getting a good start in the music business?

Surround yourself with great people and you can't go wrong.

Any stories about Ringo?

I worked with Phil Ramone on Ringo's album *Time Takes Time*. Phil had to leave for a couple of hours, and he pulled me aside and said, "Whatever you do, don't ask him about the Beatles." "Sure, Phil," I thought to myself, "What kind of an idiot do you think I am?" Anyway, Ringo and I worked for about a half hour and finished. Since Phil wasn't due back for a while, Ringo leaned forward, tapped me on the knee and said, "You want to hear some good Beatles stories?" I couldn't believe it. For two hours, this man went through the dramas, the ups, and the downs. It was unbelievable.

What would you like Santa to bring you this year?

A great movie to score.

EQ

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CREATIVITY

DPS12



The concept seems so obvious.

Combine a digital disk recorder and a digital mixer in one convenient box. Eliminate complex interfacing and keep everything in the digital domain. Add optional internal effects. Creative heaven. But up until now, buying anything that you could afford meant settling for almost enough tracks to record your music. Or a compressed data format that sounded almost as good as CD quality. Or a user interface that you could almost make sense of.

Now, finally, the concept of integrated digital recording and mixing lives up to its promise with Akai's **DPS12** Digital Personal Studio. Designed for those unwilling to compromise their creative vision, the DPS12 combines a 12-track random-access digital recorder (with professional-quality uncompressed 16-bit sound and powerful non-linear editing) and a 20-channel MIDI-automatable digital mixer in one compact, incredibly easy-to-use package. All at a price that is nothing short of spectacular!

It's creativity without compromise.

WITHOUT COMPROMISE

Since its founding in 1984, Akai Professional has consistently pushed the boundaries of affordable recording technology. From the original M61212 12-track recorder/mixer, to the breakthrough A-DAM digital multitrack, to the DR4/8/16 professional disk recorders and the DD family of audio post-production tools, each Akai recording product has established new levels of performance and value.

Now, with the DPS12, Akai builds on this experience to bring professional-quality digital recording and mixing to the personal and project studio at a price that's truly unexpected. (Not to prolong the suspense, it's \$1499 msrp.)

More Is Better

At the heart of the DPS12 is a powerful random-access disk recorder capable of simultaneously playing 12 (that's twelve) tracks of uncompressed 16-bit linear audio from optional removable JAZ cartridges or SCSI hard disks. More tracks for more recording flexibility. More control of individual parts. Less need for track bouncing.



And speaking of more tracks, the DPS12 also lets you record a whopping 250 virtual tracks. At mixdown, you can assign any virtual track to any of the twelve physical tracks for playback. This gives you the freedom to compare multiple takes, experiment with alternative arrangements, even combine parts of different virtual tracks on a single track.



At the front end, the DPS12 lets you record on up to 8 tracks simultaneously through six high-quality balanced analog inputs and a S/PDIF stereo digital input at sampling rates of 48kHz, 44.1kHz or 32kHz.

The Wait Is Over

Since the DPS12 is a random-access recorder, waiting for tape to wind is a thing of the past. The DPS12's locating functions let you move instantly to any of

12 quick-locate points and 100 stack memory points. The stack points can even be named, so you can identify locations by the part of the song (FIRST VERSE, CHORUS, etc.) or even by specific lyrics.

Easy Editing

Ever wonder how people managed to write anything before word processors? Well, after experiencing non-linear editing on the DPS12, you'll wonder the same thing about audio. Insert, Delete, Erase, Copy or Move sections of single- or multi-track audio from anywhere to anywhere within your project. This is stuff you just can't do with tape.

The DPS12's high-quality jogging and graphic waveform display let you zero in on your precise edit points.



Then call up an edit screen (complete with a graphic representation of your selected operation) and Do It.



Next, use the special Play To and Play From keys to confirm that seamless edit. Changed your mind? 256 levels of Undo are only a button press away.

Mix Master

The DPS12's digital mixer is a model of flexibility. During mixdown, for example, the inputs can be used as an additional 8-channel Thru Mix, perfect for adding tracks from sequenced MIDI modules to the 12 recorded tracks for a true 20-channel mixdown. Two AUX sends and digital EQ are also included.



Found the perfect mix? Mix setups can be saved as snapshots and recalled at any time. And since all of the DPS12's faders and panpots generate MIDI controller data, you can record your mix moves into an external MIDI sequencer (like our MPC2000, for example) and play them back in sync with the DPS12.

Effects Inside

If you want the added convenience of integrated internal effects (not to mention keeping your mix entirely in the digital domain), add the EB2M multi-effect processor board. The EB2M gives you two independent studio-quality effects processors with a wide variety of programmable effect types.

It Wants To Be Your Friend

It's one thing to give you all the tools you need to do the job, but it's another thing entirely to make them useable. It is, quite simply, really easy to use. At the heart of its friendliness is its informative graphic display. Backlit and easy to read, it always gives you a clear picture of what's going on with your DPS12. Frankly, it's all so simple that most of you may never have to take the manual out of the box.

Check It Out

There's a lot more to the DPS12 than we could fit in this ad, so head down to your local Akai Professional dealer for some quality hands-on time with a DPS12. And don't forget, that's

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CIRCLE 02 ON FREE INFO CARD

Sloppy Seconds

Some suggestions
for up-and-coming-
engineers...

BY PHIL RAMONE

Does “Sloppy Seconds” refer to picking up the scraps and eating lunch after the Big Famous Engineer has eaten? Or could it really refer to a situation where the producer of engineer says, “How do I possibly read these track sheets? I’m sure you were never taught to write a general track sheet for live dates...”

When confronted with such a situation, Engineer #2 often says, “I didn’t do the original date.” A phone call to the original studio (to get more information) is answered with, “#2 is off today.” So we sit and watch the meters for signs of life...It appears OK to use those seemingly empty tracks for

another instrument, so let’s go ahead. But surprise! Remember those two vocal endings that were recorded on what was to be the empty horn tracks? Whoops. Uh-oh. The artist is gone for the day and was certain the vocal ending was great. And now the New Big Famous Engineer spurts words not found in any dictionary.

Is this scenario happening too often? A few years of servitude in the “Minor Leagues” of internships just might be necessary for Engineer #2 to break in by helping established engineers and producers. Twenty or 25 years ago, there was no such thing as a recording school, so we played in the Minor Leagues before we could get into the Majors. You were trained in a big studio like a Power Station or an A&R, and worked from the tape room all the way up to engineer. By the time you got to be on a date with a Frank Fillipetti or an Al Schmitt, you were pretty well-trained. If you didn’t accept the train-

ing, then you wouldn’t get the opportunity to work on those kind of sessions.

GREAT EXPECTATIONS

Unfortunately, there are a lot of people who expect to sit in the chair of the first engineer without first being an apprentice and really knowing what’s going on. Instead of thinking about how important it is to do a good take sheet, he doesn’t pay much attention to that kind of stuff, so things get sloppy. Some people attend a recording school, but that doesn’t necessarily open a magic door. I’m not knocking recording schools, because most are responsible, but the desire to learn isn’t always there in the students. I have spoken to some students who say, “We have this old crappy console.” I ask, “But does it sound OK?” “Yes, but you know it’s not automated.” Understand that you have to pilot that thing and position microphones in the right place. Your degree does not mean that an internship is not needed.



PHOTO BY EDWARD COLVER

SECOND HELPING: When working on a board this big, an extra set of hands — preferably attached to a good second engineer — is invaluable.

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NO SHEET

We no longer make records by ourselves in one studio — we share material all over the world. As a producer, I'm liable to pick up DA-88 tapes that have been recorded by an engineer in one studio, overdubbed with another engineer in a second studio, and then rough-mixed in a third studio with yet another engineer. I get tapes without proper track sheets or take sheets, and sometimes the time-code doesn't work. Studios and #1 engineers need to unite so that responsibility can be shared. We ask a lot of

chorus, turnarounds, and bridges) is an important start since the "VU watchers" have their hands full.

Is it imperative to be better than the #1? Yes. And save his back when he gets in trouble? Surgeons rely upon assistants to do this every day. Producers closely watch the attitude of a #2, and your ego will soon be fed when you become the most in-demand #2. After being the Number One #2 for a while, you can make the step into being a #1. I got into the #1 spot because the then-#1 was late for a session — so

"most adorable" in town? Choose one. You choose to be of help? You'll have to apologize to the adorable one. It's your chance to do things like comp the vocal, or do some vocal fly-ins, tune the vocal — be successful! By the way, it's not cool to be reading the manual.

#2'S RIGHTS

As a hard-working #2, you may ask yourself if you're being violated or if this is the best part of "school." Things you are required to learn include open heart and brain surgery, basic psychotherapy, and knowing where to find good food (you also need to learn how to work 20-hour days on three hours of sleep). If you're a complete #2, the phone is also your gig — fielding calls like an all-star shortstop. Responsibility? You bet. Dues? You bet. Will you become famous? That's up to your ambition and your ability to listen for what's needed. As Quincy Jones says, "Check your ego at the door."

Did all the #1's do the same crap you are asked to do? Yes. If you don't like the music you're recording, stay cool. Not everything you do will be your favorite. Does your opinion count? First check the room temperature and then respond when asked. People respect a #2 that shows interest even if Lithuanian folk songs seem boring to everyone else. Being unprepared or blaming the studio because they were late in getting your room back does *not* belong on the #1's or producer's table. Keep interior problems inside the company and *never badmouth the studio*.

TRUTH OR CONSEQUENCES

Lying about your qualifications is certainly not an answer. I remember a session I did about 10 years ago with a #2 that was highly recommended and had worked with some very famous engineers. He walked into my session about five minutes before it was supposed to start. I said to him, "Don't you think it's a little pushy not being here an hour before the session?" As he started to put up the microphones on a set of drums, I realized that he was searching his memory to remember how somebody famous had wired the drums in a past session. So I said, "Hey man, I'd be happy to help you." It was obvious that he was more used to direct patching. OK, but it's also important to know acoustic recording. What was missing from the #2 was a willingness to learn the basics.



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assistants. We need to explain our needs, and the importance of DATs and cassettes. In this day and age, it may be wise to learn digital editing and tuning.

PILOT TO COPILOT

Many years ago — before automation — the #2 was the copilot; a second hand on the faders was helpful. Tape machines were also the responsibility of the #2. I recall a session where #2 erased a phrase. I realized he was only looking at numbers on the tape time readout, so when the tach slipped, we had a disaster. Learning song structure (verse,

I took over. The relationship with the artist and the producer was nervous, but I had been trained by the #1, and knew what to do.

CHAIN OF COMMAND

It's a good idea for a #2 to remember who booked the room and put together the recording team. It's artist first, producer next, #1, and then #2. When the engineer is tired and the producer wants to stay late, you have a brief opportunity to temporarily move up a notch and take a chance at engineering. What's that? You have a date with the

THE COMMANDMENTS

If you have to be away from work for two days out of the project, be kind to your sub. He'd like to succeed and never have to hear about how stupid he was when you continue working on the project (or vice-versa). For both of you, that means keeping accurate session notes. Know Thy Patchbay.

Think about this: When you write down a patch, can it be easily figured out after you're gone? Note the mic on a vocal session so you can match the sound when it comes time to do some fixing. If it's vintage, also note the serial number because they do sound different (the same can be said for vintage processors). In addition to writing down the patch flow, mark the settings of the devices, either by saving a program into memory or using a picture of the front panel (photocopy from the manual) to indicate knob positions. Study how comps are made. Sometimes you should comp using the board, because adjusting levels and EQ can make the ruffs and final mix a joy. Reverbs help the artist feel good, but be careful about soloing a vocal in the control room. It should be done with no guests or musicians in the control room.

Probably the worst thing that could happen at a session would be missing a take. When I have a group of musicians playing together in the studio, I roll tape and never go back — I rarely rewind. It's a bad habit of mine that comes from the school of, "I can always edit that intro. It was great." Or "I'd like to use that take even though all of the mics aren't up because there was a great feel going in the room." Some assistants will not continue to run the tape because someone, somewhere has said, "No, let's go over that take." When you have a \$20,000 (or higher) payroll out there, who cares if you spent \$400 on a roll of tape.

Here's where the second engineer can become extremely helpful by keeping an accurate take sheet. I used to always say, "If you're going to read a magazine in the back of the room, then obviously my date is boring." There are hours upon hours during mixing or vocal overdubs where that #2 either impresses us (or not) with how he keeps track sheets and watches the lyrics. Can he or she type a lyric? Can the assistant understand how we do comps? If they need more experience, then they should take my vocals when we leave and do their own comps. The next day they can show me how good they are.

COPILLOT TO PILOT

It's great to have confidence in what you do, but sometimes you also have to move from copilot to pilot. Copilot is really the role that's missing in the industry, and I (as well as other engineers and producers) depend on these people. These are the people that make the dubs after the superstars go home. If I get a bad DAT or cassette as my only reference, it's not a good thing. That's why #2 is such an important job. Always be sensitive because we're all in the studio to

capture the moment. When you hear a cassette of your work in a car or on a boombox and it raises the hair on your arm, you no longer have to fear the adjective "sloppy." This is my first affair. Please be kind!

Producer Phil Ramone has worked with a number of popular artists, including Billy Joel, Frank Sinatra, and Paul Simon to name a few. He is currently president of N2K Encoded Music.

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CIRCLE 08 ON FREE INFO CARD

Building a Better R&B Mix

Mix engineer David Pensado discusses the techniques he uses to create an exciting — and inspiring — mix

BY BOBBY OWSINSKI

Of all the music genres, R&B may be the toughest to mix. This is thanks to the almost constant change in the state-of-the-art and the penchant by the participants to experiment with new sounds. Mixer David Pensado, with projects by Bell Biv DeVoe, Coolio, Take 6, Brian McKnight, Diana Ross, Tony! Toni! Tone!, Atlantic Starr, and many more, has consistently supplied mixes that have not only filled the airwaves, but rank among the most artful as well.

EQ: What's harder to mix, an R&B or a rock track?

David Pensado: I mix both, and R&B is infinitely harder to mix than rock. Think of it this way. Let's say you're painting a portrait. Rock is like having the person you're painting sitting in front of you and you look at them and paint. So you have a reference. In R&B, there is no reference. It's like trying to do a portrait from memory, but because you don't have the person there, you can paint something that transcends what he is. You can make him prettier; you can make him uglier; or you can make him abstract if you want. Doing R&B, you've got fewer limitations — a lot more freedom. We don't have to have the snare drum sound a particular way. It

can sound like anything from an [Roland TR-] 808 to a handclap to a little spitty sound to a rock sound. But [if] you put certain snare sounds in a rock song, it's just not a rock song anymore. Do you hear the finished product in your head before you start?

Yeah. I really do. I might not have 100 percent of the final product in my mind when I start, but I have it fairly well outlined. Then, as I start filling in the outline, sometimes things change a little bit. Every once in awhile, maybe out of two or three hundred, I might just pull the faders down and say, "I don't like any of this" and start again from scratch.

What's your approach to using EQ?

I think of EQ as an effect much the same way you would add chorus or reverb to a particular instrument or vocal. I might have a vocal where I think it's really EQ'd nicely and then I'll add a little more 3 K just to get it to bite a little more. It just makes me feel like the singer was trying harder and it brings out a little bit of passion in his or her voice. So I tend to be most effective

when I do the standard equalizing, then take it to the next level, thinking of it as an effect. Some of my favorites for this are the NTI EQ3, API 550 and 560's, the old "Motown EQs" at Larrabee [Studios], and the Avalons.

How about panning?

I think that there are three sacred territories in a mix that if you put something there, you've got to have an incredibly good reason. That's extreme left, center, and [extreme] right. I've noticed that some mixers will get stereo tracks from synthesizers and effects and they just instinctively pan them hard left and hard right. What they end up with is these big train wrecks out on the ends of the stereo spectrum. Then they pan their kick, snare, bass, and vocals center, and you've got all this stuff stacked on top of each other. If it were a visual, you wouldn't be able to see the things behind the things in front. So what I do is take a stereo synthesizer track and I'll just toss one aside because I don't need it. I'll create my own stereo by either adding a delay or a chorus or a pre-delayed reverb or something like that to



GETTING THE POINT: David Pensado (center) gets a few pointers from mixers Kevin "KD" Davis (left) and Dexter Simmons at Larrabee Studio.

PHOTO BY DAVID GOOGIN

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give it a stereo image. I'll maybe pan the dry signal to 10:00 and then I'll pan the effects just inside the extreme left side. I would never put it hard left because then there's too many things on top of it. I would pan it at 9:00, and then pan the dry signal to say 10:30, something like that.

Do you use a lot of compression?

There, again, I look at compression as having two functions: one as an effect and the other when you want to keep a particular sound right up front in your face in the mix. I use quite an array of compressors because each one seems to give a little different characteristic as a result.

Do you compress individually or on the stereo bus, or both?

I do both. There's a trick that some of my favorite New York mixers do to get the drums really fat and in your face. They would feed a couple of busses to a compressor and EQ the compressor output, then they feed kicks and snares and things like that to that compressor and just squeeze the heck out of the sound source. It literally is thought of and treated just as if it were a reverb or a chorus. In other words, just treat it as an effect that's mixed in with the original signal. More often than not, you're compressing the individual sounds as well.

I recently read an interview with a well-known engineer where he was praising a particular compressor for its ability to take the dynamics out of a drum performance because the drummer would get happy on the first downbeat of every chorus and play a little louder. I thought, "I spent my whole career trying to add those dynamics and trying to make the drummer sound like he got happy going into the chorus." I very rarely use a compressor to even out dynamics. Dynamics are something that I just can't get enough of.

The compressors I like the most tend to be the ones that actually help me get dynamics. That might be a contradictory statement, but if you're careful with the attack and release times, you can actually get a compressor to help you with it. Most mixers I've talked to don't think of their compressors that way. **What do you use in particular to do that?**

For kick and snare I'll use a [dbx] 160X and I'll set the ratio at 2 or 3 to 1, depending on how much transient response is already there. The OverEasy® button will not be in. It ends up where I'm sometimes knocking off 20 dB and no less than 15 dB. There's a point at which you get an amazing attack in the range from about 400 Hz to 3k. Then I'll take the output of that compressor and I'll feed it to a Pultec or a Lang or an API 550 and I'll add back sometimes 15, 20 dB at 100–200 Hz and a little 10 K, and sometimes even 3–5 K. Then I'll get my original sound where I like it and I'll add in that compressed sound. Man, it just puts the drum right in your face and makes it huge and fat. Basically what I'm doing is trying to take the frequencies that I want and add those back into the original sound in such a way that I can't do with EQ.

A lot of times what I'll do is put the effects only on the compressed sound. In other words, an effect I use a lot would be "Locker Room" or "Tile Room" on a [Lexicon] PCM70, and I'll add that effect only to the compressed sound. As a result, the reverb actually has a snap and aggressiveness to it. Every once in a while, I'll make it stereo — I'll take two 160X's and set them up identically. On the insert of one, however, I'll put anywhere from a 9 to 15 millisecond delay so the tight

compressed sound is out on the edges of my stereo spectrum, but the original sound's in the center. That creates an incredibly nice image, particularly for ballads and slow tunes where you have a lot of space between the downbeats. That setup works great for snares, kicks, and hihat. Every once in awhile it'll make a guitar come alive, too.

So what you're doing is you're controlling the dynamics, but you're actually increasing the dynamics. It's the strangest thing because it's not getting louder, but, psychoacoustically, your mind is thinking it is. On the radio, it just jumps out of the speakers.

Do you have a philosophy about adding effects?

The way I think of it is the pan knob places you left to right while the effects tend to place you front to rear. That's a general statement, but it's a good starting point. In other words, if you want the singer to sound like she's standing behind the snare drum, leave the snare drum dry and wet down the singer and it'll sound like the singer is standing that far behind the snare drum. If you want the singer in front of the snare drum, leave her dry, and wet down the snare drum.

That said, I like a vocal mostly dry, but then it usually doesn't sound big enough. You want the vocalist to sound like they're really powerful and dynamic and just giving it everything, so I'll put an 1/8th-note delay on the vocal but subtract a 1/16th-, a 32nd-, or 64th-note value from that 1/8th note. What it does is gives a movement to the delay and makes the singer have an urgency that's kind of neat. So put the 1/8th minus 1/64th on the left side, and put the 1/8th note straight on the right side. You can experiment with putting the pitch up a little bit on one side and down on another. If your singer's a little pitchy, that usually makes them sound a little more in tune. Sometimes putting the 1/8th-note triplet on one side and the 1/8th-note straight on the other, if you've got any kind of swing elements of the track, will make the vocal big, but it doesn't make the singer sound like he's taken a step back.

Another thing I like to do is to take the output of my effects and run them straight into another effect. I'll take an exciter and just dump the output straight to a chorus, so it's only chorusing the high frequencies. I think that's more pleasing than having low

I look at compression as having two functions: one as an effect and the other when you want to keep a particular sound right up front in your face in the mix.

notes chorusing all over the place. Another thing I'll do is set up a Yamaha SPX1000 or SPX90 both on chorus. I'll put one where I'll pan it hard left and then I'll pan the right return to 2:00. Then I'll take another SPX90 and I'll pan it hard right, and then the left return from that one I'll pan to 10:00, so now the left and rights are kind of overlapping. On one I'll have the chorus depth just a little less than on the other and I'll have the other modulating a third faster. When you add a vocal to that, you get this real nice spectrum that just widens because you're sending the both of them an equal amount, but yet one of them is chorusing deeper and slower than the other one. If that's not wide enough for you, add a delay in front of both of them that's different on each side and then add that to your background vocals. They don't take any steps back in the mix, but they just get fat.

A lot of times I'll take two PCM70's, and instead of running them stereo, I'll run them mono in and mono out and pan one just inside the left and one just

inside the right. I'll use the same program on both, but I'll slightly alter the values. Even if you don't use two PCM70's, just return the darn thing mono and you'll be surprised at how much better it sounds.

What monitors do you like to work on?
For the main monitors I like the Augspergers with TAD components; for small monitors I use NS10's with the old tweeters. I also use Auratones, but in an odd way. A lot of times I'll start EQ'ing my kick drum on the Auratones, which is kind of strange because you're adding a lot of frequencies that you can't hear, but you can see your meters going up. It forces you to EQ higher because if you're sitting there listening to dual 15-inch speakers and you're adding 20 dB at 40 Hz, you think you're killing the world. [When] you go to the Auratones, you can't hear any of it, so it's useless. So a lot of times I'll use the Auratones to EQ my extreme low and top end. You think you're adding high end when you're adding 10, 12, 14 K, but really what you need to be adding is 5 K, and you'll put it on the Auratones and then

it'll make it more honest and work within what is the real range. Then I'll go up to the big ones and I'll watch my meters and make sure that I'm not getting too crazy, and then I'll add the super low stuff and the super high stuff.

What level do you usually listen at?
I usually listen to NS10's kind of medium and Auratones I listen at the same volume you would listen to TV. I found that on the NS10's, in order for them to really work, it's best to have them stay at one level for most of the mix. Then, near the end of the mix, check your levels and your EQ with the NS10's about 20 percent lower and again about 20 percent higher, and you'll make adjustments that you'll really be pleased with when you hear it on the radio.

The big speakers I use mostly to show off for clients and to just have fun. I like to turn it up and, if my body is vibrating properly, then I'm happy with the low end. A lot of engineers use them to hype the client, but I also use them to hype myself! If I'm cranking and I'm not getting excited, then I just keep on working. **EQ**

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AUGUST 1998
World Radio History

Burning Desire

Some of the lessons I learned in making a project/commercial studio record with Al Di Meola

BY RICH TOZZOLI

We all know that making a record in your project studio today has many benefits. However, making a record in a project studio and finishing it in a commercial studio can complicate the

equation. This article examines some of the things we learned in making Al Di Meola's new upcoming release, *The Infinite Desire* (Telarc Records) due out in late August.

Most of *The Infinite Desire* was recorded in Al's project studio using four of the new, 20-bit, ADAT XT-20's. Spyros Poulous (Al's programmer/engineer) sync'd them to Digital Performer, as sequences and loops were creatively used as a foundation to build the songs upon. We used Monster Cable as well as Demeter and Neve mic pres to keep the signal path pure and short. The board was a Soundcraft Sapphire, and KRK 9000 and Event 20/20bas powered monitors were used. Al was using all three of his guitar synths — the Roland GR-30, GR-1, and

VG-8 — as well as his Ovation, Godin, and Martin acoustic guitars. The electric parts were mostly played on his custom Al Di Meola Gibson Les Paul and a beautiful Gibson jazz body (also from the Gibson custom shop). Sometimes the guitar synths — which were all wired with Monster Cable, again to ensure a high-quality signal — were to be recorded at once. Studio technician Henry Nophsker really had his hands full on this project.

GETTING FRAMED

Keyboardist Rachel Z, coproducer Hernan Romero, and Spyros Poulous all worked with Al for several months in the project studio to frame out the record. Rachel brought in some of her synths and sample discs and worked



ON THE MOVE: Author and engineer Rich Tozzoli found moving a project from project studio to commercial studio to mixing studio to mastering house to be quite the challenge.

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closely with Spyros on the rhythm programming (done on Digital Performer) and keyboard textures. Hernan, who brought in his Korg workstation, lent his arrangement experience and ears to the songs. Now the tracks were ready to go to a commercial studio for band overdubs. And here's where the complexities start to creep in.

GET ON THE RIGHT TRACK

The sessions moved to Right Track in New York where Grammy-award winning engineer Frank Fillipetti was going to work with the tracks on the Neve Capricorn. Spyros Poulous now had to transfer the 20-bit, 48 kHz ADAT tracks to the 16-bit 44.1 kHz Studer D-827 (multitrack, digital reel-to-reel). Spyros notes, "We discovered after making some transfers that there were compatibility problems between the new XT-20 and the older AI-2 interface, as they did not lock with each other. A software modification was made available, but instead we used the BRC to lock the ADATs to the Studer D-827. Some arbitrary offsets had to be recalculated, which was difficult and time consuming."

Once the transfers were accomplished, Frank overdubbed Rachel Z's and Mario Parmisano's piano parts, and Peter Erskine's drum parts. Herbie Hancock also lent a spontaneous, late-night solo to one piece. Some full-band pieces were cut with Tom Kennedy on bass, Gumbi Ortiz on percussion, and Ernie Adams on drums. Frank began mixing several songs, saving the Neve Capricorn automation passes along the way for later use.

Now that the Right Track sessions were complete, slave reels had to be made from the Studer back to the ADAT tapes. Once audio was transferred back to the ADATs, work would revert back to

Al's studio, where bassist John Pattitucci did some overdubs and Al worked out more guitar parts. Rachel Z and Mario did additional synth programming with Spyros, and the record was about ready for the mix stage. Once again, Spyros had to transfer the finished 20-bit ADAT tracks back to the 16-bit Studer — this time at Chung King (New York). Engineer Goh Hotada began mixing on the Capricorn, while Spyros performed

more transfers in another room. Mixes were made through a TC Electronic Finalizer onto the Sony 24-bit M/O, with 16-bit DAT as a backup.

Occasionally we would stop mixing so that Al could do final touch-up overdubs. Some vocal placement and pitch correction was performed in Pro Tools, and this was where we discovered another temporary snag — different timecodes had been used in the Studer-ADAT transfer and the ADAT-Pro Tools transfer. Upon entering the material into Pro Tools, we didn't have the sheets with the exact type of timecode on it. So we entered it in at 30 fps. After all the edits were done, we discovered drift upon layback to the ADATs. At this point we found out it was recorded at 29.97 fps. After much timecode manipulating, Goh

was able to get a correct transfer back to the Studer for a final pass, and the edits were complete.

PAY ATTENTION!


Good notes and track sheets now became even more important because we had Spyros's ADAT sheets from Al's studio, Frank's sheets from Right Track, and now Goh's sheets from Chung King. Under the pressures of many long days and late-night mixes using several different engineers, things can get confusing. So organization is es-

sential (for more on that subject, see Phil Ramone's article on page 52 of this issue).

Once the Chung King mixes were finally done, we decided to finish some additional pieces back at Al's studio on the ADATs. After chasing some of Spyros's older DAT mixes on several songs (and trying to improve upon them), it was decided to just use those original mixes — as they really captured a moment. A lesson was learned here: when mixing in a project studio without recall, sometimes the magic of a rough mix cannot be captured again, so always go for a final and properly label everything!

One of the songs mixed at Al's studio featured Steve Vai, who had received an ADAT comp mix. Using this comp mix, Steve recorded his parts on the empty tracks of the tape at his project studio and sent the tape back to us. In addition to using this tape in the final mix, we now decided to use one of the ADATs as a 20-bit mixdown deck, mixing hot to get the best A/D conversion. I then called Bob Ludwig up at Gateway Mastering (Portland, ME) and told him about the ADAT masters. Since he had not received any masters on that medium yet, he had to call Apogee to get an interface card for his Apogee AD-8000.

Arriving up at Gateway Mastering a few days later, we had quite a collection of tapes. There we sat with a pile of 16-bit, 44.1 kHz DATs, 20-bit, 48 kHz ADATs, and 24-bit, 44.1 kHz M/Os. Bob Ludwig comments, "I mastered each song as it was *going into* the Sonic system, so it was all blended together sonically before hitting Sonic Solutions." At this point it could get quite confusing because we had several mixes of each song (some on different mediums), and there were certain sections of songs that were preferred over others. "We did an edit that was a first for my career," Bob continues. "During Herbie Hancock's solo on 'Istanbul,' I used one engineer's mix on the right channel together with the mix from another engineer on the other channel! I was amazed that this worked. Only in the digital domain is this possible!"

We had backups of everything with us, just in case. Careful notes made about each song in premastering now saved us valuable time. Bob now put the finishing touches on the project, and proceeded to blend all those different formats, studios, problems, and personnel into one great record. 

"We did an edit that was a first for my career," states Bob Ludwig. "During Herbie Hancock's solo on 'Istanbul,' I used one engineer's mix on the right channel together with the mix from another engineer on the other channel!"

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surround surround

A man with light brown hair, wearing a blue button-down shirt, is leaning forward with his hands clasped on a dark surface. He is smiling slightly and looking towards the camera. Behind him is a large, multi-driver speaker system, likely a Yamaha model, with various drivers visible, including a tweeter and a large woofer. The background is dark with some blue lighting. The text 'surround' is written vertically on the left side, and 'surround' is written horizontally at the top in a large, bold, yellow font.

ound

by Ed
Cherney

are you experienced?

Welcome to the brave new world of surround sound

The Music Producer's Guild of the Americas (MPGA) was founded in September, 1997 to support the creative and professional needs of music industry producers and recording engineers. It was simply time for us to address those matters that concern us as a professional group, and I encourage many of you to join the 150 members who are currently onboard.

Among our many goals is to represent and protect the interests of our creative profession through education and dissemination of information. In this regard, no topic is of more timely interest and pressing need than that of surround sound for music production. With DVD audio on the near horizon, many of us are already experimenting on a daily basis with developing those techniques that will change the sound of recorded music for many years to come.

I've been making stereo records for a long time. I remember buying some of my first vinyl records — by the Beatles or Chic or Billy Joel — putting them on, listening to the speakers and being blown away, having it sound so visceral that you just wanted to crawl inside the music. Maybe I'm jaded, but I've been missing this sort of thing for a while. But with the advent of 5.1, I've been blown away by the music all over again.

So we're definitely entering a new age, and the

MPGA wants to be at the forefront of making it happen. As music-makers, it's really fun to make 5.1 surround records, although daunting as well.

The following pages are the proceedings from a rather historical event that the MPGA conducted under the sponsorship of *Pro Sound News* and Solid State Logic. The MPGA Conference on Multichannel Music Mixing, held at the Doubletree Hotel in New York in May '98, was the first event where leading music producers and engineers voiced their ideas, interests, questions, and concerns about this emerging technical challenge. About 250 attendees were witness to the information that unfolded throughout the day. And with the publication of the proceedings in this special edition of *EQ* magazine, we will be reaching many tens of thousands more with some of the most insightful ideas I have ever heard about harnessing the emotional power of 5.1 channels of sound for a music recording.

The following 11,000+ words (the longest article *EQ* has ever published) documents the morning session from our event, which brought together some of the leading minds and ears in our business to discuss the creative and technical challenges of going surround. And we've thrown in some candid photos from the day so you can feel for the whole event.

Let the tape begin...

surround

are you
experienced?

There are standards that come from Europe where the surround speakers are further apart, the front speakers are angled differently, and so on. But I'm a firm believer that all five main speakers should be the same — full-blown, full-frequency loudspeakers.

— Alan Parsons

Host:

Ed Cherney, President MPGA

Guests:

Al Schmitt, Larry Hamby, Michael Bishop, Alan Parsons, Phil Ramone, Nile Rodgers, Chuck Ainlay, and Elliot Scheiner.

Ed Cherney: Let's first discuss what 5.1 is. It doesn't matter what format, what manufacturer, or what encoder you're using now — 5.1 is a system where you can discretely mix six channels of music; a left, center, right, two surrounds, and a subwoofer. You can send any part of any instrument to any part of it, and you can sit in this array of speakers and the sky is the limit. You can do anything. I just heard something that Alan Parsons has been working on, and even though he didn't use the center speaker much, musically this thing surrounded you and pounded you. You knew something really special was happening. So we're entering into a new age, and we want to be at the forefront of it. We want to be involved in it. As music-makers, it's really fun to make 5.1 surround records. It's a lot more fun than trying to cram a whole bunch of stuff down a stereo bus.

I'd like to start with Alan Parsons, who's been involved in quad and has been on the cutting edge of this for a long time. Then we'll go around to our panelists and talk about the experiences they've had doing it. As a recording engineer, producer, or a composer, what's the way you might want to approach this?

Alan Parsons: Quad is where it all started, isn't it? I, and probably most of the people here, have had some bad experience with quad. I think it was the fact that it was an analog format and destined for vinyl; destined for a system that basically just didn't work. I cannot tell you how disappointing it was mixing a discrete tape, coming away with a 4-track analog 1-inch tape, and saying there's my piece of work. It sounded brilliant — then when you got the pressing back from the factory, it was just like listening to stereo on four speakers. It was really no better than that. It was great to get back, in the last 18 months, to the notion of not just a field in front of you, but a field

that is all-enveloping, all around you.

You mentioned my not having a center speaker, but I really did approach the album that I'm doing pretty much from a quad standpoint, just the four channels — left-front, right-front, and the two surrounds — and I actually derived the sub-bass and center information. There was one exception — one tune where I felt getting the center speaker to leap into life would be an appropriate thing to do, which was actually just a spoken word thing. Just from personal preferences, I tend to work on the outside of the sound field. If you have joysticks, if you have genuine 5.1 panning, you can bring things into the room, the field, so you have a sound right in front of your nose. But, somehow, the taste of most of the product I've heard tends to be to take a front stage image, to put the vocals directly in front of you in the center, and also the drums. It's things like horn parts and backing vocals, stuff like that, that really work well coming at you from behind.

One of the things I would like to see discussed this morning is loudspeaker positioning. There are all kinds of different ways of handling this. There are standards that come from Europe where the surround speakers are further apart, the front speakers are angled differently, and so on. But I'm a firm believer that all five main speakers should be the same — full-blown, full-frequency loudspeakers. I could talk all day about the actual process of mixing. One other little confession to make. I did this last thing on a 24-track desk not designed for surround at all, so all my track routing, all my panning around, was done with regular pan pots. I actually had a track where a singer and guitar player was a wandering minstrel, wandering around the outside of the room. The way of achieving that without any kind of joystick was to use a regular pan pot patched to the mixer, stop when he gets to one corner, punch in, repatch, and have him walk to the next stage. It can be done. You can do a lot with surround without necessarily having a state-of-the-art console.

I think another thing that needs to be discussed is the importance — if, indeed, there is an importance — of the center channel. The center channel came from film circles.

surround

Ed Cherney: The film mixers are really the pioneers. We owe it to them. This center channel may be a throwback to them, but it was about hearing the dialog. We've come to an era now where they actually mix music louder in films, but originally it was about the dialog, hearing what was going on. We must convert and use that to making music and making interesting-sounding mixes. Working in this context, people do it differently.

I was just in a studio in Los Angeles to listen to a master, a 5.1 Bonnie Raitt live recording that I did, which I think lends itself to this format. For me, it was being able to create side walls and back walls — depth so real that you hear the music moving around the room. But before that I was listening to what Alan had done, and

pulled you inside — and I didn't want to hear the Bonnie Raitt record after listening to that!

Alan Parsons: The center channel can be derived if, like me, you don't feel that the center channel has a great contribution to make in an average-size room. You could argue that if we were to do a demonstration in this room, it would probably be a very useful thing to have, because the center imaging would be improved. But if you're in a home environment or a decent control room environment, your phantom center is going to be just as good as a dedicated center.

Ed Cherney: Michael Bishop started out doing rock 'n' roll, but he's been

(SUR)ROUND TABLE:
*The members of the
MPGA Multichannel
Music Mixing panel*



PHOTOS BY JULIAN JAIME

this was a dynamic, living thing that seemed like it was composed and conceived and arranged to be in this surround format. I just happened to notice there was nothing really coming out of the center channel, but it was awesome. You were just surrounded by this music — it just

working in the classical realm lately. Maybe we want to touch on that style of music, because classical music is another genre that really lends itself to this format, where you're re-creating something and you can put the listener right in the concert hall at home. Michael?

surround

are you
experienced?

My goal in recording an orchestra is to put the listener in the best seat in the house — to wrap that acoustic environment around the listener and spread the orchestra out in somewhat of a horseshoe.

— Michael Bishop

Michael Bishop: Like Ed said, I started out in rock 'n' roll back in the quad days, back in the '70s, and one of the first quad things I did was a four-channel mix of the James Gang. That quad mix never saw the light of day because nobody had any confidence that it could ever be played at home properly. Quad was one of those things we built a console for — we had quad joysticks all across it — and it never got used since we had nothing to put it out on. Since companies like Dolby Digital and DTS came along and gave us a format, we're now finally able to dig up some of those old things that we've been thinking about for years. By the mid-'80s I was working for Telarc International, and our focus with that label was classical, and now jazz and blues.

Of course in classical, with large orchestras, we've always been trying to give a large acoustic image of a large symphony orchestra, but on only two channels. All these years we've been trying to develop techniques to push everything beyond those two channels. 5.1 has made it possible for us to envelop the listener with the whole orchestral experience. But we learned something in the bad old quad days. One of the things that we were doing with the Cleveland Orchestra, for instance, was to take the orchestra, put it in a circle, and surround the conductor, and thus surround the listener. It was probably one of the worst disasters in classical music. Orchestras were not meant to be heard in a circle. Not only was it horrible for the listener, it was even worse for the musicians, because you took them out of their familiar performing environment and had them play in a completely unfamiliar place. The conductor was waving over his back and going crazy. It was a total disaster, but believe it or not, we get letters from people now asking us when are we going to be recording orchestras in a circle again? Never!

My goal in recording an orchestra is to put the listener in the best seat in the house — to wrap that acoustic environment around the listener and spread the orchestra out in somewhat of a horseshoe. I only recently started using the center channel for orchestra recordings. I was ignoring it for a while, sort of a throwback to having perfected a really good stereo image. I was working so carefully on a phan-

tom center that I really didn't feel the need for a center channel. That is, until our marketing people started getting complaints from consumers that there was nothing on the center channel. They'd paid for it, so what was happening? Now I put up a center microphone that doesn't go to our stereo version but only to the 5.1 recorder. I should add that our specialty is recording direct to 2-track with very large symphony orchestras and also symphony orchestras combined with rhythm sections, soloists, and choruses — particularly with our Cincinnati Pops line, which has been a very popular line of classical crossover.

Ed Cherney: Are you doing the 5.1 and the stereo at the same time?

Michael Bishop: Yes. We're doing it live to 2-track and live to 5.1 at the same time.

Ed Cherney: When you're monitoring, are you switching back and forth from 5.1 to stereo? How are you deriving your stereo from this 5.1?

Michael Bishop: During the session, we're monitoring in stereo. We have a 5.1 setup in the control room, but we unfortunately have to stick with the stereo monitor the majority of the time, because the conductor is listening for performance mistakes and is focusing as much as possible on what the orchestra is doing. It's actually distracting to the producer to turn on the surround parts during the session. This is what makes it a little interesting. I have to record the 5.1 without listening to it, except two channels at a time on headphones, and then on a playback break we might get a chance to check it out.

This is something I've been developing one session at a time, with very small moves of the microphones, trying a lot of different setups out in the hall. The hardest thing, besides not being able to monitor during the actual session and only check it out on playbacks, is to re-create that acoustic environment. Many of the producers and engineers in this room are working with multitrack tapes and are panning things around, but what I'm doing is working with just microphone placement and hard-bus scanning in order to achieve the surround. So I've been working a lot on just where to go in the hall

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I think we're headed into an incredibly important phase of what one would call the DVD audio experience and CDs in that format.

—Phil Ramone

who's who on the surround panel

Ed Cherney, chairman of the board and president of MPGA, has been an Emmy Award nominee, is a six-time TEC Award nominee and twice a TEC Award winner. His recording, producing, and mixing credits include artists such as the Rolling Stones, Bonnie Raitt, Bob Dylan, Jackson Browne, Roy Orbison, George Harrison, Ringo Starr, Bob Seger, and Elton John.

Alan Parsons began his career at Abbey Road Studios, where he rose in the ranks from assistant engineer to engineer, and later to producer. Along the way he worked on albums like *Abbey Road* by The Beatles and *Dark Side of the Moon* by Pink Floyd. The Alan Parsons Project first brought his name to the front cover of an album, and his compositions and productions are legend. He is also a major mover in record production organizations, being a founding light of the British producers guild Re-Pro.

Larry Hamby is vice president of Windham Hill Records, and former vice president of A&R at A&M Records and Epic Records.

Phil Ramone is known to all as outspoken producer extraordinaire of the likes of Billy Joel, Paul McCartney, Frank Sinatra, Natalie Cole, BB King, Luciano Pavarotti, and Gloria Estefan. He pioneered satellite links for recording. Dolby 4-track discrete sound, Dolby optical surround sound, digital live recordings, and fiberoptics systems to record in real time from different locations. He is currently president of N2K (Need To Know) Encoded Music, which, via their sister company, Music Boulevard, uses "e_mod" in what is reputed to be the first secure and commercially viable digital online music delivery system.

Introduced into the TEC Hall of Fame in 1997, **Al Schmitt** has a string of Grammy Awards and nominations to go with a list of artists he's produced and recorded including David Grusin, Melissa Manchester, Luther Vandross, DeeDee Bridgewater, Paul Anka, Vanessa Williams, Madonna, Anita Baker, Frank Sinatra, Natalie Cole, Quincy Jones, Henry Mancini, George Benson, Steely Dan, Toto, and Dr. John.

Known as part of the engineering and production team of Telarc Records, **Michael Bishop** has been engineering award-winning recordings for 25

years, including a 1998 Grammy Award for Best-Engineered Classical Album. In addition to the many orchestral, jazz, blues, and pop recordings he has recorded, Michael's sound effects design and production is equally noteworthy, having helped earn a record-setting four consecutive Grammys for Peter Schickele (PDQ Bach). Recording credits include The James Gang, Dizzy Gillespie, Gerry Mulligan, Joe Williams & The Count Basie Orchestra, Bobby Short, Junior Wells w/Sonny Landreth, Derrick Trucks, John Mooney, Alvin Hart, Oscar Peterson, Dave Brubeck Quartet, Robert Shaw/Atlanta Symphony Orchestra & Chorus, Maria Muldaur, Mel Tormé, Erich Kunzel/Cincinnati Pops, Jesus Lopez-Cobos/Cincinnati Symphony Orchestra, Yoel Levi/Atlanta Symphony Orchestra & Chorus, and Wendy Varner.

Nile Rodgers has produced a list of artists as long as your arm, including Madonna, David Bowie, Mick Jagger, Diana Ross, The Stray Cats, the B-52's, Debbie Harry, Duran Duran, INXS, Sister Sledge, Sheena Easton, Thompson Twins, Jeff Beck, Al Jarreau, David Lee Roth, Eric Clapton, Ashford and Simpson, Maya Angelou, Bob Dylan, Peter Gabriel, and Eddie Murphy. In addition to gold and platinum sales awards for his work, Nile also sports an array of Grammys, Billboard awards, and other industry accolades.

Chuck Ainlay was the '96 and '97 winner of the Nashville Music Award for Recording Engineer of the Year and Grammy nominee for Best Engineered Recording Non-Classical in '94. Recent production/engineering artist credits include Dire Straits, Mark Knopfler, Vince Gill, George Strait, Trisha Yearwood, Wynonna, Lyle Lovett, Steve Earl, Junior Brown, Nancy Griffith, Todd Snider, Patty Lovelace, Marty Stuart, and George Jones.

Two Grammys and ten Grammy nominations, among other forms of kudos, have long been putting **Elliot Scheiner** on the recording map as both producer and engineer for artists like The Eagles, Steely Dan, Fleetwood Mac, Bonnie Raitt, Van Morrison, Jimmy Buffet, Bruce Hornsby, Glen Frey, Toto, Billy Joel, George Benson, Chaka Kahn, David Sanborn, and Smokey Robinson.

—John Townley

Surround

— or in the studio — because we also do a lot of jazz and blues recordings, so I'm making the studio for 5.1 as well.

I'm making a lot of use of the Neumann K-100 binaural head for the surround pickup. Ideally I like to be able to put the binaural head across the front channels and the surrounds, a double set of them, but more often than not I'm working with that and a combination of spaced omnis to go with an orchestra. On a recent Mahler 3 recording that we did, which will be out on CD and in a 5.1 version a little later this year, I think we're finally starting to hit a good combination on a surround pickup. I'm putting microphones in places I never really thought I would have to, rethinking what I'm having to do in stereo and in 5.1.

Ed Cherney: You're trying to make stereo and 5.1 compatible with each other at the same time?

Michael Bishop: They have to be musically compatible for me. The 5.1 version will never collapse down to the stereo version properly, by the way, which has been a concern of mine with talk on the DVD standards of automatically folding down 5.1 into stereo. I haven't done a 5.1 recording in pop, classical, jazz, or anything that will fold down properly into two channels. But maybe this isn't the time to get into that...

Alan Parsons: May I mention something that has nothing to do with fold-down in particular? Just as a matter of interest, my album was mixed the same way as Michael was just saying. I was doing the stereo mix at the same time as the surround. I set up all my pans and placements in surround, getting it to the point where I was close to a decent 5.1 mix, and then it's time to get depressed and go back to stereo, to the rest of the

The 5.1 version will never collapse down to the stereo version properly...

— Michael Bishop

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I truly think we'll be talking 5.1 in the car next year with no problems. We'll be talking about home theater as a way of life. And why wouldn't you want to hear your music on that system?

— Phil Ramone

real world. Then using the placement, and actually folding down effectively, but only from four, not from all the 5.1 sources which made it a little bit easier, I got my stereo mix as I wanted it. There's the mix that, let's face it, 97% of the world is going to hear. Then I switch back to the same mix, which thank heaven is automated, and tweak that one up. Studio owners will not want to hear this. They will want to think they can book in a client for a stereo mix and then come back and do a surround mix on another occasion, but in my experience the two processes can be combined.



Michael Bishop: That musical balance that you're achieving during the stereo mix session — you want to be able to convey with the same feel to the 5.1. Even with automation and instant recall, there are just those times when you've made a little tweak and you want to be able to repeat that for the 5.1 experience, too.

Alan Parsons: Another thing you would probably do is switch off the surround re-

verbs, because what's the point of having two reverbs going when you only need one? That would be another small change you might make.

Michael Bishop: One thing that I failed to mention is the use of the LFE channel — the "point one." In orchestral music it can be really effective to selectively feed things to that channel. I mix assuming there are five equal speakers plus a subwoofer, and five equal full-range speakers. Often, however, I have to keep in mind that there are home theater systems that have little mini-Bose [type] monitors with a sub-

woofer, and if you don't pay any attention to what's happening on that low-frequency track, you may deprive the home listener of any low end at all — or you'll give the wrong impression of what's supposed to be happening on the low end and have just the mid and top coming out on the rest of your mix. So I've got to maintain five full channels, and then I'll have the low-frequency information of whatever recording I'm

working on go onto the LFE. Then I'll sometimes feed some extra things to the LFE just for dramatic

effect, to kick them in the behind at certain times and to make the subwoofers dance across the floor.

Ed Cherney: Michael, what are you mixing down to — two tracks of stereo and then six more tracks? Into what format are you doing that?

Michael Bishop: Typically, all the 20-bit stuff is going through some custom con-

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I'm looking for those performances now where I feel magically pulled into the recording. All of my favorite old records were records where I could imagine myself being on the date — and lately I don't hear records like that.

— Nile Rodgers

verters and the Apogee 88000, which is going through a Prism interface to DA-88's or PCM 800's in a 20-bit format. Ideally, it would be nice to be recording all this at 96 K, 6-channel, 24-bit, because if we start to do any mixing after the fact, in any post-production we start degrading those bits right away.

Ed Cherney: You could be mixing to analog if you wanted to.

Michael Bishop: We could be, but, particularly for classical, it doesn't go over. Even just the smallest amount of wow in the best of tape machines destroys any orchestral sounds that you have. I have done that for some of our blues things, recording from analog multitrack and then doing a digital mix. We have a Schubert project that was recorded recently in Scotland that was done in a combination of 96 K/24 and 48 K/24, simply because there weren't enough 96 K A-to-D's. Now we've got to deal with having to edit a combination 96 K/48 K master and boil it down to 44.1 for CD 5.1 release, in addition to the stereo, which was done in DSD. So it's getting a little bit complicated.

Nile Rodgers: I want to break the format here for a second, because when Alan was saying maybe this isn't the time to discuss this problem, I think in a way it is. About a year and a half ago we did a live concert in Japan, and we were fortunate enough to do the mix to DVD and 5.1 — and with my style of music and the particular performance, it really felt like an appropriate situation.

All my life I've liked to see bands live and to hear them perform live, and I've always wanted to have that kind of dream recording. I grew up with *Frampton Comes Alive* and then found out that maybe Frampton didn't really "come alive"; he started off alive and then was overdubbed. But this performance we did really is live, there is no overdubbing, there is no extra stuff.

I just want to bring my engineer up and talk about this, because while we were doing this live he was out in a truck — usually he can watch us perform, but this time he's out in a truck — recording to 5.1. I'm thinking, what the hell is he doing, is he listening to the mix that he normally puts up? It's exactly the same sort of situation that

you were talking about. Are you listening in the stereo environment, are you listening in 5.1? Was he actually listening in stereo the way that he normally listens, and then we would go and mix the DVD versions?

The other thing I was thinking about when we were making the record was knowing that we're going to be looking at pictures at the same time on this particular project. I know that I'm sort of an old-fashioned guy — when I'm looking at pictures, I want to hear the music...

Alan Parsons: ...when you don't have pictures, when you don't have a live band, when it's re-creating a soundstage that's imaginary, it's a different story. You start spreading the pictures out on the walls...

Nile Rodgers: I think about this constantly. I get bogged down. I just want to hear the music happening. I agree with what you said at the beginning. I'm looking for those performances now where I feel magically pulled into the recording. All of my favorite old records were records where I could imagine myself being on the date — like, what the hell was Jimmy doing when he was playing this stuff? — and lately I don't hear records like that. When I hear records I say, "Oh yeah, he got the bass sound from this record, he took the loop from that," but it's not that passion I've always grown up with. I find that missing from my life.

Larry Hamby: During the live recording, most important to me at the time was monitoring in stereo in the mobile, because the most important thing was to get it on tape correctly — knowing that when we got to the studio to mix it I could monitor for 5.1 at that point and mix that way. I wasn't mixing in the mobile to 2-track, I was just trying to get it on tape as best I could, knowing that I could worry about it later. Just getting it on tape cleanly was the most important thing at that point.

When we got to the mixing stage, we had to do a lot of bouncing back and forth between a stereo monitoring situation and a surround monitoring situation just to make sure it was all going to even out. At that point stereo was more important, since we didn't know when DVD was coming out.

Chuck Ainlay: I think a lot of what's coming up here is that this format can provide

Surround

lots of different situations. For film, the use of the center speaker really tends to pull your attention to the screen, which is great.

Ed Cherney: Chuck Ainlay, from Nashville, Tennessee, works with Tony Brown and engineers Vince Gill, the Mavericks, and has mixed a lot of great records, country, rock, and pop, that you've heard. He's been working a lot on stereo records that were really designed to be played on country radio, remixing these for DVD 5.1 audio, and approaching it in a different way. It's kind of tough with just a drummer, three guitar players, a bass player, and a keyboard player. How do you portray that in a 5.1 format? Before we get to that, John Kellog from Dolby, maybe you can tell us how many 5.1 decoders and systems are out there in North America right now?

John Kellog: A little over 600,000. They're

selling at a rate right now of 50–60,000 a month.

Ed Cherney: Hear that, Larry? They're going to be buying that 5.1 stuff pretty darn soon! They're looking for it. And we'll look to Larry Hamby and Phil Ramone to get the perspective of the record companies and the record executives and how they think they're going to deal with this new revenue stream. Chuck?

Chuck Ainlay: The question is how do you approach this, and I think everybody has to realize it can be approached in a lot of different ways, depending on the intent of the recording. In a classical recording, you can put the orchestra in front of you and use rear speakers primarily as ambience. A pop recording that's not actually focused by video or film or live presentation can be something that does envelop you all the way around and evoke a lot of emotion

In a classical recording, you can put the orchestra in front of you and use rear speakers primarily as ambience.

— Chuck Ainlay

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There aren't any rules with this, and if you sat in a system surrounded by speakers — and hopefully people at home are going to have these systems — you can just make it up as you go.

— Ed Cherney

from the music. In fact, it's the way I grew up listening to music; putting a pair of speakers in the front of the room and a pair of speakers in the back of the room because it sounded better to me. I think this can be approached in a number of different ways, and I don't think we're here to tell people how they're supposed to go at it.

Ed Cherney: That's it. There aren't any rules with this, and if you sat in a system surrounded by speakers — and hopefully people at home are going to have these systems — you can just make it up as you go. It's a whole different battle. And, typically, making stereo records, a lot of times you're trying to cram ten pounds worth of sausage into two pounds of sausage-casing. Now this thing opens up and it's a whole new adventure, and that's really what we're exploring. Do you foresee the day when stereo won't be around and everything we're going to be doing is in a 5.1 context? Phil, do you think we're ever going to come to that?

Phil Ramone: No. There are some members of this panel who made records when it was mono, when it became stereo, and when it became a CD. Some things got phased out, but the most important part of it, obviously, is putting the music first. I have to please myself. Part of the fun of making music is always to understand how underachieved we were. I remember screaming about the CD — and people arguing about the quality, the high end, the lack of warmth — and all the stuff we were losing. But I don't want to get into a Beta vs. VHS-type argument.

When challenged, there are two things you want to do. You obviously want to make a great stereo product. For those who don't know, I've been a big proponent for ten years of making stereo pairs for remixing and have been doing it when there weren't even DA-88's. Now suddenly it looms as a very important achievement, because if you think about not trying to do a live concert, but a recording where your final mix needs to be in the same budget as the stereo mix, it works by running stereo pairs. Engineers hate me for it because they have to stand around while we do these things in discrete formats and with discrete echoes. What it does bring at the end of the day is that you can run the 2-track.

An example is the Dave Grusin *West Side Story* I did. On our DVD, I learned really fast. I didn't allow any fold-down, the actual 2-track stereo is in sync with the 5.1. The 5.1 is in its discrete form, but when I ran it, I made sure that the 2-track appears as it does in the regular CD, because we have to put out a regular CD and a DVD.

My encouraging learning process was to find out we could create a moment in the studio that was a live recording of a rhythm section, with horns and saxes coming around Dave Grusin who was a centerpiece. It was a big advantage that the drums were in a booth, the bass player was in a booth, and percussion was in a booth. It gave me more of a treatment of ambience without trying to perform it straight ahead with surround coming around us. That was a creative choice, and I think that's what we're talking about here. I also tried to decide if there needed to be any lip-sync'ing, because then it becomes a different animal. When you're watching it and you see something to the side of you, the whole panning becomes a question. My theory was to try to make us experience it as a musical event only. Then I added picture, because I didn't have the budget to go out and make a million-dollar production of just the visuals, as much as I would have liked to. I took still pictures because I thought that the music with a minimal amount of pictures was interesting — you would get bored after two or three times or never want to watch it again, unless it was a concert piece.

So I think we're headed into an incredibly important phase of what one would call the DVD audio experience and CDs in that format. What we need to consider in the next two years is the sale of the DVD and the player, forgetting about all the quality problems, as you're never going to tell that audience to buy five equal expensive speakers. I think it would be delicious if you could, but we have to assume we're going to have to go through the same fight we used to when people bought those little, itty-bitty, so-called left and right speakers.

The advantage we have is ten or fifteen years of great CD quality and a real audience, an audience that's now driving a car [with a sound system] that sounds better than most home systems. We're in a great place — I truly think we'll be talking 5.1 in the car next year with no prob-

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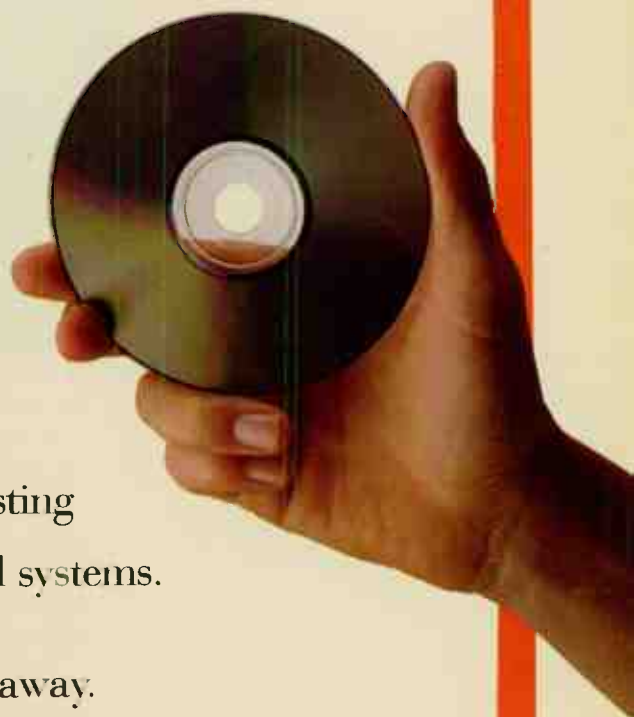
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—Phil Ramone

lems. I also think we'll be talking about home theater as a way of life. The common TV room of when I was growing up doesn't exist, but what does exist is a place for the kids or yourself or your friends to watch a DVD movie. And why wouldn't you want to hear your music on that system? We're headed into a high-class format, the 24-bit to 96. Elliot Scheiner has made some great DTS — they came around and did their demos with me. I'm not here

Ed Cherney: Phil, do you think, from a record company perspective, you want to be able to have one package and one CD disc that has your stereo mix and your 5.1 mix on it? Should you sell just this one thing and be able to put it in any player, in your car or at home, and have it figure out what it is and play a stereo mix or a 5.1 — or should you have to go



to discuss format as much as concept — and our audience is our concept. We [N2K] only made one DVD this year, but in '98 we will make two, maybe three. The one we've made sold in the respectable 5000 range. That's not enough to make anybody a lot of money, but it puts the music business in a place where we can say that next year, hopefully, the audience will come back because we're giving them high quality, worrying about resolution for them, not trying to be cute by worrying about formats and radio, but trying to make music that is palatable, reissuable.

There are so many great records. I just got called up to hear the Billy Joel collection, going back to the original analog tapes, and had to remind Ted Jensen that we had some screwy things we had to do with the Dolbys in those days. In less than 20 years, we have made a change again, and traditionally ten to fifteen years is the run of a specific cycle, so I think we are headed for an incredible change.

to the store and get a whole separate DVD audio-only disc?

Larry Hamby: I just wanted to comment briefly on your question. It's very unwieldy to put that much stock into the marketplace. The record industry is manufacturing more music than retail can absorb now, and the number of retail outlets is shrinking all the time. So the marketplace will determine that. We had the same problem, those of you who can remember, when we had mono and stereo in the marketplace at the same time. Most of us remember as consumers how complicated that was — which bin do you look in.

Phil Ramone: Thank God nobody asked me about delivery systems on the Internet — they are going to be a proportionate share in the next five years of some form of this music. I don't suspect that

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Do you foresee the day when stereo won't be around and everything we're going to be doing is in a 5.1 context?

—Ed Cherney

people will be buying 5.1 in a direct download, but we are talking about where our living is. When the stores shrink and the airplay shrinks, there are only certain places you can find out about this new format. The DVD is a natural to be bought as one format with the CD music right on it. It's just a question of what we decide and how much picture we want with it, or if we want any picture with it. But that's not as important as information. It could be credits, pictures, and stills. The session stills are pretty interesting, I think. What you get back with the DVD, for those that mourn the loss of that nice 12-inch format, is the lost book, the old-fashioned cover, the pictures, the liner notes, the biography...

Alan Parsons: I've been saying for years, Phil, that it was a disaster that we ever went to a 5 1/4-inch disc. DVD, for all its wonderfulness, and the fact that it's got eight times the capacity of a CD, is still not enough. If we want to do a stereo mix and a 5.1 and have pictures and full-length movies, 12-inch was the way to go. I've always been disappointed that DVD is the same size as CD.

Ed Cherney: Getting away from the audio, there's room on there to put liner notes and musical facts and pictures...

Alan Parsons: But you're short of memory, still.

Larry Hamby: On that, it was an interesting experience with enhanced CD — when we experimented with that over the last couple of years, we had the same notion. Here was a wonderful opportunity for people to see all these things they used to get with the 12-inch package, and it was rejected.

Michael Bishop: The consumer won't pay for it, they won't pay any extra, and you're going to extra expense to produce it.

Larry Hamby: The problem may just have been that you had to go to a computer as opposed to your home theater.

Phil Ramone: The reason I did this [holding up tall package] is because I felt very insecure about who would buy this at the standard CD price, so we put it out at that price, but we had to remake the book. The

booklet that's in here is twice the size of the booklet that's on the CD that you buy of the same album. As an expense for a record company — the

ATTENTION GRABBER: All eyes are on Al Schmitt as he presents his views on the new format.



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sleeve and the package — it killed us. I was determined not to let us fall into the trap of the old-fashioned cheap, throwaway package, but you are talking about whether this will fit in a bin and will the stores allow you to have this high size. They did for the first one, they won't for the next. I think that the key to this thing is what people get used to.

People said the computer was a pain in the butt to watch an ECD, and it was. I don't know your failure rate, but we had quite a bit, whereas Web TV was a lot more interesting to gather that information. I think we have to realize we are a multi-formatted group of people, and the key to it is the highest quality audio. We have always been the stepchild. This is our chance to be the leader for the first time, because we know they know how to make great pictures and effects. We have the ability to take those effects and put them in the DVD and make far more interesting music than we've ever made, even if it's just a standard, interesting recording with a five-piece band.

Ed Cherney: I'd like to move over to Elliot Scheiner, Grammy Award-winning engineer and producer. Elliot had a lot of experience, especially doing live 5.1 projects. Right now he's just done Fleetwood Mac, *Hell Freezes Over* for the Eagles, and the new John Fogerty, and I wanted him to talk a little bit about his experiences with that. I know he's done them on different formats. And I'd also like to hear some talk about mastering this stuff, what it takes to actually finish the project and deliver it to the consumer and what steps you have to take, where do you go? How do you finish this thing off?

Elliot Scheiner: Before that, I want to agree with Chuck that in mixing in 5.1, anything goes. You can do anything you want; there are no rules. What works for one person doesn't necessarily work for another. I had an incident the other day. I mixed *Gaucha* in 5.1 a few months ago. Recently, I had to get the tires replaced on my car, and there was an audio place next door. I ran in and was looking at a 5.1 amplifier, and the guy said, "Let me put this up for you." He puts up *Gaucha*. So I'm sitting here and he says, "I don't really like this record, because you don't hear that the horns and vocals coming out of the back." Well, I loved it that way.

Donald and Walter loved it that way. This guy hated it. You're not going to please everybody. You've got to go for what you want to hear. I didn't tell him I mixed it — I was embarrassed. So you can do whatever you want. I've made my mistakes.

The first thing that I did was the Eagles record. I used the center speaker, and I paid for it in the end, because all the focus on some things came right to the center, and when it was done, I hated it. The biggest issue for me right now is fold-down. What I've experienced so far is that record companies are taking the final product away from us. They're taking the mixes, and instead of bringing them to a mastering facility, they bring them to a video postproduction facility. So now there's a guy who has really no audio experience with records, and he's taking a 5.1 recording and saying, "Gee, the strings are a little loud in the back, I think I'll bring them down." I had this experience with Fleetwood. It turned out this engineer decided he didn't agree with the mix. So my integrity was in trouble, and when I heard the fold-down, it was horrible. One of the main issues is that we need to be able to have the mastering facilities do the 5.1, and if there is going to be a fold-down, then either we have to be there or trust our mastering guy.

Phil Ramone: If you run your 2-track, which you've approved, do not allow them under any conditions to take your 5.1 and try to fold it. It does not fold. Even if you use center information or you don't, it doesn't matter, because the build-up is incredibly stupid.

Ed Cherney: How do you prevent that? Even on a stereo record you have to fight with record companies not to make a digital clone, make a DAT, and start manufacturing all over the world with that. Doug Sax is here from The Mastering Lab, as are Steven Markeson and Bob Ludwig. We rely on you guys all the time — maybe I could prevail upon you to stand up and talk about what kind of plans you have to deal with this 5.1; to be able to master and give the music producers a place to go, to be able to do our final tweaks, EQ, and compression. In addition, mastering guys typically are our last line of quality control before the manufacturers get their hands on it. They're the ones who can alert you when

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— Alan Parsons

the record company isn't ordering 1630's and they are ordering a DAT or some other thing that they're going to put into a funky editor.

Stephen Marcussen: Obviously, we're all concerned about this. It's really in its infancy, and nobody knows what to do with five identical channels, processing, and what not. It's going to be a challenge — we're going to worry about how we're going to store this, ship it, and how our plant's going to handle it. These are all big issues. How is this all going to work together, how are we going to set standards? These are things I think we should talk about.

I just set up a 5.1 system in my house with limited capabilities and small speakers. It works, it really works. The problem is, how do you know where your center channel goes? At what level? And the sub-woofer? Good luck. This is all really important stuff, I think. Once we can set an MRL playback standard, I think that we can proceed.

Ed Cherney: Then comes the issue of educating the public, the people who have these systems at home, in order for them to be able to set the levels between the

speakers, placing them somewhere, in some way, that works.

Larry Hamby: You were talking about an excitement and a passion in records that you haven't felt over the last ten or fifteen years. Part of the fun with stereo, that era and some of the greatest music, was that nobody knew what was going on. The consumer didn't know what to do, the engineers didn't know what to do, the artist didn't know what to do. It was just there, and you messed with it. Every record had a different approach. There were no standards, it was wacky, most speakers were out of phase, or one behind the other. It was so much fun. Now everybody's gotten so good, and it's not as much fun anymore.

Alan Parsons: You've got six speakers now, any one of which, or a combination, could be out of phase!

Stephen Marcussen: And the other thing is, when you guys are delicately balancing this stuff, somebody's got their center channel way up, and they're going, "Hey check *that* out!"

Ed Cherney: I don't think we've heard from Al Schmitt. Primarily you've been working with jazz in this media, haven't you?

**THE ANSWER
MEN:** After the seminar, audience members had the opportunity to question the panel.



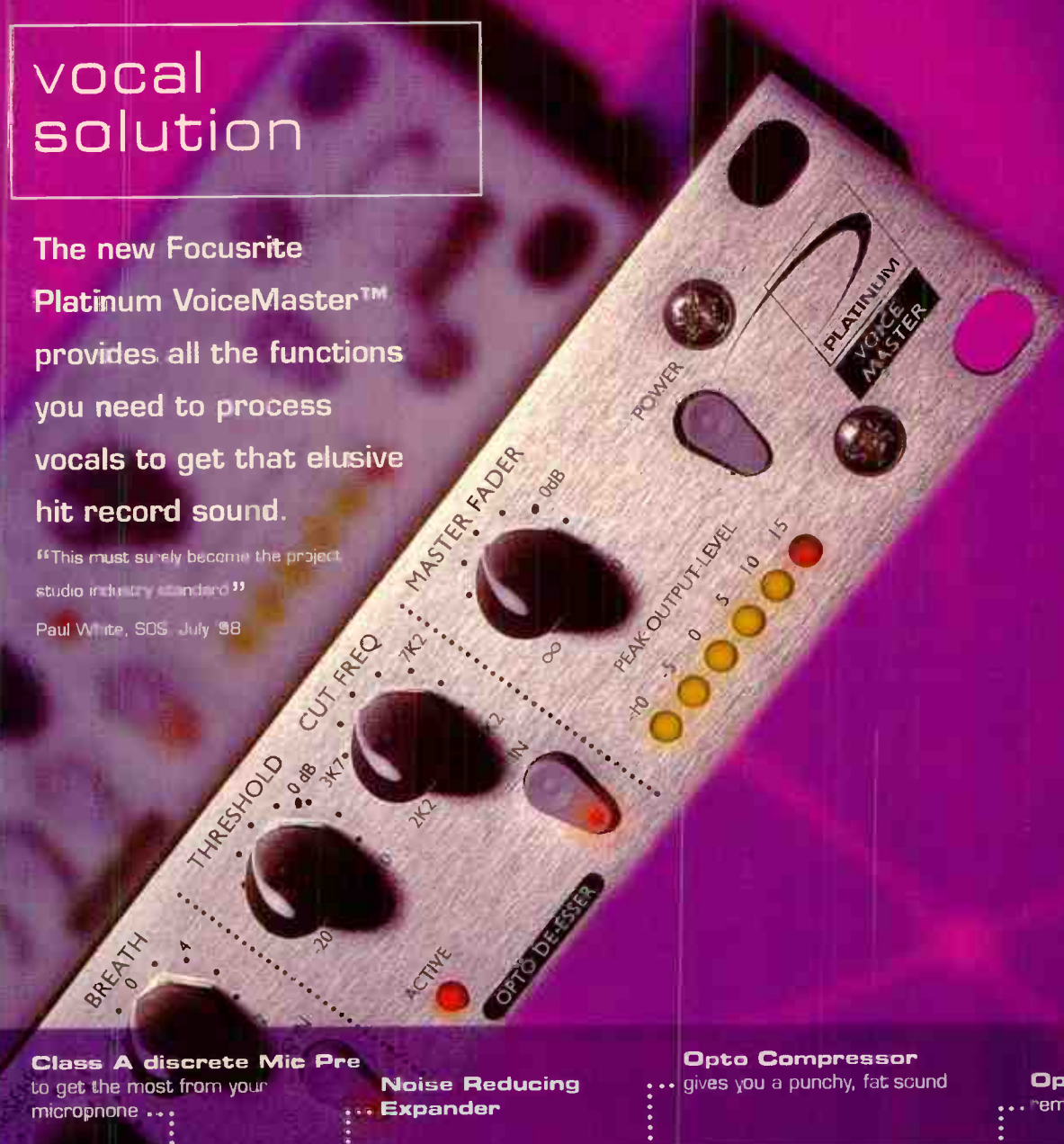
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One of the main issues is that we need to be able to have the mastering facilities do the 5.1, and if there is going to be a fold-down, then either we have to be there or trust our mastering guy.

— Elliot Scheiner

Al Schmitt: A lot of jazz, a lot of movie scores, large orchestra things. Whenever I go into the studio to set up, my thoughts are with 5.1. I use additional microphones that I didn't use before. I mix in stereo, but I want to have those microphones that I can add when I'm mixing to 5.1. There are no rules. Some guys like a lot of things coming from the back. I'm not particularly fond of that — I like to hear the orchestra in front, I like to set up as if I were conducting, so I can hear it around me and have the ambience behind me, to make it as if someone were sitting at a concert. You can do this with five pieces or you can do this with 95 pieces. Again, the music is

consider how we record at this point and what microphones we use and how we set up for 5.1. If I'm doing a film score or something on a huge soundstage, I'll set up my tree and my microphones out with the orchestra, but I'll also set up the orchestra deeper into the studio. I'll set up some ambient mics back maybe 15 feet from the conductor, which will give an ambient sound. There are no rules.

I've heard a lot of the quad records where stuff was spinning around — you got seasick in 20 minutes listening to this music. So I think we'll all learn from it. I did a lot of Dave Mason mixes for Columbia Records in quad that never came out. The first one had a lot of stuff going on in back, and as we got into it and learned more, it was less and less. Again, trying to educate the consumers is one thing, but they're going to put their speakers wherever they want to, to make it sound however they want, whatever's going to make them happy. That's what we're going to have to deal with.

Larry Hamby: I think you also have to realize the end consumer isn't really as worried



GOLDEN EARS AT WORK: Audience member Bruce Swedien gets a sampling of surround sound.

what counts, not what's coming from where. It's the emotional thing that's happening.

I'm going through the exact same thing with mastering where the mastering engineer didn't like my mix in the 5.1 and wanted to change things around. We all have to think about it. It's the wave of the future, but I think that we really must con-

about getting the exact surround placement, they just want music.

Al Schmitt: Things that are important to us are not always what blow the consumer away. We're getting into the mix and we're



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—Michael Bishop

hearing certain things that knock us out, but maybe the consumer is not knocked out by that. They're maybe more knocked out by hearing somebody's mouth open, or a loop sound.

Alan Parsons: Especially college kids. I've been listening to the quad version of *Dark Side Of The Moon* I did way back in 1973, and the first reaction is to switch everything off except one channel to see what's going on. If you've got a vocal in one channel, you're listening for the coughs and all. The kids will do that.

Elliot Scheiner: That is a problem. Most of the stuff I've mixed has been live stuff, except for *Gaucha*, and in making a studio record, you've got punches, you're hiding stuff — in a stereo image you hide everything you can. Now everything's exposed, so how do you hide this? All of a sudden I've got horns coming out of the rear and, well, that could be a problem — you don't feel any ambience on the horns the rest of the time, so how do you hide that stuff?

Alan Parsons: One interesting point to make, though I don't know if I speak for everybody here, is I found that mixing for surround is actually easier. You are more tolerant to misgivings in the balance when it's coming out of five speakers than when it's coming out of two. You put the same problem in a stereo scenario, and you need to tweak it up.

Ed Cherney: You can make it louder, too — 90 dB in 5.1 is a lot louder than 120 dB coming out of stereo.

Michael Bishop: And you can discover dynamic range again. You don't have to compress the heck out of everything because now you can let things percolate all around the room.

Ed Cherney: There's room for dynamics, pulling compressors, pulling equalizers off things, which is really fine, hearing dynamics in music again. Before, sometimes you'd get into these volume wars where it's either full on or it's gone. Music is about dynamics.

Nile Rodgers: What was amazing for me, when we were doing our project, was

when I was watching the thing at home. I was impressed. I was sitting there listening to my own music going, "Boy that stuff sounds good!" I hadn't felt like that for a long time. After making as many records as I have, I'm highly critical of everything that I'm hearing. So I agree with Alan totally. For the first time the dynamics were cool, and I loved the mistakes. My trumpet player's a madman, a lunatic, and I could feel his vibe, I could feel that lunacy happening on my right side, and it was great. I thought, "If I could do every record like this, it would be really cool."

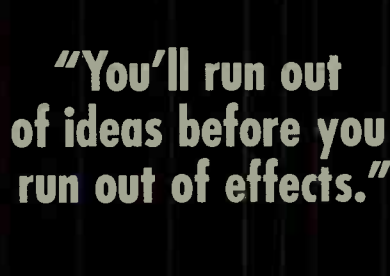
Ed Cherney: How can the audience know if they're hearing what you want them to? Can they know, or do they even want to know?

Phil Ramone: People do want to know. Recently, I went to the buy a standard "whatever's-in-the-store system." I bought two different amplifiers and two different systems — one was a Panasonic and one was a Bose system. Well, the Bose system didn't play the low end. It didn't know where it was, and I realized how crazy this was because I went back to the manufacturing and back to the mastering to find out what happened to my subwoofer. Then I played it on a Panasonic, and I actually had to take the subwoofer down. So there are things like that the audience doesn't know, including us.

Ed Cherney: Do you think what's going to happen with the record labels is that you're going to produce a record and you're going to get a call saying, "Give me a stereo mix and also a 5.1 mix while you're at it?" Will it be within the same budget? Will we have to start budgeting differently? Do we do it at the same time?

Larry Hamby: Yes, it's cost-efficient. There may be situations where we're going to want to go into the marketplace at different times — to lead with the stereo and then follow with 5.1 to create some kind of demand — but nonetheless it's a lot easier to get guys like you, when we can get you, in one shot. It's probably easier for you, too. I'm talking about within the same space of time, not two mixes at once.

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— Al Schmitt

Ed Cherney: With some pop records, doing it at the same time would be a royal pain. Just to deliver an album that a record company accepts, no matter what you turn in, you're going to get the calls from the vice president of A&R or the president of the company saying, "Well, we like this mix but we need a more 'vulnerable' mix." [*Laughter from crowd.*]

Larry Hamby: You are always going to have those people in your life — that's the way it works. But it will be like now, when you'll do a stereo mix and then a TV mix, that kind of process.

Elliot Scheiner: You're saying stay all day mixing this one song and do all the versions?

Larry Hamby: No, before you've got to leave — and say you're working on three different records — I'll call you and say, "Can you come back and do the 5.1 mix?" I'm saying, while you're employed for the project, during that space of time, however it fits your creative process, at the end of the day when we're done, we shake hands — and thanks for that vulnerable mix!

Ed Cherney: Do you see a time in the next five years when it's going to be a matter of course that you deliver a DVD 5.1 audio program for every artist that you do?

Larry Hamby: I would like to envision that time — I hope so. I love it. Everybody who hears this loves it. So, absolutely.

Ed Cherney: Does all the music lend itself to that, the way it's going?

Phil Ramone: Just to join in with Larry, if we don't budget and start to predict what's coming, we are going to lose control. The last thing you want to do is to hand it in to another place for a 5.1 mix. The sensitivity is so important to the way you made the music, and you and the artist, whether you produced it or are co-producer, are all part of the texture, the timbre. I've seen some reissues of records I've made, it's shameful.

Ed Cherney: Sure, when they were being reissued for CD, and they were making them off EQ'd safety copies, you didn't know what they were made of.

Phil Ramone: There are so many great mixers at this table, and all of you are there for a major purpose. People like myself hire you for your instinct and all of the rest. It's the quality of time that you spend to go two points further that's really going to be critical. I think for Larry and myself, and anyone who's trying to sell this in the next two to four years, it's critical to make provisions for a format — even if you make it in stereo pairs and leave it to come back to. At the time you're making the mix, it's not hard to subdivide the board. It does mean your assistant stays for another couple of hours, but it is the only way to preserve what you've done. Otherwise, your attempt to re-create the mix for 5.1 is going to be a disaster, especially in someone else's hands. As a producer myself, I'd like to think that what I worked on with the engineer came out the way we wanted it in all formats. We have to think the future, and the budgets will have to adjust.

Al Schmitt: You know, again I think that we get hired to do mixing and engineering for our personality that we put into our mixes. We all do things a little bit differently, and that's what's going to happen with 5.1. We're all going to find our own little way of doing things, and someone will say, "Oh that's an Elliot Scheiner style." People will pick up from that, other engineers who are learning. We all put our personalities into it. We all have different ideas of how it should be laid out, where the echoes should go, and where the ambience should go — and that's what's going to separate the men from the boys.

Ed Cherney: You'll see the danger when you start seeing a CD in stores that is something that you did a while ago, and somehow it got rechanneled for 5.1.

Phil Ramone: It's happening now. There are lots of fake DVDs, and I'm appalled that people are doing it. They just put it through an encoder like any of the surround sound systems — and it's a real drag for a musical person, because things get thrown back there that you have no control over. It may sound pretty good, but it's not the record, not the record you know. Al, you remember the days at Capitol Records in New York where there was a guy sitting upstairs doing stereo, and all the rock 'n'



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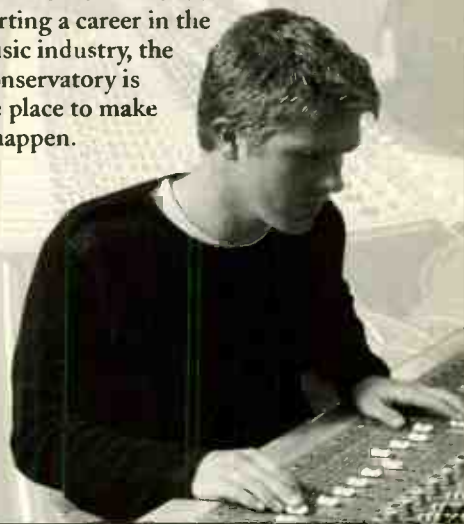
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roll records were downstairs. Elliot worked with me at A&R, where we finally devised a system by which we could actually make a stereo and mono at the same time that did have a center build-up control.

We're talking about the art, and I think that one of the reasons I was attracted to be a part of MPGA was that we've never had a platform to stand on that controlled the finished product. I think no artist or painter lets a painting go out in a reproduction that he doesn't look at and approve. I really pray that we put our own standards in, because in the long term, there will be a person in the year 2010 who will buy *Gaucha* again. I remember *The Alan Parsons Project*. I'd love to hear it now in 5.1, re-engineered by you. Well, *The Wall* will be done for the revised version, and I can't wait for that record. I think that the next generation of musical person is your audience and is insanely interested in this. When record companies understand that, that the stamp of approval should come only from the people who work on it, it will be so much nicer for us. It's more respectful. Look at Francis Ford Coppola's films, or any of George Lucas's people's productions — without their personal stamp, their movies are not the same. Look at the work they did redoing the *Star Wars* series. We are in a perfect place to demand it. An accountant from a record company can learn that the numbers will work for him in the long picture.

Ed Cherney: Now we'd like to open up the floor to questions.

Steve Traiman [from *Billboard*]: I think that the MPGA is in a position to bring the artists, the producers, the record companies, the hardware guys, the studio equipment people, and the studios into a DVD audio group that can really take the lead in getting the right product out — and also getting product out there the consumer will know how to use effectively to maximize their enjoyment.

Ed Cherney: You know we're definitely going to try to do that. We're only six months old. We just hit 125 members, and that's definitely on the agenda. I do want to say that there is so much bad in-

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— Elliot Scheiner

formation about what DVD and 5.1 audio are, that you can't tell what is going on, and we're in the middle of it. It's like that for all of us. That's why we're having this meeting, so we can clear up some things and move together. The ultimate thing we want to do is make great music, great sound, and great product.

Alan Parsons: I think one point that needs to be made is that surround audio is deliverable in formats other than DVD at the moment. DTS has a CD format, there are laserdiscs, and Sony is working on a format as well.

Ed Cherney: Robert Margouloff. Robert's done about 35 5.1 projects.

Robert Margouloff: I think there are a couple of things to understand. First, 5.1 is going to live on different formats. The DVD world is still very much

in that medium for about 2-1/2 or 3 years. There are standards in DTS. We've just finished the second standards disc, which does define level, direction, channels, and so forth and has become probably one of the most popular discs we have.

We're putting out DTS decoders, a large quantity of them, and they should be used. Yes, we do share a platform with movies and with laserdiscs. Home theater is a platform that sloshed in from the movie side of things. When we put on a laserdisc of a movie and then we switch to a DTS-encoded CD or a Dolby 5.1 CD we want to make sure that all the levels are the same for everybody; that they're not wildly out of whack. We also have an electrical standard in the studio where all the channels are the same.

As for downmixing, for me as a mixer it is very important that we have a co-existent mix in stereo on the same disc. I don't think it's going to be a real issue with the



FOOD FOR THOUGHT: Attendees fed on knowledge gleaned from the pros as well as a well-catered lunch.

up in the air. There are standards issues that are not settled yet — not settled by the RIAA, not settled by the International Steering Committee.

Everyone is coming up with different formats right now. There are compatibility issues that need to be settled. What is out there right now is DTS. I've been working

DVD world when that happens. Right now, for me, the DVD world as far as audio is concerned is vaporware. But whether it's the CD that's out there now or when we deliver on DVD, it's going to be truly a situation in which we're going to be able to deliver both a real stereo mix and a real 5.1 mix on the same disc. I think that's going to really answer the question about double-stocking.

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When I've got a stereo mix that's happening, the last thing I want to do is sit there all night and start messing with a 5.1 surround mix.

— Ed Cherney

Ed Cherney: Leslie Ann Jones has just been elected as part of the Board of Directors of the MPAA and we're very happy to have her involved.

Leslie Ann Jones: I just wanted to point out that on the laserdisc, at the end of the format, there is usually pink noise isolated on all the channels with proper level for testing. That should be something that would be simple to do on the DVD, to be part of every release that comes out. It's the last index, so you can go to it right away and check things when you want and know at least that your speakers are in the right order for the consumers.

Ed Cherney: Who would we bring that up with — the labels, manufacturers, or mastering houses?

Leslie Ann Jones: The mastering houses — that would automatically add it to the end, and it would just become the last index, along with the song title.

David Pico: About mixing 5.1 and going back and remixing old masters and putting them out: It suddenly occurred to me that in the contracts originally, when we produced these records, there were definitions of what we get paid for — there's the royalty rate for CDs, royalty rate for cassettes, and so on. There's nothing for 5.1. What do we do about that?

Ed Cherney: Typically, as a producer, your deal is piggybacked with the artist's. If the artist isn't seeing a royalty from that, you're getting screwed the same way the artist is.

Alan Parsons: I think David has a point there. I think most contracts would say the producer or the artist will deliver a stereo master of a format suitable for manufacture of phonographic records or whatever. Maybe anything other than a stereo mix might be excluded from that contract.

Doug Sax: Mastering's going to come down to formats that are unknown — what's going to survive in DVD audio. We're talking about 96 K, 24-bit, and all of us mastering engineers, when we talk about it, may say why is my DVD audio disc 50 dB quieter than his DVD audio disc? We're getting ready for the possibility for wide dynamic range. Until the format is de-

ecided, it's going to be pretty interesting in the mastering world. One thing for sure, if the industry needs mastering for two channels, I think they're going to need mastering for five channels more than ever.

Doug Mann: How do you feel or what are your perceptions on doing the DVD mix while you still have your stereo mix up on the board? Do you think it should be done then, or at a later date?

Elliot Scheiner: I think the opinion is mixed up here. Some of us feel it can be done at the same time, others don't.

Ed Cherney: I think it depends on the style of the music you're doing. Obviously, Michael Bishop, who is doing classical and jazz things, feels that his part of his job is doing it at the same time. But I'm telling you, working on a pop record, the last thing I want to do is start *patchkeying* with another mix after I've been beaten up and wrestled to the ground to please an artist and a label. When I've got a stereo mix that's happening, the last thing I want to do is sit there all night and start messing with a 5.1 surround mix.

Chuck Ainlay: What I've been successful doing is taking recalls from the original mix and going back and recalling and splitting out the mix. Basically using all the automation data, the same EQ and compression settings, and then just having to add some reverbs and delays to enhance the rear channels. I find that I can probably do about two songs a day that way, but that's really pushing it.

Ed Cherney: That works for me, too. I thought it was going to take a long time, but it was two, three, four mixes a day.

Elliot Scheiner: I think the other thing to think about, too, is that this is a purely digital medium that this will be released on. In the future, we might be seeing more digital desks used to mix this on, where you will have instant reset and the capability of doing some sort of template from one mix to another. Say you do your stereo mix, then you do your surround mix following that — perhaps you could bounce back and forth, kind of holding on to bits of previous songs, so it would possibly enhance the speed at which you could do this. I

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— Doug Sax

don't know, there are a lot of things that can happen in the future.

Phil Ramone: I know that you don't agree with me, but the key that I'm trying to get everybody to see, and the reason I'm asking that people think about the multitrack format of storage, is because when you go back to recall a mix two weeks later in the same recording studio, it's very unlikely that all of the gear is digital. How do you get back to those settings? I know what it takes when you tweak to get that little finesse, and you've got that little slap going on the lead vocal, and it's perfect. I just feel that your textures are why we pay you to be there, and I feel that the key to a great mixer is really to store this — because if you don't, someone else will do it.

Nile Rodgers: The thing about a 5.1 mix to me — and this may be really out of whack — is I think that in a strange way it's a new project. Even though the artistic content is the same, this is a new medium where I can experience the music in a different way. If all I'm trying to do is copy my stereo mix, somehow distribute it in a way where it's sympathetic to the original mix, that does-

n't feel like a new artistic adventure to me. I like to think of my 5.1 mix as its own mix.

Al Schmitt: I feel when I recall a mix and bring it back up on the board, I'm getting what I originally started with, at least in quality of sound. When I bring up the stems back through the board, it doesn't sound the same to me; I just don't get the same quality. It's a generation away — it's gone through the board again.

Phil Ramone: I don't disagree with that. I'm only bringing it up. It's my fear, and it's probably unfounded in some ways, are that record companies in the future won't be dealing with this aesthetic that we all think we're going to get, to call you back to do that. My fear is that you won't get the time and the money, in some cases, to do it. And if some young intern is going to be doing this in some "DVD room," I'd just like to ask us to protect it, that's all.

Nile Rodgers: What Larry said originally is the correct thing. When a producer is hired to turn in a project, this just becomes one of the mixes that you have to turn in. If the la-

continued on page 160

UNSTOPPABLE: Innovative commentary continued after the seminar, with luminaries like Al Schmitt and Alan Parsons sharing ideas and techniques.



why a **producers guild?**

Most professions have a guild that safeguards the reputation, encourages the progress, and improves the working conditions of its members. The community of creative music producers and audio engineers has needed a professional guild for some time in order to assure the proper direction and representation of their craft. The Music Producers Guild of the Americas (MPGA) was formed with the goal to provide members with coordinated means to express shared views and concerns. Regular membership is limited to full-time creative contributors to the art of music production and audio engineering in North, Central, and South America.

MPGA is designed to provide for American producers and engineers services already in place in other parts of the world. For example, England's Re-Pro is set up as a division of the APRS, a broad industry association that includes studios, duplicators, equipment manufacturers, and suppliers, as well as educational and training centers. Re-Pro members benefit from cross-fertilization with other organizations within the industry and participate in industry-wide discussions that help set standards and practices through the support of knowledgeable professionals. The goal at MPGA is to affiliate with AES, SPARS, and NARAS, as well as these overseas organizations to address the needs of North and South America.

What, specifically, can the MPGA do for the individual producer and engineer? A variety of things:

Technical: Work to establish equipment compatibility, pre-mastering standards, labeling consistency, archiving guidelines, and the audio integrity of encrypted and embedded signals.

Professional: A career path or job security is often overlooked in freelance professions and there are many things a group can do to make life more secure. MPGA is looking into the creation of a credit union, group health insurance at special rates, etc.

Legal: Are there aspects of a standard "producer's contract" that could be standardized to save on legal bills? Do the current arrangements with record companies reflect the reality of the producer's role? Can a more direct relationship with record companies be established? Can the procedures for clearing samples be simplified so that there is consistency throughout the industry?

Political: To clarify and define the creative role of the producer and engineer, and participate in discussions taking place today that will affect intellectual property, copyrights, and future income.

Regular voting membership is \$365 per year. Corporate membership is \$2500 to \$10,000 per year based on sales volume and number of branches.

To contact members' management, call MPGA at 213-465-7697, e-mail them at information@musicproducer.com, or visit their Web site at www.musicproducer.com.

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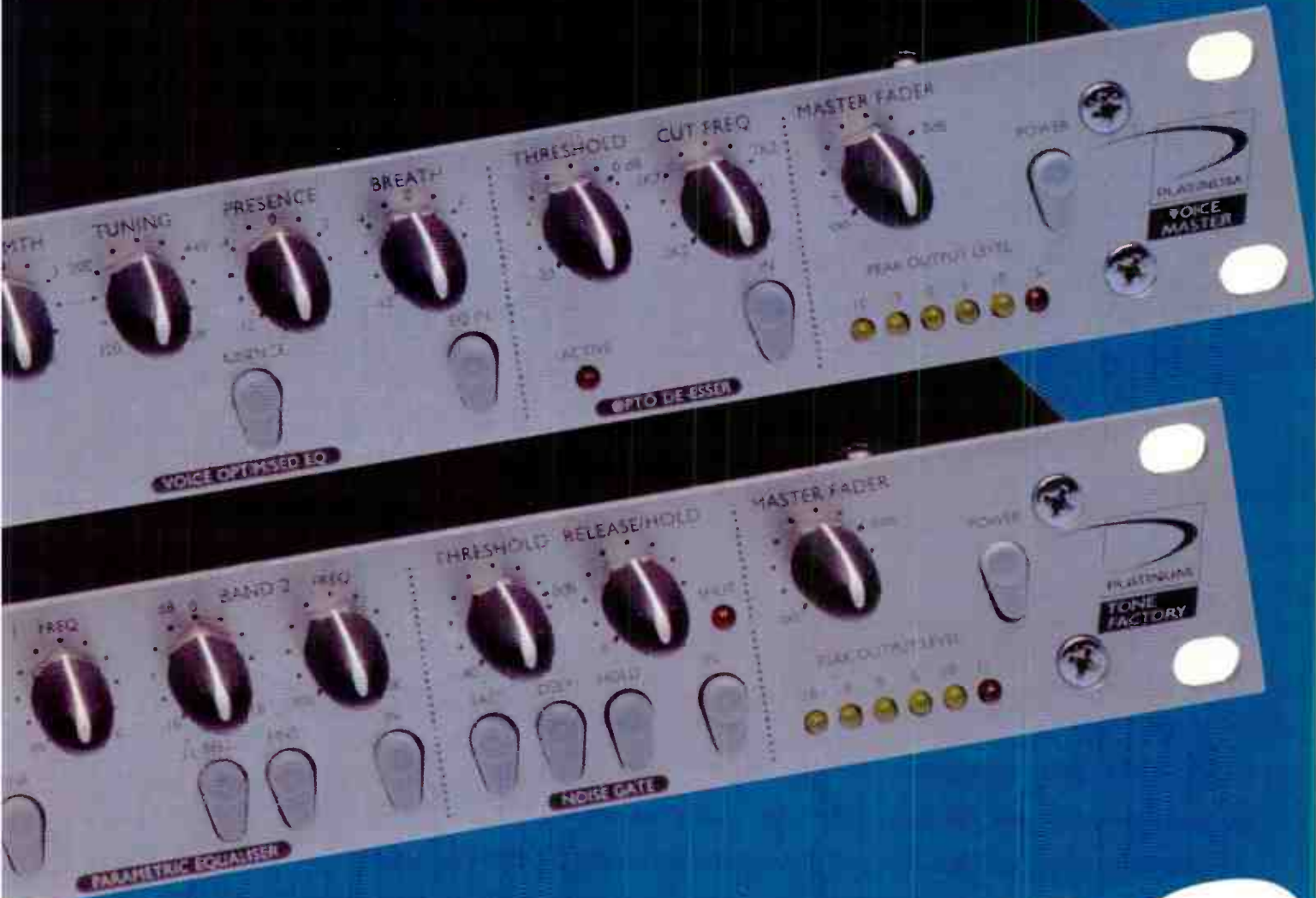
CIRCLE 62 ON FREE INFO CARD

BY ZENON SCHOEPE



**FOCUSRITE
GOES**

PL1a



tinnum

Focusrite introduces its new Platinum Series with a pair of processors designed to offer quality signal chains for hard-disk recorders at a price designed to make it a part of any project studio's rack.

Reprinted with permission from Studio Sound magazine.

Platinum

That Focusrite should choose to aim the first two boxes in its new Platinum entry-level series of outboard processors so blatantly at specific user profiles bodes well for the new range. Placed bottom of the stack and substantially below the still not quite affordable enough Green series, the Platinum Series weighs in with the ToneFactory instrument recording channel processor and the VoiceMaster vocal recording channel processor.

Whereas the Greens were a distillation of ideas that already existed in units like the Reds, the Platinum approach is altogether more specific and clearly targeted at users looking at high-quality signal chains for hard-disk recording. Admittedly, the Greens did also address this territory, but I'd argue that these less-expensive boxes hone in on a more specialized manner, and do so by combining diverse blocks of processing and less academic descriptions of what the blocks do.

FOCUSRITE PLATINUM SERIES TONE FACTORY PROCESSOR

An instrument-level input appeared for the first time on a Focusrite with the arrival of the Greens, but the ToneFactory has gone for this far more aggressively and could be regarded as an instrument channel first and foremost with mic and

line capability thrown in as an extra. It combines a discrete transistor input, with filter, opto-compressor, tone controller, parametric EQ, and noise gate sections culminating with a master output level pot. This single-channel device may be a lower-cost box, but you get an awful lot of pots and switches for your money (each processing block can be individually bypassed).

Rear-panel connections give an extraordinary range of possibilities: phantom-powered mic input, balanced line input, and balanced and unbalanced line outputs complemented by compressor sidechain access, gate key and insert; plus, of all things, a guitar amp-level output. That last is a rare inclusion even on dedicated guitar preamps.

Instruments are plugged in on the front panel. A wide ranging gain control works in conjunction with signal present and overload LEDs, and the input stage is far better equipped to cope with the spurious dynamics that an electric guitar can generate than the overly sensitive instrument input that appeared on the Green Focus EQ's back panel.

High- and low-pass fully sweepable filters can be switched into the gate-sensing circuit, while the opto-compressor has threshold, release, and output pots. Switches

access two attack speeds and a "hard" ratio compression setting. A tone controller block attempts to reproduce the sort of tone shaping found on a guitar amp with bass, mid, and treble pots. The last is switchable to act as more of a high mid, and is preceded by an overdrive control with defeatable speaker simulation. It's not bad at all and capable of some fine variation, but it's unlikely to fool a player used to having his flares flapped by a selection of cardboard cones on a regular basis. It'll stretch to a fair degree of overdrive, manages excellent crunch tones, and has very pleasing cleaner sounds that can be forced to the edge of dirty through playing dynamics. I'm sorry, but I didn't think Focusrite could do this sort of stuff.

TONEFACTORY SPECS

Price: \$699

THD: 0.002%

Noise: -96 dB at unity gain through the unit

Mic EIN: -134 dB

Frequency Response: -1 dB at 10 Hz to 200 kHz

CONTROLS SPEC

Input Mic Gain: 0 dB to +60 dB

Line Gain: -10 dB to +10 dB

Instrument Gain: 0 dB to +20 dB

Impedance: >1 Mohm.

Accepts all musical instrument signal levels from guitar pickups to synthesizer outputs.

FILTERS

Low Filter: 15 Hz to 320 Hz, continuously variable, gentle roll-off curve; -12 dB per octave in corrective mode

High Filter: 4.7 kHz to 24 kHz, continuously variable, steep cut-off with resonant presence peak; -12 dB-per-octave in corrective mode.

GATE

Gate Attenuation: -20 dB in deep mode; gate attenuation >95 dB

Compressor

Soft Ratio: 2:1

Hard Ratio: 6:1

Noise: -94 dB

EQ

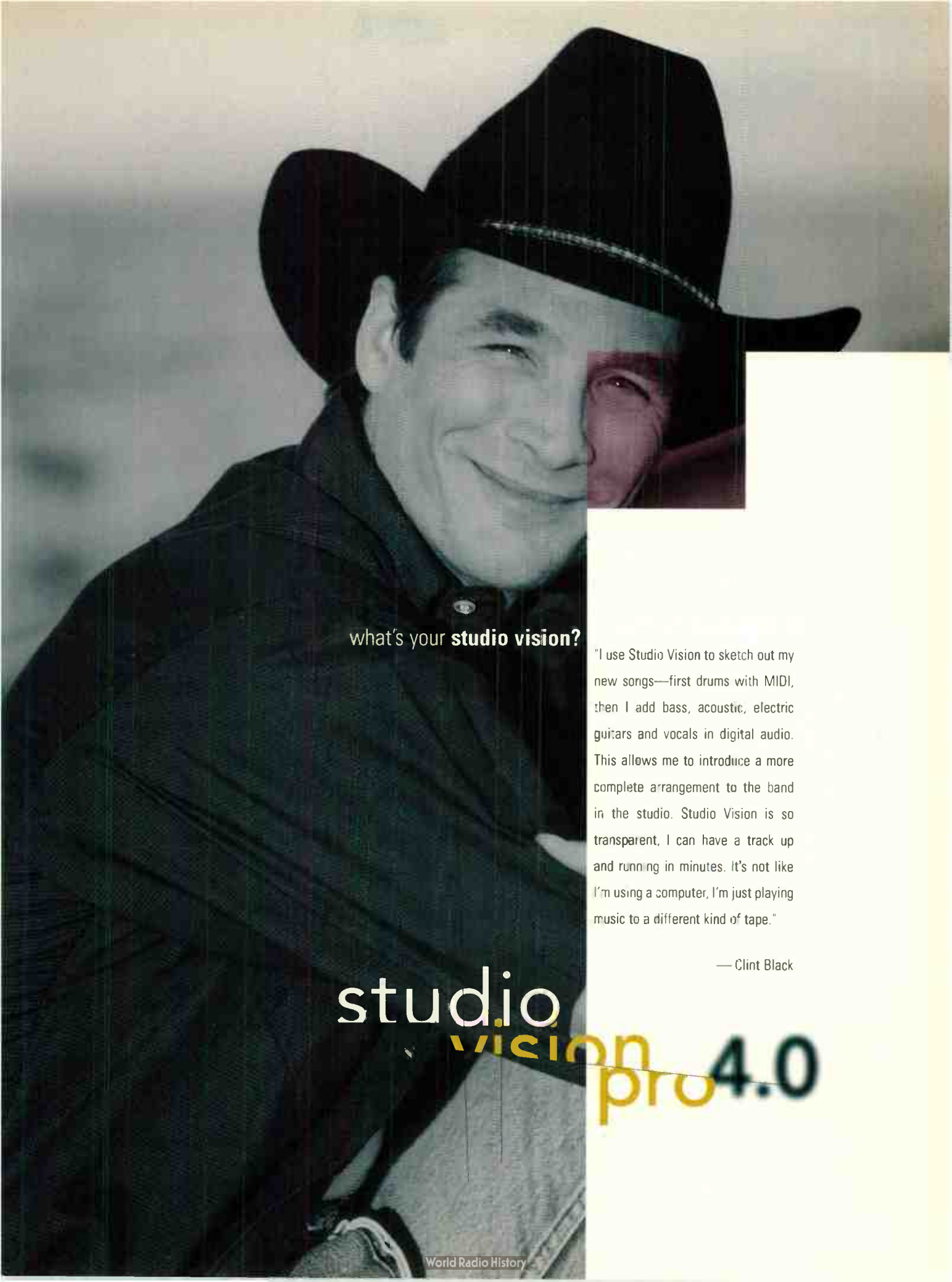
Band 1: Frequency continuously variable, 40 to 1 kHz; Level -18 dB to +18 dB; Q fixed fine or wide, bell shape or shelving

Band 2: Frequency continuously variable, 500 Hz to 20 kHz; Level -18 dB to +18 dB; Q fixed fine or wide, bell shape or shelving

Overload: +20 dB

Focusrite ToneFactory





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— Clint Black

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Focusrite Goes Platinum

A 2-band parametric offers ± 18 dB over 40 Hz–1 kHz and 500 Hz–20 kHz with shelf/bell switching and two Q values on both. This section does most for the ToneFactory's versatility beyond the instrument input, as it's here that you'll tune mics passing through. You're then into the noise gate with variable threshold, switchable release or hold pot, two attack time constants, and two attenuation ranges. It's all rather natty and clearly well thought out to create an extremely flexible single channel.

Don't dismiss the box's mic handling abilities because, while they are not as elaborate as those of the VoiceMaster Platinum unit are, the ToneFactory is no slouch, and it shares its mic pre front end. A touch of excellent compression — better, I believe, on vocals than it is on guitar — and some refined EQ on the broader bell setting and you have a nice quality direct feed.

Keyboards also benefit from the treatment, particularly the overdrive section and its tone controls. Pre-

dictably, it's a corking bass guitar channel with the 2-band parametric able to step in and iron out any of the resonances that can occur on this instrument.

In fact, I could see the ToneFactory bought in bulk and relegating so-so mixers to monitoring duties in conjunction with hard-disk systems. If I have any reservations, it is that you cannot alter the order of the processing. It's not a major point, but being able to juxtaposition the tone, EQ, and compres-



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sion blocks would have extended the flexibility even further.

I'm not sure whether all-out guitarists will be smitten by this unit. Nonetheless, I would expect that some guitarists — and the project studio fraternity is filled to bursting with these — are likely to pay attention to the Focusrite branding and appreciate some of the pure recording features this box offers rather than its abilities as a pure guitar channel processor. There are guitar preamps that perform better, but none are as optimized for the recording environment.

The ToneFactory is a perfectly workable device and [a] bold move by Focusrite. It sounds good on instruments, and general mic processing duties are also well within its abilities. There is not much else that attempts to address this task with this sort of conviction. And what a price....

FOCUSRITE PLATINUM SERIES VOICE MASTER PROCESSOR

The Focusrite Platinum units enjoy excellent build quality with none of the design overkill that accompanied the arrival of the Green series. The sole concession on the VoiceMaster, like the ToneFactory, is a subtle but tasteful subliminal legending of a large Focusrite logo on the brushed aluminum front panel.

Despite competitive pricing, the VoiceMaster sports a phenomenal number of switches and pots for the money — but then it attempts a lot. Dedicated to the provision of a single-channel, direct-to-tape recording path predominantly for vocals, its skills extend well into the area of line input processing. Distinct sections provide an expander, a vocal saturator for valve effects, an opto-compressor, EQ, and an opto-de-esser.

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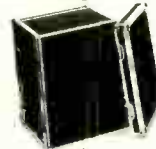
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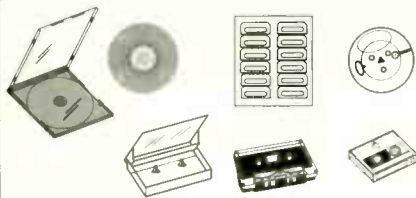
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Mic EIN: -134 dB

Frequency Response: -1 dB at 10 Hz-200 kHz

CONTROLS SPEC

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Mic Gain: 0 dB to +60 dB

Line Gain: -10 dB to +10 dB

Filters: 20 Hz to 300 Hz, continuously variable, 12-dB-per-octave cut-off

NR Expander Ratio: Variable, 1:1 to 3:1

Gate: Attenuation >95 dB

COMPRESSOR

Soft Ratio: 2:1

Hard Ratio: 6:1

Noise: -94 dB

EQ

Warmth Frequency continuously variable, 120 Hz to 600 Hz; **Level:** -12 dB to +8 dB, bell shape

Presence Frequency fixed, 1.5 kHz; **Level:** -12 dB to +8 dB, bell shape

Absence Frequency fixed, 4.5 kHz; **Level, fixed:** -6 dB, bell shape

Breath Frequency fixed, 10 kHz; **Level:** -8 dB to +8 dB, shelf shape

OPTO DE-ESSER

Frequency Cut: variable, 2.2 kHz to 9.2 kHz; **Level,** threshold dependent

Noise: -95 dB

Overload: +20 dB

through two balanced XLRs — for pre and post de-esser — and an unbalanced jack output. Inputs are provided for mic on XLR and balanced line on [1/4-inch] jack, plus a TRS insert.

You kick off with the same discrete mic preamp as that found in the ToneFactory with sweepable high-pass filter that goes up to 320 Hz, phantom power, phase reverse, and line selection. Gain ranges from 0 dB to +60 dB with signal present and overload LEDs. The expander section offers expander and gate modes working together with variable threshold and depth pots. Each section can be separately bypassed.

What Focusrite calls a vocal saturator section is said to emulate valve and tape saturation effects. It attempts this with a drive pot — graduated from clean to unclean — which determines how much saturation occurs and has a corresponding LED that glows longer the more processing is involved. A Tuning pot, meanwhile, adjusts the center frequency of the saturation with a full-bandwidth switch making the effect broadband. What we're adding here is valve-style harmonic distortion.

The opto-compressor section is close to that found on the ToneFactory, but adds a treble pot for boosting compression-related high-end in the processed signal. Pots are provided for threshold, release, and output with switchable fast attack and hard ratio values.

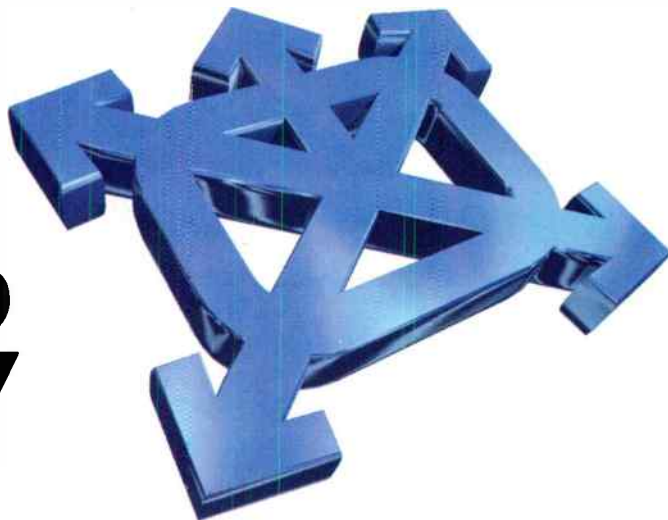
EQ is an altogether different matter with the naming of parameters reflecting their effect rather than their function. Thus, Breath equates to a 10 kHz shelf and Presence a 4.5 kHz peak. Warmth appears to be a broad bell that can be tuned between 120 Hz-600 Hz and an Absence switch claims to remove "harshness" and would seem to be a gentle, voice-band broad mid cut. Despite its enthusiastic claims, the Absence switch is pretty damn subtle.

The last block of processing takes care of de-essing and combines a nicely tunable center frequency pot covering 2.2-9.2 kHz, Threshold pot, and a "something happening" LED. This is a powerful little channel's worth of processing that belies its cost.

There are some peculiarities that become apparent when trying to balance the channel with most of its constituents in place. This comes down to a matter of comparing the contribution of sections. The order of processing is not quite what the front panel flow would suggest because the vocal saturator is actually post compressor. This becomes apparent when you whack up

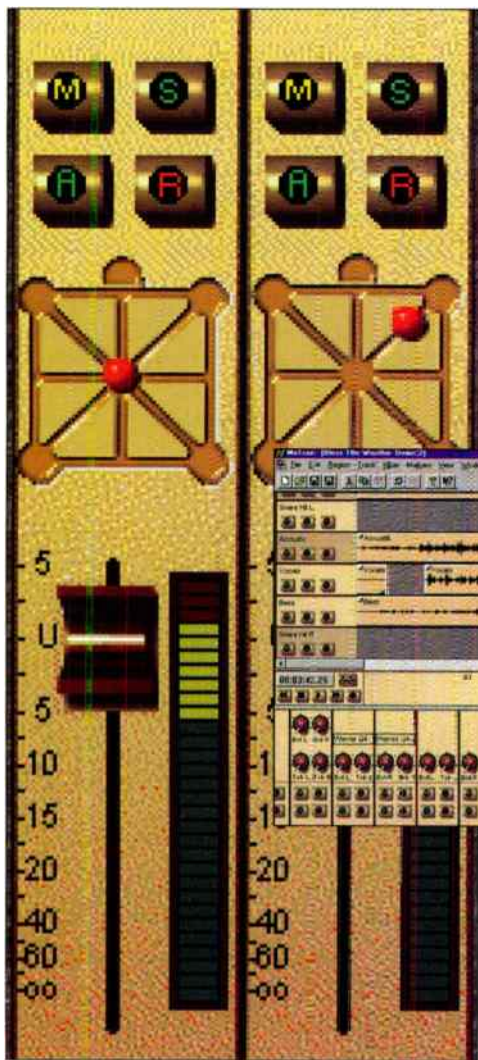
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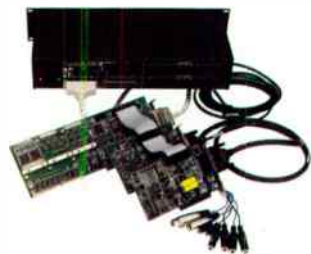


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you *feel* surround panning
as you *hear* it.



Why the V8?
The V8 from Digital Audio Labs is a modular audio workstation platform for the PC. Systems can be configured with a choice of analog and digital I/O, MDM interfaces for ADAT and DA88, and realtime DSP options. Contact Digital Audio Labs for information:
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*Some options require additional hardware.

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How to Fit a Real Organ into your Control Room . . . and Your Budget

The Oberheim OB3² has the most realistic and affordable drawbar organ sounds on the market. That's because it **is** an organ. The OB3² is available in either a stand-alone module that weighs just 7 pounds or in a 61-note organ-action keyboard version that weighs in at only 29 pounds!

The sleek styling and mahogany wood grain end caps give both models a great look on any stage or in your studio.

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Every classic organ feature is here, along with the most useful modern updates:

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- Variable Overdrive
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- Headphone output
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- SysEx MIDI control for drawbars and switches
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The Oberheim OB3² is only \$999.00* in module form, or \$1395.00* with a 61-note keyboard.

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Oberheim

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the saturator circuit and set the compressor in a way that lets the odd blast through as the former section's overload LED starts up. It's one you have to watch, but max valve simulation circuit followed by floored opto-compressor does equal king retro mic sound. And you can tune it so you only get the effect in part. It's very good, and shades of the excellent Studer Multivalve.

Because of its price, it's a shame that some VoiceMasters will generally see only dynamic mics. Nonetheless, the unit's performance on these is quite remarkable and certainly nudges the results well into the realms of acceptability. You can give a dynamic mic more backbone, definition, and class with this channel, but it's still a waste of its talents. The better the mic the better the results, and while it is too far-fetched to suggest that it can make a dynamic sound like a condenser or to add virtual valves to condensers via its processing sections, there can be no denying that the preamp front end is extraordinarily good. It's wide, clear, and clean, and out of this price league.

What the channel does from then on is allow you to gently contour what goes in — there is no really dramatic hoodlum shaping available on the VoiceMaster. You're offered restraint. The compressor is probably the most brutal block, but even this is intensely musical on the limit, the vocal saturator doesn't get offensive at full throttle, and the EQ encourages you to work a band at a time emphasizing treble, pulling up definition, and adding or subtracting thickness. And you can apply this to the miking of instruments, such as acoustic guitar, just as comfortably as you can to vocals. It's a very, very good voice channel. Best of all, it's a bit different from the rest and knocks spots off its similarly priced competition.

MANUFACTURER: Focusrite Audio Engineering, Ltd., Lincoln Road, Cressex Business Park, High Wycombe, Buckinghamshire HP12 3FX, England. Telephone: +44 1494 462246; fax: +44 1494 459920. U.S. distributor: Group One Ltd., 200 Sea Lane, Farmingdale, NY 11735. Tel: 516-249-1399 (East) or 760-360-8511 (West). Web: www.focusrite.com or www.g1ltd.com. Circle EQ free lit. #101.

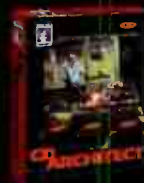
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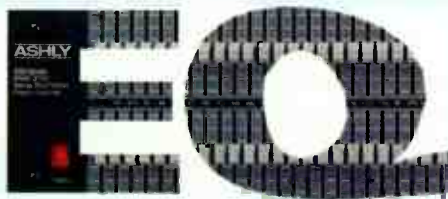
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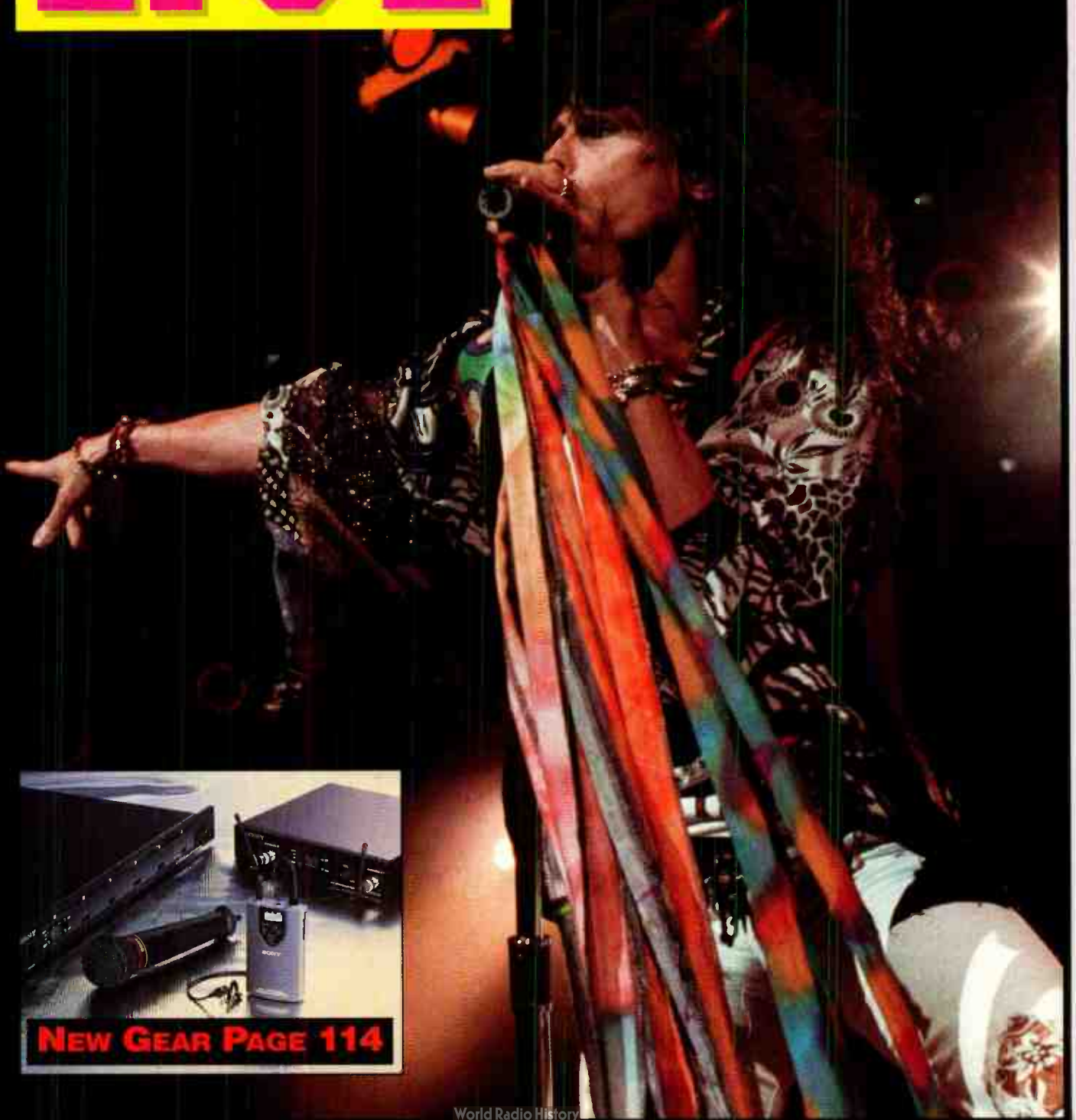
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EQ LIVE

**JACK DOUGLAS
REUNITES WITH AEROSMITH
TO MIX THEIR NEW LIVE ALBUM
IN 5.1 SURROUND SOUND
BY BOBBY OWSINSKI**



NEW GEAR PAGE 114

SURROUND EMOTIONS

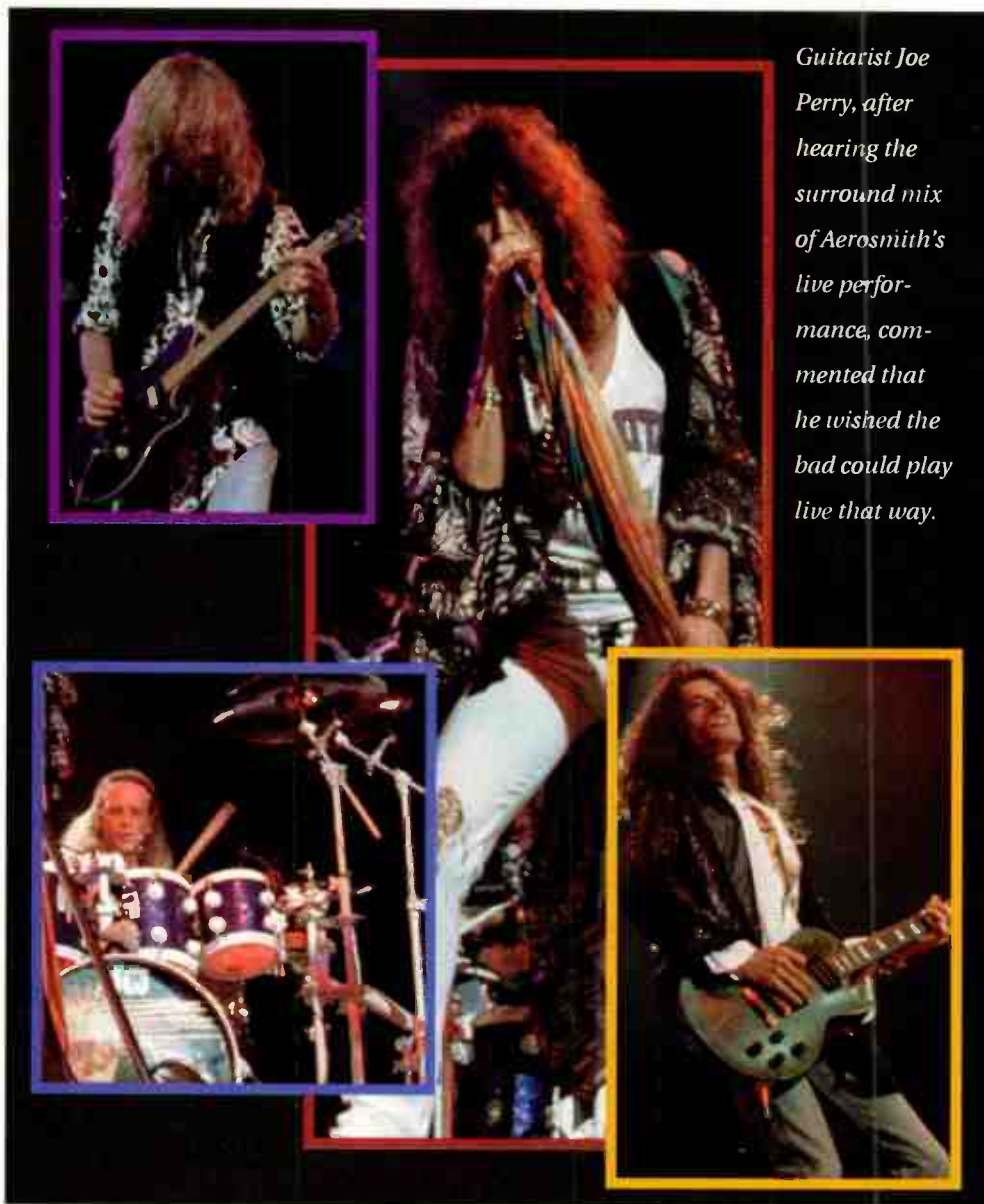
JACK
DOUGLAS MIXES
AEROSMITH'S
UPCOMING LIVE
ALBUM IN 5.1
SURROUND SOUND

By Bobby
Owinski

After presiding over some of the most heralded recordings in rock 'n' roll (including records by John Lennon, Aerosmith, Cheap Trick, Alice Cooper, and Patty Smith just to name a few), producer Jack Douglas has once again taken up a new challenge, this time by recalling a bit of the past. Reunited once again with legendary hit machine Aerosmith and long-time engineer cohort Jay Messina to remix selections for a live album, Douglas forayed into the domain of surround sound for the first time. As usual, Jack's approach is equally as unique and innovative in this new realm as it is in the old. After sharing some surround experiences with Jack prior to his starting the project, I caught up with him shortly after he finished to see how he made out.

So what did you do to prepare for your first surround project?

I got the A&M DVD sampler and I listened to it over and over again on my home theater system. For me, all the mixes sounded like an afterthought except for Sting's mix, which really knocked me out. But that was a studio thing and the Aerosmith record was live, so it didn't really compare. When



Guitarist Joe Perry, after hearing the surround mix of Aerosmith's live performance, commented that he wished the band could play live that way.

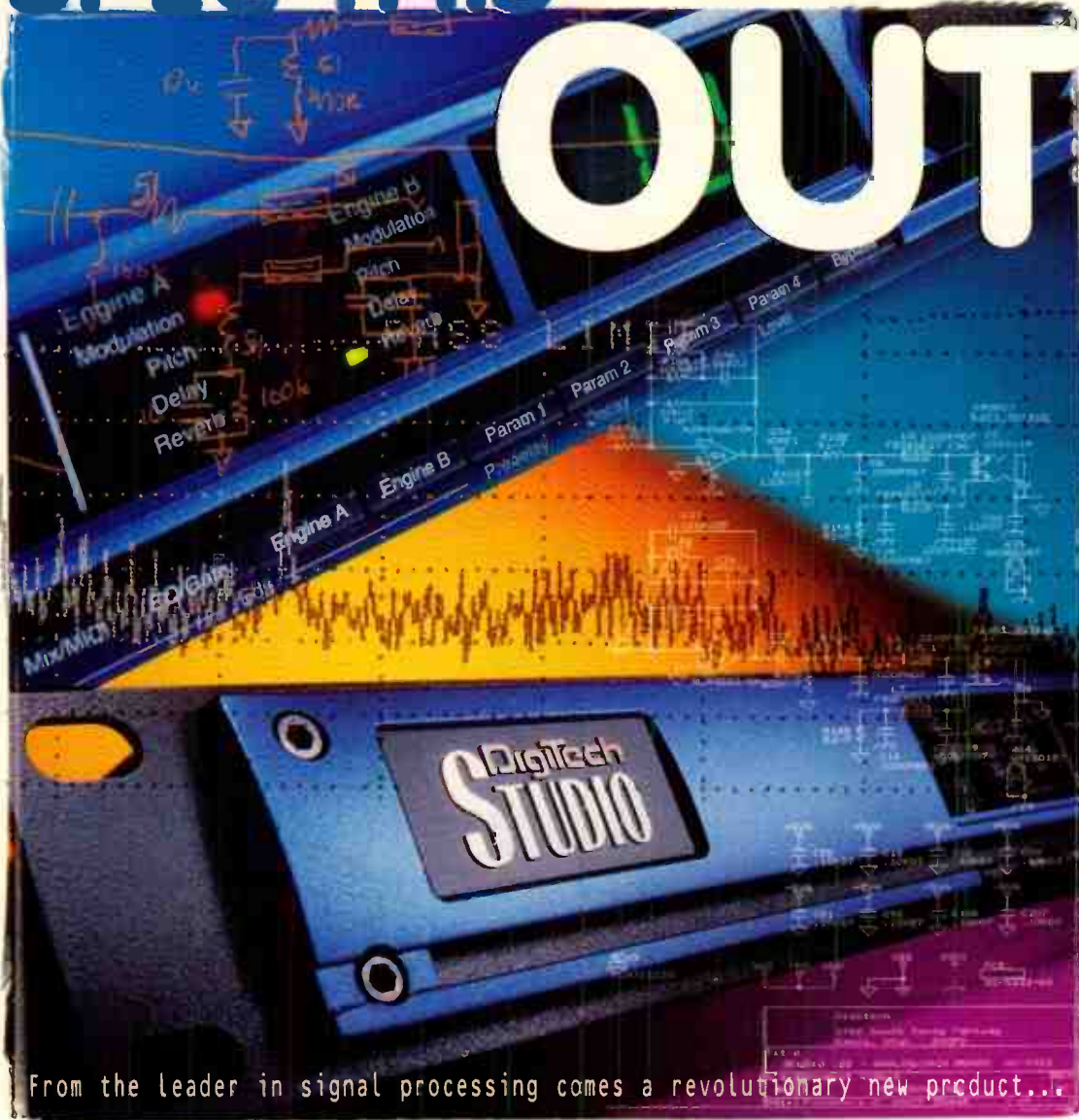
we finally hit the studio, all I tried to do was to get the same sense of space that I had when I sat in the mixing booth during Aerosmith's live concert. I remembered how it felt and I tried to duplicate it.

What did you do to get that feeling back? Obviously we put audience to the sides and back as well as the front. Then, any delay that we used on the instruments we'd also send a certain amount to the back of the house. We also used a dbx

subsonic synthesizer to feed the subwoofer channel, to which we sent bass drum, bass guitar, bottom of the toms, and things like that. We sent the sub synthesizer into the five main speakers, which gave you that feeling of the bottom that you get when you're in the house. Not enough to blow the rear speakers out (which is sometimes the weak speaker in a home, in that they don't pass a lot of bottom), but enough for some bottom presence.

SPEC THIS

OUT



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Check out the specs of the new S100, the first glimpse of the future from the DigiTech Studio Series. Behind the appealing front panel, the S100's exclusive dual engine configuration operates as two individual stereo effect processors. Pristine Reverb, Delay and Modulation effects are abundant, the S100 even offers hard to find effects like Vocoder and Ring Modulation.

Welcome to the future of the new DigiTech Studio Series...you owe it to yourself to check out these specs!



Effect List: Flute, Room/Studio, Hall, Plate, Chorus, Gtr, Ams, Gated Reverb, Stereo Reverb, SR, Reverb Gate, Chorus, Flanger, Phaser, Tremolo, Delay, Pitch Shift, Behr, Para Delay, Stereo Delay, Ring Ping Delay, Karaoke Delay, Ring Modulator, Compressor, Vocoder

CIRCLE 17 ON FREE INFO CARD

DigiTech STUDIO

A Harman International Company

Did you find that you needed the extra low frequencies, or was it just for an effect?

You know, we burned two DVDs at Crunch Video. On one *they* created the subwoofer channel, and on the other one *we* created it. We found that it was cleaner when we created that sixth channel. Everything below 100 cycles that they folded into the sub channel sounded a little muddy to us, but when we created it, it sounded more like what the house sounded like.

What's the release format going to be?

Geffen is releasing this as a regular stereo CD in October. The surround mixes are actually going in the can for the moment until a popular surround delivery format finally emerges. It could be audio DVD or it could be a video

eight channels at a time over to a 3348 using a Charisma 8-channel tube processor, which really warmed it up and made it sound analog. The good thing about the DA-88's is that we could fly things from performance to performance because the band is so tight. If there was a guitar solo from Little Rock that would sound better on the Kansas City show that we were using, we'd go back to the DA-88 and sync it to the 3348 and just offset as needed. We actually did that with whole verses of vocals, too, but sometimes I did have to lay it in a line at a time.

Out of 27 songs I actually only had to do a vocal fix on two tunes. Those were tunes that were rarely done by the band and the same vocal mistake was made every time, so it had to be fixed.

Other than that, there's not an overdub of any kind except for these two small places.

When we mixed, we printed the six channels of surround to a Genex 20-bit optical disc (which sounded amazing), then the ambient stereo mix on tracks 7 and 8. The console was

uses phase-reliant panning, because it did some nice things with the echo. It created the illusion of yet another sound field. We figured that the listener will probably be sitting in the middle anyway, so now the effects of the Spatializer will be super obvious and you can really have some fun with it. For example, we would have a bass drum echo, when the bass drum was playing by itself, that was put through the Spatializer that didn't quite go to the back of the room but gave you the illusion that it was 5 or 6 feet wider than the front speakers.


We also did some 360 panning the old-fashioned way with a 4-track tape delay where you'd create a left and right at 0 dB, then you'd have another track that was +3 dB that you'd put in the center and another track that was -3 dB that was also put in the center. Then as the sound cascaded through the channels, the sound would become circular. I haven't used that trick in years.

In "Sweet Emotion," where Joe (Perry) goes through this psychedelic thing with his whammy bar, we had new places to put our delays because now we had rear speakers. It's wild, and everyone that hears it gets a big smile on their face when it happens. Joe always said to me, "I wish we had a quad system in the house. This is what I'd do."

Did your mixing approach change by the end of the project?

Yeah, we went back and remixed the first five songs because we learned as we went. First of all, as soon as you put the vocal in the center speaker, the (music) track sounds very naked and separated from the vocal. We had to do a whole different type of EQ to get the vocal to sit right in the track.

We also had to EQ the rears a little differently to give it more presence. We were EQ'ing the surround speakers the same way as the fronts for the longest time. Then we realized that if we just EQ'd them differently, with a little more mids, then the ambience becomes much greater.

And, as I said before, initially we weren't going to record the sub channel, but we decided we needed to after cutting some DVDs and listening to them. We're all going to learn more about this as we go along. I'm really looking forward to doing a studio album in surround now. I'm hooked on it. 



Jack Douglas had to do three mixes of the album: stereo, ambient, and surround.

DVD or it could be both because there's a lot of concert footage that can be sync'd up to this stuff. Let's face it, surround sound is where it's all going.

Every tune that I mixed (27 songs in all) was actually mixed three times. We did a tight stereo mix that will be on the CD, then we mixed an ambient stereo mix where we brought the audience tracks up 3 or 4 dB depending on the show and how the house sounded, then we would do our 5.1 mix after that. We didn't want to use the dry CD mix against concert footage, so the ambient mix makes it sound more like you're in the house if you're watching the concert but don't have a surround system.

What were the original tracks recorded on?

The whole thing was recorded on either four or five DA-88's, depending on the show. I transferred all of the DA-88 tracks

a standard Neve VR outfitted with an Otari Picmix for monitoring, which is the only way to fly! The monitors were Gen-elecs with a JBL subwoofer.

How did you handle surround panning?

I have some Ramsa 360 panners from the Phantom Speaker Synthesizer prototype that they made for me about 20 years ago. There's six channels of 360 pan pots and I've got two that I can send anywhere I want.

We had some fun where we would isolate someone talking, for instance, and fly that on a separate track and then move him around in the mix so it sounded like someone was walking around you or coming closer. That's a subtlety, but it really gave the feeling of being there because you were overhearing conversations.

We also used a Spatializer, which



we put the **pro** in **project** recording



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hans zimmer, vol. 2, no. 2
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ROAD GEAR

Soundcraft Series FIVE



GIMME FIVE

Soundcraft's new Series FIVE Monitor is a dedicated monitor mixing console designed, with input channels boasting a feature set similar to that of the Series FIVE front-of-house console. The Series FIVE Monitor offers an equally high level of control over stage sources like its brother, but adds to this the comprehensive routing and output control required from a monitor console. The Series FIVE Monitor is available in two frame types — 24-bus and 32-bus. The 24-bus version includes as standard a 23 x 12 output matrix, giving an impressive maximum output capability of 38 balanced outputs. The 32-bus frame has as standard a 23 x 16 output matrix, boasting a massive total of 50 balanced outputs. Both Series FIVE Monitor frame types support stereo outputs — 9 stereo on the 24-bus and 17 stereo on the 32-bus console. The Series FIVE Monitor 24-bus console is available with 44, 52, or 60 input channels, while the 32-bus model is available with 48 or 56 input channels. The Series FIVE Monitor offers two SOLO systems — regular SOLO and ALT

SOLO. Via a simple switch on the outputs, each group and matrix output bus may be set to send to either of these SOLO systems, making setup of accurate SOLO configurations (perhaps a main wedge on SOLO and an engineer in-ear set on ALT SOLO) a simple task. For more information, contact Soundcraft, 1449 Donelson Pike, Nashville, TN 37217. Tel: 615-360-0471. Circle EQ free lit. #126.

READY TO GO

Fender's self-contained Passport portable sound system is now available in

Fender Passport



a new 150-watt format. Weighing in at less than 30 pounds, the Passport 150 is a sibling to Fender's original 250-watt Passport, which was first introduced in 1997. Simple to setup, the unique mixer/power amp tower contains all the functions on one ergonomic control panel. Passport 150's technically advanced switching power supply allows AC operation, without an adapter, from outlets anywhere in the world. "Field" 12-volt DC operation is also possible with the optional DC/DC converter. Clean, full

range coverage for instruments and voice is made possible by the Passport 150's four 6.5-inch transducers — two in each speaker cabinet. Other features include a 150-watt stereo (2 x 75 watt) powered mixer with three mic/line inputs and one stereo program input; "One Touch" controls for level, EQ, and effects; two full range speaker cabi-

nets, one microphone with cable; and two speaker cables. For more details, Fender Musical Instruments, 7975 North Hayden Road, Scottsdale, AZ 85258. Tel: 602-596-9690. Circle EQ free lit. #127.

FREEDOM IN THE AIR

Sony's new Freedom Series wireless microphones system offers application-specific packages ideally suited for use in the broadcast, live/concert sound, and business/industrial markets. The technology involved in frequency-agile UHF wireless microphone systems has traditionally placed the



Sony Freedom Series

equipment at a price point that limited its use to high-end applications, but at less than \$1000, the Freedom Series allows users to affordably free themselves from the interference and distortion often associated with VHF systems. The Freedom Series system is available in three different prepackaged configurations: WRT-8HP68, a handheld system; WRT-8GP68, a wireless guitar system; and WRT-8LP68, a lavalier system. For users who need to cost-effectively run multiple wireless mic systems in one location, Sony has introduced the WRR-801A UHF synthesized modular diversity receiver. Modular

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in design with a 19-inch rack width and 1U height, the WRR-801A comes supplied with one WRU-801A tuner unit; a total of six can be combined to accommodate six channels of simultaneous operation. The auto-channel assignment feature allows for unusable channels to be automatically skipped, so the receiver can scan to find the best available channel. Also, up to 11 simultaneous microphones can be operated on a single pair of antenna when used with the WD-820A antenna divider. For more details, contact Sony Electronics, 800-686-SONY. Web: www.sony.com/professional. Circle EQ free lit. #128.

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Community's new XLT54 fully horn-loaded subwoofer is designed for portable sound reinforcement and DJ systems as well as for fixed installations. The XLT54's output (in excess of 132 dB SPL), high-impact transient response, and excellent bass projection make it particularly suitable for these applications. Its four Ferrulid-cooled 15-inch (381 mm) drivers are compression loaded into the horn



Community XLT54

throat and into two sealed compression chambers. This design, along with the 28 Hz flare-rate horn, yields a frequency response down to 30 Hz. By lifting the front of the enclosure using the built-in "grab" bar, the XLT54 instantly becomes its own dolly for easy movement. The front bar and the two recessed steel bar-handles in the rear allow it to be easily lifted. The XLT54 is also outfitted with a steel input panel with two Neutrik Speakons and two 1/4-inch input jacks. An electronic crossover and separate amplification are required. For more details, contact Community Professional Loudspeakers, 333 East 5th St., Chester, PA 19013-4511. Tel: 610-876-3400. Web: www.community.chester.pa.us. Circle EQ free lit. #129.



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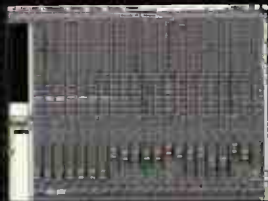
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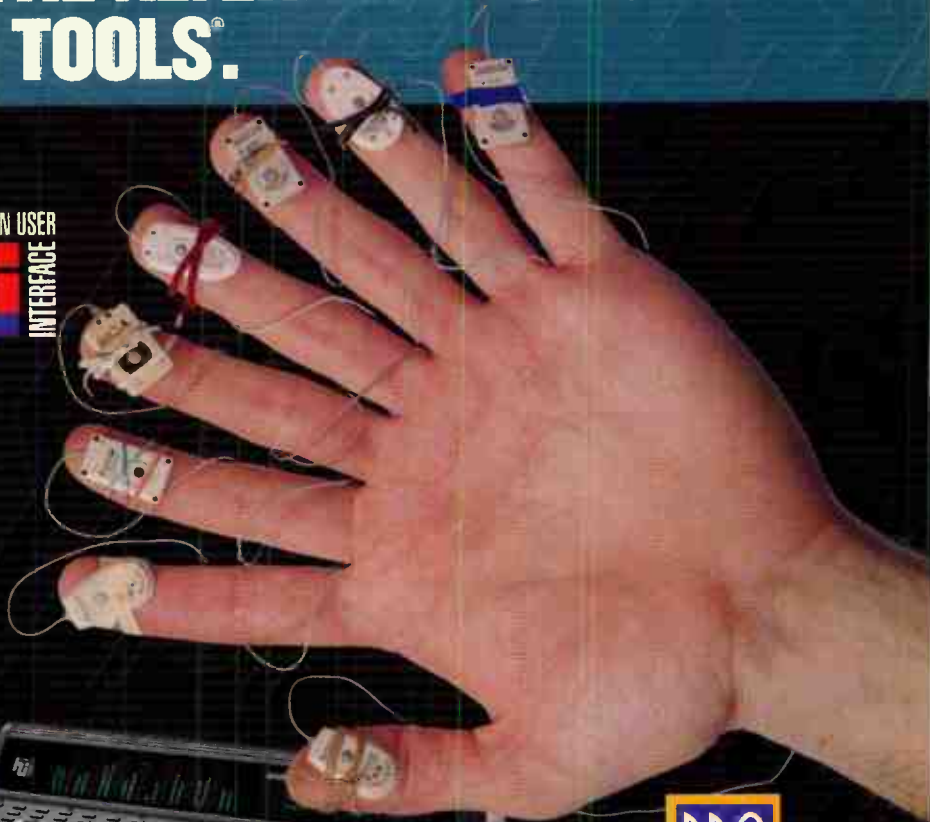
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Pro Tools power users. You get real knobs for tweaking panning, aux sends and Plug-In parameters. Real buttons for things like solo, mute and record-ready. LCD “scribble strips” that tell you what’s on each channel. Did we mention cursor and transport controls, timecode display and keypad for data input and memory location recall?

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DRAWMER MX40 QUAD PUNCH GATE

By **MIKE SOKOL**

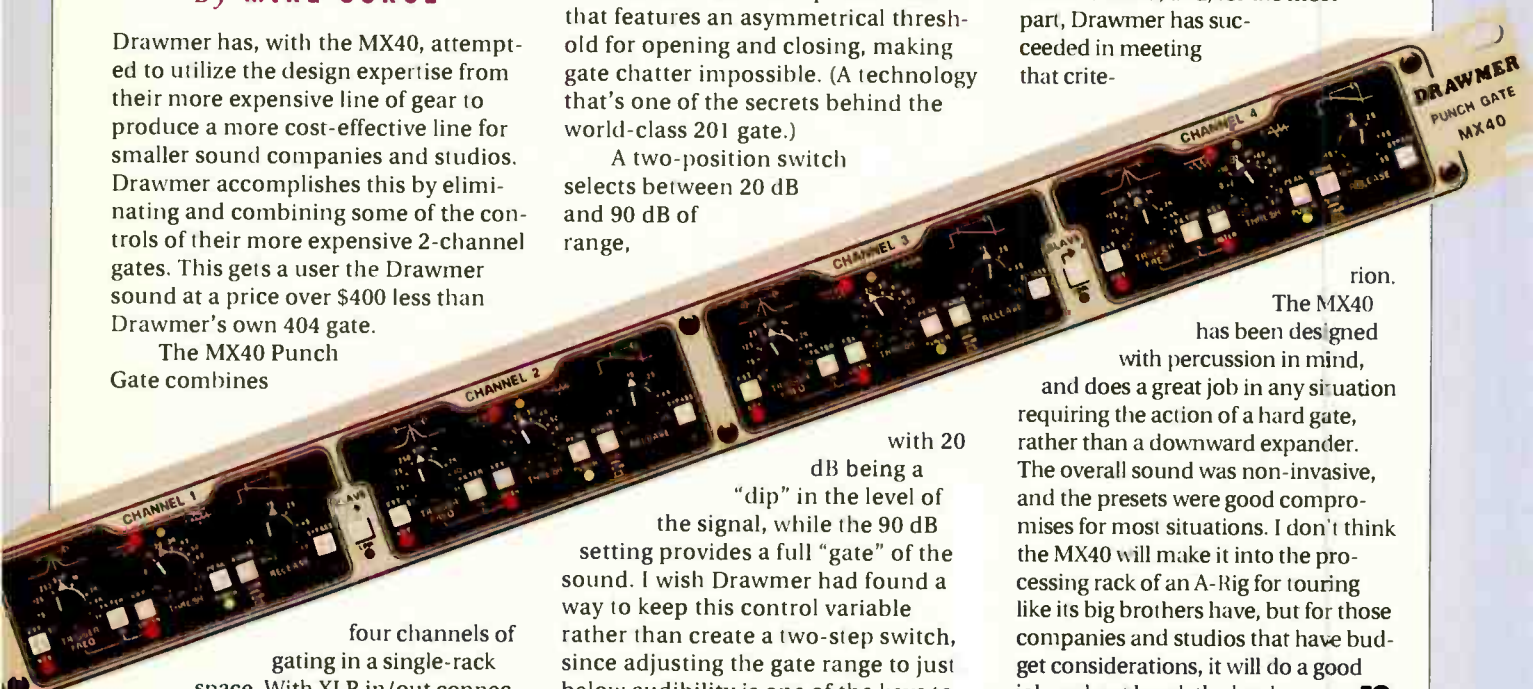
Drawmer has, with the MX40, attempted to utilize the design expertise from their more expensive line of gear to produce a more cost-effective line for smaller sound companies and studios. Drawmer accomplishes this by eliminating and combining some of the controls of their more expensive 2-channel gates. This gets a user the Drawmer sound at a price over \$400 less than Drawmer's own 404 gate.

The MX40 Punch Gate combines

lization circuit in their product line that features an asymmetrical threshold for opening and closing, making gate chatter impossible. (A technology that's one of the secrets behind the world-class 201 gate.)

A two-position switch selects between 20 dB and 90 dB of range,

and not heard, and, for the most part, Drawmer has succeeded in meeting that crite-



four channels of gating in a single-rack space. With XLR in/out connectors, this gate wants to be in a professional rack, but you can use adapter cables if your studio is 1/4-inch Tip-Ring-Sleeve equipped. This is a basic gate, but it still has enough control to be useful in difficult sonic situations. Key to its success is the sweepable trigger-frequency control — essentially a mid-pass filter that allows you to select the center frequency of the sound you want to gate.

The Key Listen switch allows you to monitor the effect, so you can hear the filter effect as you dial in the sound you want to trigger on. This is classic Drawmer ergonomics, and it's really easy to set up on the fly. You simply cue the gated channel in your headphones, hit the Key Listen switch, and sweep the filter until the desired sound is the loudest. Then you're ready to gate on the snare while ignoring the kick drum.

The threshold and release controls are standard variables you set for the sound level you want to trigger on and how fast the gate closes. Drawmer developed a proprietary trigger stabi-

with 20 dB being a "dip" in the level of the signal, while the 90 dB setting provides a full "gate" of the sound. I wish Drawmer had found a way to keep this control variable rather than create a two-step switch, since adjusting the gate range to just below audibility is one of the keys to making gating sound natural without undue "holes." I feel the same way about the Peak Punch feature. It makes the gate snap open a little quicker and gives you more attack on percussive signals, but since it's only on or off, you can't tweak the control for best sound. Most of the time it works fine, but I like knobs rather than presets so I can really tune-in the action.

Gates, to a large extent, should be seen

tion. The MX40 has been designed with percussion in mind, and does a great job in any situation requiring the action of a hard gate, rather than a downward expander. The overall sound was non-invasive, and the presets were good compromises for most situations. I don't think the MX40 will make it into the processing rack of an A-Rig for touring like its big brothers have, but for those companies and studios that have budget considerations, it will do a good job and not break the bank.

ROAD TEST

MANUFACTURER: Drawmer, imported by Transamerica Audio Group, 2721 Calle Olivo, Thousand Oaks, CA 91360. Tel: 805-241-4443. E-mail: transamag@aol.com. Web: www.proaudio.co.uk/drawmer.htm.

APPLICATION: Quad gate in a single rack unit for studio or live use.

SUMMARY: Four separate channels of gating with sweepable trigger frequency and variable threshold and release times. Additional "Peak Punch" feature accelerates the leading edge of the signal for more attack.

STRENGTHS: XLR inputs and outputs; key-listen function; hard bypass on each channel; slave linking handy for stereo processing; good processing value for the money.

WEAKNESSES: Peak Punch processing seems hard to set up and contributes to gate "pop," but you may like it for your application; two-position range switch (90 dB and 20 dB) is a little compromising.

PRICE: \$629

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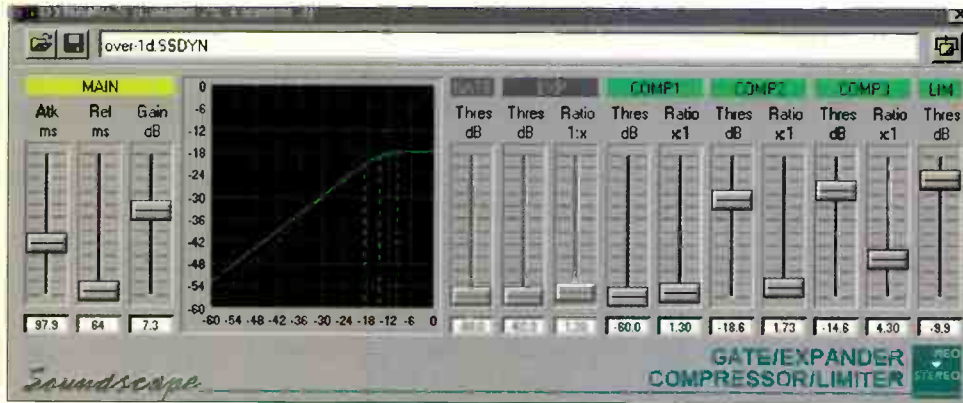


FIGURE 1: Soundscape's own Dynamics Module.

Does the latest version of this formidable DAW live up to its past?

BY EDDIE CILETTI

I've been a Soundscape user ever since reviewing the workstation in these pages four years ago. Back in the day, when sound cards were "mere toys," I started with eight tracks in real time. Since then, I've purchased two units—which Soundscape has since accelerated—allowing a life-long dream to be fulfilled: 24 tracks in real time with real-time effects.

Before you begin to think this is just an advertisement in sheep's clothing, however, consider that I've also seen Soundscape naked. I know what still turns me on in the control room even though I also know what's hiding in the closet. Nothing too scary, but in the transition from version 1.18 to V2.xx, the CD software lost some of its functionality. Automation exists in a very basic way but not via moving faders.

STRIP TEASE

All new technology is a bit of a tease at first. At under \$1000, a sound card is appealing for the price alone. "When used as directed," sound cards will deliver a few audio tracks to

complement a MIDI sequence. They are perfect for stereo editing and mastering. They can also import tracks from a digital recorder for "surgery." But mixing multiple tracks in real time—with processing on every channel—is another story. Sound cards rely on the host processor and every other link in the computer chain, plus they must share re-

sources if slaving to a sequencer. By contrast, Soundscape can play a 24-track mix with Photoshop running (for last-minute tweaks to CD cover artwork); all while Microsoft Word is open! Can you do this on your system?

OUT OF THE POOL

From real-world experience, I've seen both sides. On the cheap, some dive into the shallow end of the sound-card pool only to stumble out with a headache. Still in a daze, they go to the other extreme—dropping big bucks on that "other" system that doesn't run under the Wintel flag. Soundscape falls in-between, appearing less sexy partly because of the price (when compared to a card), and, perhaps, because it lives outside the computer. Whatever the reason, for about \$10,000 street price, 24 tracks of Soundscape, with plug-ins, seems like a great deal. Hello? Is everybody missing something out there?

So, while frustrated users have been futzing with sound cards or aging while on-hold for customer service, I've been living large.

I do long-form multitrack mixes, a real challenge for a card-in-a-computer, but not for Soundscape. Its

EQ LAB REPORT

MANUFACTURER: Soundscape Digital Technology, Inc., 4478 Market Street, Suite 704, Ventura, CA 93003. Tel: 805-658-7375. E-mail: us-sales@soundscape-digital.com. Web: www.soundscape-digital.com/.

APPLICATION: Digital audio workstation.

SUMMARY: Powerful yet easy-to-use hard-disk recording system.

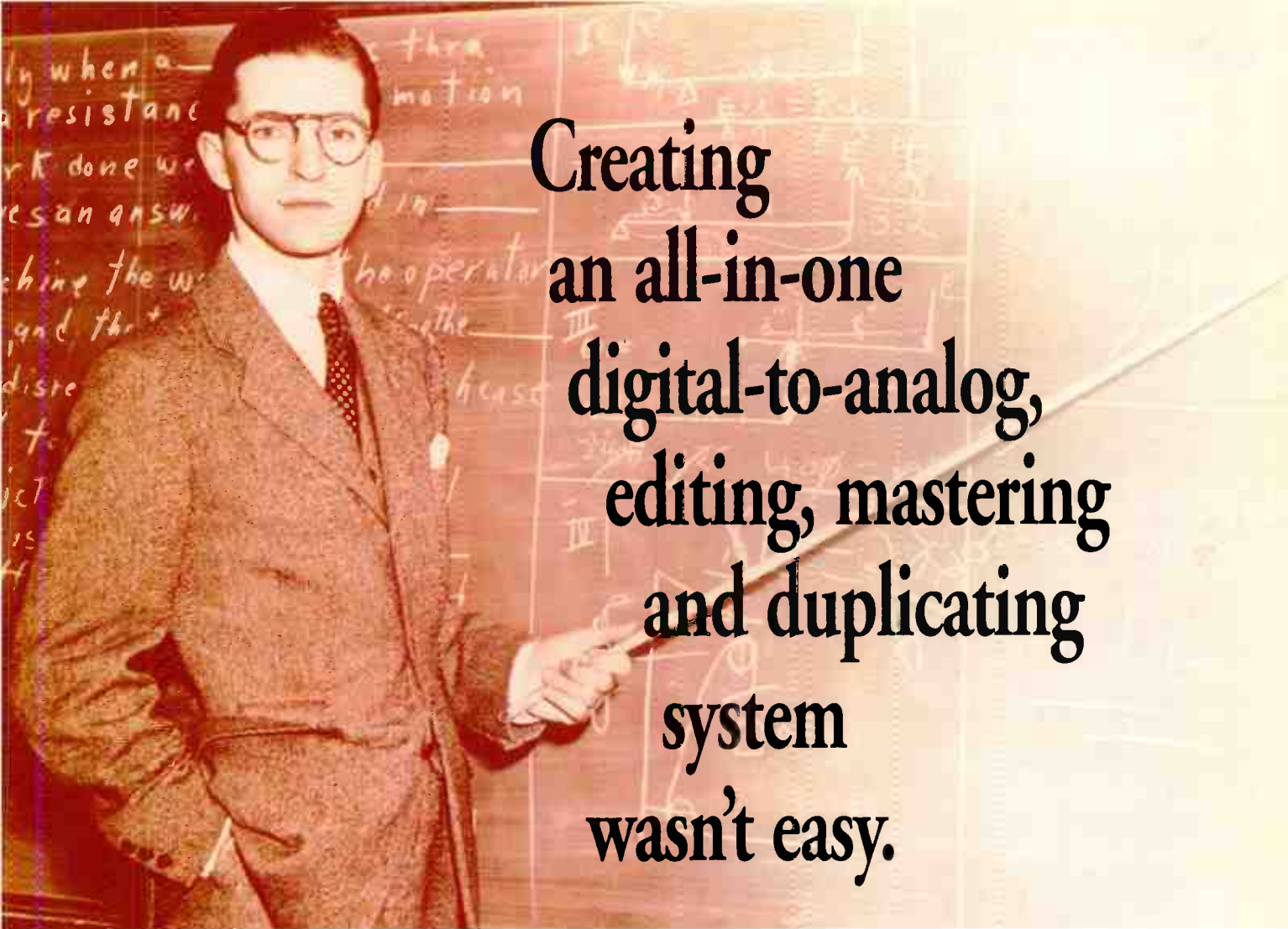
STRENGTHS: The uncrashable DAW; ten channels of hard-disk recording per unit; 12 tracks of HD playback, plus ten "live" inputs can also be mixed; analog, AES/S/PDIF, TDIF, and MIDI interface. (See "Accelerated System," below.)

WEAKNESSES: Can new features ever come fast enough?

PRICES AND OPTIONS: Accelerated System, \$4495 (consists of HDR-1 base unit + AC-1 accelerator); 24-track Package #1, \$12,400 for two "systems" with all currently available plug-ins—but not including the TC Dynamizer, SynchroArts VocAlign, or Aphex Big Bottom (these will be available after Sept. '98); Hardware I/O option #1, 20-bit "8 I/O-1," \$1995, ADAT & TDIF, 8-XLR, and word clock; Hardware I/O option #2 (available September), 24-bit "8 I/O-2," \$600, 8-in/-out, 8-RCA with ADAT & TDIF, word and internal clock (allows clock selection from all sources); Hardware I/O option #3, 20-bit "8 I/O-3," \$600, 8-in/-out, 8-RCA with ADAT & TDIF, word and internal clock; 24-track Package #2, \$12,700, with two "8 I/O-1" with no plug-ins except basic mixer.

ACCESSORIES: "8 I/O" provides 8 analog I/O plus ADAT optical. Plug-ins: in-house plug-ins (The Audio Tool Box) include dynamics, delay-chorus-flange (\$325), time-pitch-sample-convert (\$199). Third-Party: TC Reverb (\$699), TC Dynamizer (\$799); Wave Mechanics Reverb (\$349); SynchroArts VocAlign (\$995). The TC Dynamizer has 3-band compression, expansion, and soft clipping with look-ahead peak detection. Like the Time/Pitch module, the SynchroArts VocAlign is tweaked for dialogue synchronization and music applications.

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dedicated external hardware talks directly to affordable IDE drives (4 GB for under \$200), relying on the computer for interface, not for power. Soundscape is not only "surround sound ready," the sample-rate conversion algorithm from its "Time Module" can already convert

48 kHz files to 96 kHz, so that a 24-bit WAV file export will be possible for DVD (if and when required).

Soundscape works so well out of the box it is surprising that more people haven't caught on. My multitrack music application may not be the

norm — what with MIDI and sampling — but I also know several users who take advantage of Soundscape's ability to sync to picture. All of the latest software can be downloaded from their Web site; the EDL (edit decision list) software being updated on a regular basis. (See sidebar by postproduction user, Alan Silverman.)

MAJOR HARDWARE

Soundscape Version 2 begins with the SSHDR1, the original two-space rack unit with an AC-1 accelerator. In addition to a TDIF port (for direct digital connection to a TASCAM DA-38, -88 and -98), there is a stereo input and 4-channel outputs — both in analog and digital flavors *per unit*. A second two-space box, the 20-bit "8 I/O," houses ADAT optical, TDIF, plus eight analog ports in and out.

THE SOFT TOUCH

The most current software is Version 2.01 (final) and Version 2.02 (alpha). The mixer includes built-in EQ, delay, and effects sends. Users have complete control over the mixer, including number of channels, bands of EQ, and sends. The in-house plug-ins include dynamics (fig. 1), pitch, time, and delay modules. TC Electronic have ported low-fat versions of their Reverb and Finalizer (fig. 2) plug-ins; Wave Mechanics make a very powerful reverb plug-in (fig. 3).

If you haven't noticed already, the really sexy plug-ins suck digital petrol like a big-finned '50s Cadillac. The clever DSP designer can trim the fat and keep the meat. Soundscape does this pretty well, but with third-party plug-ins, it becomes obvious that the taste is in the fat. That's because dedicated hardware — a reverb unit, for example — does one job well without distraction. When ported over to the "virtual world," workstation DSP faces regular "interruptions," and must perform multiple operations all within 1/44,100th of a second! (I don't think multitrack workstations with 96-kHz sampling will be practical and affordable in the near future.) Mixing, crossfades, and edits are easy compared to processing EQ, dynamics, and reverb. In a "real" hardware-equipped studio, users have to determine when the "free" effects are "good enough" and when to rent the serious outdoor gear.

The two currently available reverb

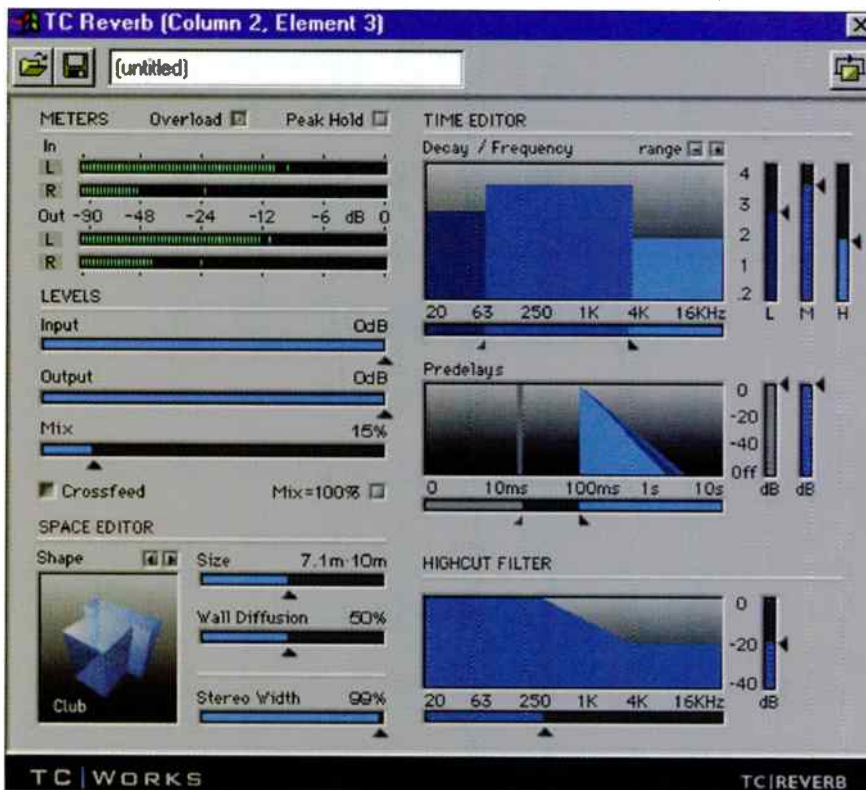


FIGURE 2: The very beautiful, low-fat TC Electronic Reverb plug-in.



FIGURE 3: The extremely geeky but powerful Wave Mechanics reverb plug-in.

plug-ins could not be more different, a plus for users! The TC Reverb sounds and looks good, with an easy-to-use interface to tweak parameters. The reverb "tail" is split up in three frequency bands each with adjustable decay time. There are separate predelays for initial reflection and the tail, a high-frequency filter for the input signal, and six visible "room" shapes.

The Wave Mechanics Reverb offers many more parameters — described in raw DSP terms — which can only be described as "completely geeked-out." While the essential features are "similar" between the two products, you could hardly tell by looking at them. The Wave Mechanics reverb includes a "gate" that is great for those hard-to-get "short, tight room" sounds for drums. It

TABLE 1: COMPARING PLUG-IN USE OF RESOURCES (AND EXCEEDING SAME)

Plug-In Use of Resources	P-DSP	M-DSP
w/o Reverb w/24 active tracks	92%	48%
TC Reverb w/24 active tracks	99.5%	56.2%
Wave Mechanics Reverb w/24 active tracks	103%	71%

POSTING WITH SOUNDSCAPE

I've been using Soundscape's SSHDR1 to edit and post-mix audio for TV music specials such as *An Evening With Harry Belafonte and Friends*, *A Judy Collins Christmas*, and *The Tunes of Tommy Dorsey — A Sentimental Journey*. I have two units that make up a 24-channel system with 16 channels of TASCAM TDIF digital I/O. The TDIF ports are especially useful since they allow me to keep all audio transfers [going] in and out of the system in the digital domain. I receive elements on a TASCAM DA-88 at 48k sampling and deliver the final mix plus Dialog/Music/Effects (D/M/E) splits on DA-88 for (hopefully!) digital transfer to the final 48 K broadcast master, usually D2 or DigiBeta. Staying digital all the way results in a much better on-air product.

For working against picture, the SSHDR1 is an extremely fast system to use and locks in an instant to incoming SMPTE timecode from a Betacam or 3/4-inch video deck master. (SMPTE to MIDI conversion is via MOTU's MIDI TimePiece AV.) Although the system can work with a digitized AVI video file from the host PC's hard disk, I generally prefer to work with videotape. This is because the picture quality is better to look at while mixing and it's easier to keep up with picture revisions that have a pesky habit of showing up while I'm mixing.

I find the mixing tools already built into the Soundscape system are comprehensive enough so that I no longer need to use an external automated console for gain riding. The tools treat the audio as "clip based." Any sound file on the system's drives can be divided into parts. A part can be positioned anywhere in the master timeline and given its own volume level and a variety of fade curves. Once you get a dynamic roughed in, it's really easy to adjust by sliding or trimming the part boundaries.

The system also has a complement of audio processing tools that works well. Multi-band EQ is part of the basic package, and features such as time/pitch processing, reverb, and compression/expansion are available as plug-ins. I also use the SSHDR1's built-in digital mixer and AES digital I/O to get audio to an external Weiss digital parametric EQ and compressor/limiter/de-esser. This is superb gear that I use primarily for CD mastering work, but it's nice to be able to bring that level of quality signal processing to TV soundtracks as well.

At completion of the edit/mix, I'll switch the master timecode source over to the SMPTE output of the DA-88, lay off my mix and splits digitally via the SSHDR1's mixer page and TDIF port, and pack off the tape for digital layback. —Alan Silverman



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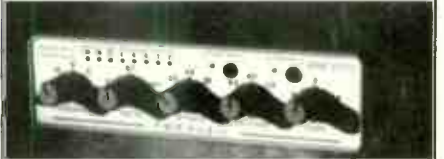
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ON PLUG-INS AND DIRECTX

Since TC Works (a subsidiary of TC Electronic) is writing plug-ins for Soundscape, they have a good handle on the system's internal performance, something us "mere users" can not fully appreciate. I [E.C.] visited the Soundscape Users Forum in June '98 and found some dialog between users and DSP designers. The information that follows was based on that dialog. It was graciously provided by Thomas Block, Ralf Schluenzen, and Sven Duwenhorst, TC Works, Flughafenstrasse 52B, D22335, Hamburg, Germany. Tel: +49.40.531.08 30; fax: +49.40.531 08 31. Web: www.tcworks.de/

So What Is DirectX?

DirectX — part of the Microsoft Windows system architecture — is in charge of the communication between software and low-level hardware components. DirectX is structured into different parts like DirectShow, DirectDraw, and DirectInput — each taking care of one specific area like video, audio, etc. DirectShow is designed to stream any kind of multimedia data such as video and audio via MPEG software decoders, including video for the Internet. [See EQ magazine, June 1998 for more information on DirectX.]

Lately, DirectX has established itself as an application-independent "plug-in interface" on the PC, with the big advantage that any plug-in written to DirectX specs can be accessed by any application that incorporates the interface. So it doesn't matter if you use Cubase, Logic, Cakewalk, CoolEditPro, Sound Forge, WaveLab, or Samplitude. All applications will be able to use all DirectX plug-ins!

DSP-Based Processing Vs. DirectX "Native"

So you might ask, "Why bother buying a dedicated-hardware system like Soundscape, if you can do it cheaper by going native?" ("Native" means using the host PC's processor to perform audio calculations.) Well, plug-in compatibility isn't everything. "Dedicated Hardware" and "Native Processing" have their pros and cons. With Soundscape, you get nearly 0 ms latency and wonderful stability because it is independent of processor activity. The latency of DirectX is like playing guitar through a 200-ms delay. But one "pro" and one "con" are not enough to give either the brush-off, so read on!

DirectX Pros

The internal audio processing is performed in 32-bit floating-point format using the host processor. Advantages of this format:

1. The levels in the audio stream do not hard-clip at 0 dBfs; instead they're specified up to +6 dBfs. Remember this is "virtual processing headroom," unlike hardware, so there won't be any audible distortion in the processing stream as long as the level at the end of the processing (plug-in) chain is scaled back to 0 dB. (Of course, the A/D and D/A levels must be properly set.)

2. The internal processing on an Intel Pentium processor is performed with 64-bit accuracy. Theoretically that results in an amazing signal-to-noise ratio. The real S/N depends on the signal applied and is not constant. But a general rule in

audio processing is that a close estimate of the S/N can be calculated by:

Number of relevant bits x 6 dB = S/N in dB. A 16-bit system x 6 dB = 96 dB S/N

So much for the theory. In the real world, multiplication creates noise due to the finite representation of numbers. Algorithms with feedback-type filters (not FIR) and reverbs can create a lot of rounding noise because the signal is circulated through multiple operations. Now say that the noise we have created is at -106 dB. In a fixed-point system, this noise will stay at -106 dBfs and be relatively independent of the signal. In the floating-point system, the noise will move with the signal (though, it will always stay below the -106 dB in our example), and a moving noise floor is more apparent to the ear than a fixed one. This is just one of the reasons for using 64-bit floats internally [as TC does] when calculating filters and stuff.

3. On fixed-point DSP systems, it is easier to implement powerful filters — like 56 bands of EQ in one plug-in — because the developers do not have to struggle with rounding error effects on filter coefficients, which would cause filter instability such as clipping and all sorts of other not-so-nice things.

4. DirectX plug-ins can run on any application that supports the specified interface.

DirectX Cons

1. DirectX is not specifically designed for high-end audio processing. It is a part of the Microsoft OS, designed to handle all sorts of multimedia streams (audio, video, compressed, uncompressed, etc.). Naturally, this "open-ness" introduces quite a heavy programming overhead (having features we don't need while lacking others).

2. Audio streaming and signal processing share the same processor (CPU) with the operating system. Since Win95/WinNT are designed as multipurpose operating systems, they are not specialized to handle real-time tasks or to prioritize audio processing at all given times.

3. I/O Latency: Due to the points mentioned above, the audio signal path is pretty long (for example: the sound card input + sound card driver + audio application + plug-in + audio application + sound card driver + sound card output) and sometimes reminds us of Chinese whispers (perhaps not quite that bad). But the result is a latency (delay) of roughly 200 ms. This can easily double when using bad cards with bad drivers.

4. Even though Windows is running on most PC compatibles, the actual performance on each user's computer is sometimes unpredictable. It is nearly impossible to tailor the performance requirements of a plug-in so that it runs comfortably on all potential configurations.

DSP Pros

1. DSP, as the name implies, is a piece of hardware specially designed to process digital signals. The whole architecture of the chip assists the developer in realizing highly optimized

continued on page 130

is, however, quite a power hog.

Soundscape has two Motorola processors: one for record, playback, editing, and synchronization (56001), and one to handle the Mixer (56301). When the Mixer Window is open, the available resources are displayed as "P" (DSP Processor resources) and "M" (DSP Memory resources). Realize that for a 24-track configuration, the "display" indicates the combined resources of both systems in a "worst-case" scenario. As such, the displayed values are not a precise reflection of "power consumption." My "typical 24-track mix" — with lots of EQ and dynamics — uses up 92 percent of the P-DSP and 48 percent of the M-DSP. Table 1 makes this easier to visualize that, in this case, there is enough headroom for one fat-free TC module but not for the Wave module.

It's the same in the analog world: our beloved tube gear is the least efficient way of turning power into sound. (See the "Plug-ins" sidebar/article for a comparison between DirectX and dedicated hardware.)

THE IMPORTANCE OF BEING CLEVER

The short term work-a-round is to either turn off tracks or create a temporary mixer solely for the task of creating an effect. Either reduces the system requirements long enough to record the effect and sub-mix if necessary. There are three long-term solutions: MIXTREME, a new PCI card from Soundscape, a DSP expansion chassis, and a third complete system, which, for some, would be impractical. Another option (for the Wave Mechanics plug-in only) is to process the reverb "in the background," that is, in non-real time.

MIXTREME (\$549 with V.2 Mixer software or \$699 with S/PDIF in/out) uses the same DSP and mixer software as the Soundscape AC-1 Accelerator for the SSHDR1. It features two TIDIF ports for 16 channels of live mixing. It was not available at the time of this review. Soundscape does provide an expansion port on the AC-1, but has not yet created a host chassis for DSP modules. Either would be welcome because the mixer is great. When combined with automation and an external controller, this system will be hard to beat. At present,

I love the fact that a detailed mix can be saved and totally recalled *with* effects! (MIXTREME can also be used with Logic Audio, Samplitude, Cubase VST, Sound Forge, Cool Edit, and more.)

The most recent software features 99 separate Solo and Fader groups plus channel modules that employ Equal Power Panning (3-dB lift from center instead of the "Equal Voltage" lift of 6 dB.) A complete manual, written in HTML form, includes hyperlinks for each chapter and many related features. Any browser can be used to open and navigate the manual, which is quite detailed. I have only recently cracked the manual because the software has always been so easy to use. After a full year of Version 2, however, there are many new features that are making my life easier — the simple reward of *reading!*

Soundscape has always supported both the JL Cooper CS-10 and the Penny & Giles DC-16 MIDI controllers. I was surprised at how easy the CS-10 came online. It connects to the MIDI ports (in and out) of any sound card. Clicking on a Soundscape/JL Cooper icon opens a tiny controller

continued on page 130



COMING UP IN EQ SEPTEMBER

ON THE EDGE. Left of Cool, the latest release from Bela Fleck and the Flecktones, was recorded using cutting-edge project studio gear. Find out how Bela and Roger Nichols put the whole thing together in Bela's Nashville-based project studio.

NO LITTLE FEAT. EQ goes in the studio with the members of the legendary band Little Feat and reveals how they recorded their new album using Panasonic's DA7 digital mixing console.

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Marantz Professional CDR-620 CD Recorder



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BY EDDIE CILETTI

You might wonder how Marantz justifies the \$3600 list price of the CDR-620, a 2U, rack-mounted CD recorder. That's easy. In addition to the "expected" analog and digital I/O, the CDR-620 also features a SCSI port, a full-featured remote control with two-way communication, plus the ability to write ISRC codes (used by record companies and radio stations).

PROFESSOR EXPERIENCE

In some circles I am considered a techno-geek, but after spending con-

siderable time experimenting with the CDR-620, I am humbled. That's because the CDR-620 requires that you understand parameters such as multi- or single-session modes in order to properly set certain "defaults"

politics. The resulting differences between AES and S/PDIF, for example, force users to choose "what [ever] works" rather than "what's better." That both Start IDs and the dreaded Copy Protection flags appear

(single session for audio CD). This would imply that the manual be well written, in plain English, and clearly detailed. It is not! Great as the temptation may be to record on the fly, you'll make fewer coasters if your favorites are first compiled to DAT.

Auto Record and Track Increment are my favorite features because they initiate Record upon "seeing" a Start ID either from a DAT or a CD. While we may consider ourselves professionals, much of our gear is the result of technology that has "trickled-up" from consumer electronics. As such, the gear has become encumbered with idiosyncrasies based on professional versus consumer

EQ LAB REPORT

MANUFACTURER: Marantz Professional c/o Superscope Technologies, Inc., 1000 Corporate Blvd., Suite D, Aurora, IL 60504. Tel: 630-820-4800.

APPLICATION: Stand-alone compact disc recorder.

SUMMARY: Rack-mountable CD recorder with hard-wired remote control RC-620 (both with graphics display).

STRENGTHS: Full-featured I/O includes AES, S/PDIF, analog via XLRs, SCSI, DB-15 for RC-620, and DB-9 parallel remote connection.

WEAKNESSES: No safe "input monitor" feature without removing disc; no "local/remote" switch; no error rate display.

PRICE: CDR-620 w/RC-620 remote, \$3600; CDR-615 (w/o SCSI), \$2300.

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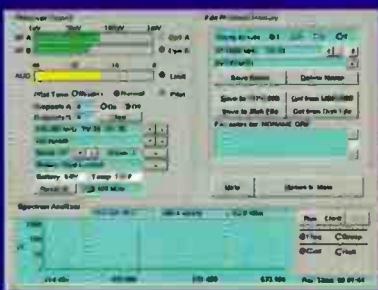
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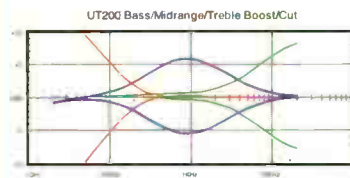


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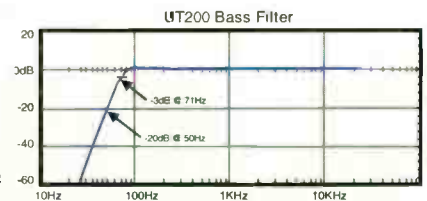


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SOUNDSCAPE

continued from page 125

window that confirms operation (faders move, knobs turn, buttons respond) and *voilà!* you're ready to take control. Not all features of Soundscape's mixer are available via controller, a downside because my right hand is beginning to suffer. (No Viagra jokes, please!) EQ and editing are two features I would surely like to access with traditional knobs and a scrub wheel.

There are many new controllers, the Mackie HUI and the JL Cooper MCS 3000 series to name a couple. The latter includes the CS-10 command subset as well as the HUI/Pro Tools "personality file." At the moment, however, Soundscape barely takes full advantage of the CS-10.

You don't have to be a super-geek or super-rich to have this kind of mixing and editing power. I have taken the liberty of "pushing" a dual system (24 tracks), which takes up a mere "4-U" of rack space. If you need fewer tracks than I do, there will be plenty of room for plug-ins until MIXTREMÉ and/or an expansion chassis become available.

Soundscape has never let me down, surviving four years without becoming out-of-date.

One other note about Soundscape: software upgrades have always been free (expect to see an 8-track, 24-bit upgrade in October). So has most service. Considering that some people pay "extra" for an extended warranty — a gamble in many cases because a workstation will always need new software. Can you believe it's always been as easy as a download? **EQ**

PLUG-INS/DIRECTX

continued from page 124

algorithms. It's a given system with a given performance: the chip architecture and performance are known. An algorithm can be perfectly adapted to work in this environment at all times.

2. The whole hardware environment of a DSP (in audio systems like Soundscape, for example) is designed and optimized to handle the processing in real time. This means that the only latency introduced in the audio signal path will be the conversion time of the A/D-D/A converters.

3. The DSP's internal operating system is tailored, to that specific piece of hardware and optimized for a special purpose (audio and/or video). Generally, the DSP's OS is reduced to the absolute minimum, making it much easier to develop, test, and debug than

a Windows NT system with its massive overhead. That's why external, DSP-based audio systems are generally very stable in terms of crashes and other unpredictable behavior.

4. Well-implemented DSP-based systems can be slaved to external digital systems with sample accuracy. This is not the case in the "native" environment, unless hardware expansions and special drivers allow for it.

5. An external audio system like Soundscape uses the computer just as a front end, minimizing the workload to such a degree that it can be run on a relatively slow computer (a 486, for example).

DSP CONS

A modern, fast DSP does the internal processing in 24-bit fixed-point format. This format has two drawbacks:

1. On a fixed-point DSP, the audio signal clips mercilessly at 0 dBfs and introduces digital distortion (even when there's just a marginal overload). So keeping the levels under control is a crucial part of development for this platform.

2. All DSP systems (so far) are proprietary systems, so plug-ins created for one system won't run on any other. Development is relatively expensive, as we have to adapt each product for a specific hardware environment.

—Eddie Ciletti, Thomas Block, Ralf Schluenzen, Sven Duwenhorst

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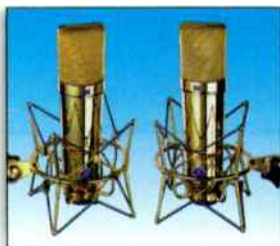
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Ad Index *For fast and easy information use the reader response card in this issue*

PAGE	BRAND	INFO#	PHONE#	PAGE	BRAND	INFO#	PHONE#
51	Akai	2	817-831-9203	38-39, 117	Mackie Designs	36, 46	206-487-4333
33	AKG	1	615-399-2199	164	Mark of the Unicorn	37	617-576-2760
2, 69	Alesis	3, 94	800-5-ALESIS	146	Markertek Video Supply	39	800-522-2025
128	APB Tools	92	011-49-30-398-95200	138	Marshall Electronics Inc.	40	310-390-6608
142	Applied Research & Technology	81	716-436-2720	71	Mezzamon	76	508-791-8470
108	Ashly Audio	4	716-544-5191	141	MIDIMAN	51	800-969-6434
161	Audio Engineering Society	XX	212-661-8528	105	Minnetanka Software	49	612-449-0187
83	Audio Technica	80	216-686-2600	135	Musician's Friend	52	800-776-5173
148-151	B&H Photo	9	212-807-7474	119	Nady Systems	41	510-652-2411
26	BBE	85	714-897-6766	130, 34 A-D	Neumann	44, XX	860-434-5220
53	Behringer	5	516-364-2244	101	Orcode Systems	XX	415-856-3333
146	Bell Electronics	6	903-784-3215	102	Oz Audio	47	360-568-3636
103	CDS Graphics	7	800-599-9534	4-5	Panasonic	XX	714-373-7277
91	Conservatory of Recording Arts	77	800-562-6383	25, 115	Peavey	50, 53	601-483-5365
75	Coal Breeze Systems	89	614-481-4000	104	Polyline	54	818-969-8555
43, 45	CTI Audio	11	216-593-1111	95	Presonus	73	504-344-7887
55	dB Technologies	8	213-845-1155	16-17	QSC	57	714-754-6175
3	Digital Theater Systems Corp.	10	818-706-3525	37	Quantegy	87	800-752-0732
111	DigiTech	17	801-566-8919	23	Rane Corporation	55	206-355-6000
91	Disc Makers	12	800-468-9353	146	Reamp	56	617-982-2626
103	Discaunt Distributors	13	516-563-8326	104	Rich Music	58	800-795-8493
77	Dalby Laboratories	14	415-558-0200	163	Sennheiser	43	203-434-9190
41	E-Magic	15	916-477-1051	59	Shure Brothers	60	800-25-SHURE
127	E-mu Systems	19	408-438-1921	61	Sonic Foundry	88	800-57-SONIC
82	Earthwarks	93	603-654-6427	14	Sanarus	75	212-253-7700
42	Emtec/BASF	24	800-225-4350	9	Sany Electronics	XX	800-635-SONY
49	Ensanig	21	610-647-3930	146	Stedman	74	800-873-0544
7, 73, 107	Event Electronics	25, 26, 16	805-962-6926	93	Steinberg North America	61	818-993-4161
123	FMR Audio	79	800-343-9976	97	Studer	62	818-703-1100
85	Focusrite	18	516-249-1399	1e	Studio Technologies	91	847-676-9177
79	Fastex	28	562-921-1112	13, 15	Sweetwater Sound	82, 83	219-432-8176
81	Full Compass	27	800-356-5844	63	Syntrillium	63	602-941-4327
146	Geoffrey Daking	20	212-749-4931	57	Tannoy	84	519-745-1158
71	George L's Musical	22	615-868-6976	28-29	TASCAM/TEAC America	70	213-726-0303
116	Grandma's Music & Sound	23	800-444-5252	11	TC Electronic	64	805-373-1828
116	Great River Electronics	29	612-455-1846	121	Telex Communications	65	612-887-5500
87, 143, 145, 147	HNB Communications	30, 32	310-319-1111	35	The John Hardy Company	95	847-864-8060
75	Hasa Technology	31	714-736-9270	123	The Recording Workshop	66	614-663-2544
137	Innovative Quality Software	38	702-435-9077	48	TL Audio/Sascam	59	905-827-9740
133	Interactive Microsystems	33	847-426-1950	133	West L.A. Music	67	310-477-1945
21	JBL Professional	XX	818-894-8850	12	Whirlwind	68	716-663-8820
50	JOEMEEK	34	877-JOEMEEK	27, 139	Yamaha	69, 72	714-522-9011
129	Lectrasanics, Inc.	42	505-892-4501	22	Zefira Acoustic	71	714-551-5833
89	Lexicon	35	617-280-0300				

CLM Dynamics *DB400s* Mic Preamp

CLM's mic pre offers convenience for MS stereo aficionados

BY STEVE LA CERRA

CLM Dynamics' DB400s is a 4-channel mic pre with a few twists: each channel has a built-in limiter, channel limiters may be linked for stereo operation, and the unit is capable of decoding MS stereo. Rear-panel features include XLR I/Os (pin 2 hot)

Working the channels is easy: bring up the gain until you get a level of about +2 to +4, then adjust the rotary fader for a proper output level.

A big strength of the DB400s is its ability to decode up to two pairs of MS stereo mics. You plug a cardioid mic into channel 1 (or 3), a figure-eight into channel 2 (or 4), press the MS switch, and the unit will flawlessly produce a

produced very realistic results for an acoustic guitarist/vocalist.

Using the DB400s for an XY stereo recording of drums was equally successful. A beyerdynamic MCE 82



and an insert for every channel.

Each channel also has a rear-panel switch labeled "pad," which initially, we weren't very happy about because pads on the rear of a rack-mount device are inconvenient to use. Further examination showed us that this switch is actually a +4/-10 operating level switch. According to CLM Dynamics' literature, this switch will be labeled "+4/-10 dBu" in the future.

Front-panel controls per channel include switches for 48-volt phantom power, polarity reverse, high-pass filter, fast attack (for the limiter), pad, and mute. Channels 1 and 3 have link switches; channels 2 and 4 have MS switches (more about those in a minute). All switches have a high-quality feel. Much to CLM's credit — and our surprise — you can turn phantom power on or off without so much as a burp from the output. Three knobs control gain, limiting, and fader level. A ten-segment LED indicator shows post-limiter/pre-output fader level, and a yellow LED indicates limiting.

pair of MS-decoded channels (very cool). We enjoyed miking guitars and drums with a Lawson L-47 (cardioid) and a Lawson L-47MP set to figure eight. Bottom end with this combo was a touch on the shy side, but when we added a close mic on the kick drum (a Peavey PVM22), the bottom slammed. Stereo imaging was totally rock-solid, with no shifting. You adjust the ratio of mid (direct) to reflected (ambient) sound simply by bringing the level of the second channel up or down. This setup also

stereo condenser mic was placed about a foot above the toms, with the Peavey PVM22 on the kick. Channels 1 and 2 were used for the MCE 82 and channel 3 was used for the PVM22. Channels 1 and 2 were linked so that the limiters would track together, and here's where we found a bit of a bug: the limiters did not seem to link. We had better results unlinking the channels and setting each channel's controls as close to the same as possible. A phone call to the folks over at PMI revealed that our preproduction sample had an internal jumper on each card that needed to be moved. Once we did this (it took about three minutes) channels 1 and 2 (or 3 and 4) limited perfectly as a linked pair.

EQ LAB REPORT

MANUFACTURER: CLM Dynamics. Distributed in the U.S. by PMI, 23773 Madison Street, Torrance, CA 90505. Tel: 310-373-9129. PMI Web: www.joemeek.com.

SUMMARY: Four-channel microphone preamp for use in studio recording and remote stereo recording.

APPLICATIONS: Studio multitracking, live-to-2-track recording, XY and MS stereo recording.

STRENGTHS: Built-in MS decoding; limiter on each channel; high headroom.

WEAKNESSES: No instrument inputs; limiter adjustments are sparse.

PRICE: \$2499 **EQ FREE LIT. #:** 105

SPECIFICATIONS

Frequency Response: 15 Hz to 60 kHz
 Input Impedance: 1200 ohms
 Common Mode Rejection: 70 dB
 High-Pass Filter: 80 Hz, 12 dB per octave
 Preamp Gain: 25 to 70 dB

Note that the limit LED on the slave channel won't behave as the LED on the master channel, but there's no doubt that they audibly track together (PMI notified us that all production units were shipped with the jumpers in the correct position). Setting a limit really does clamp the signal down. The limiters definitely have a sonic character, but how evident that character comes through will depend upon (a) how much limiting you do and (b) if you use the fast setting. You can shape the top end by varying these parameters for some interesting sounds. In the case of our XY drum kit, the limiting sounded cool and overall timbre was excellent. The entire kit was well balanced and quite in your face — something like you might hear on a Lenny Kravitz record, only a bit more tight in the bottom. In all applications, the unit had plenty of headroom and never sounded strained.

We also briefly used the DB400s to record some sound effects with a Neumann KM84. Since this mic requires a lot of gain, it's not a great idea to couple it with a noisy mic pre. The DB400s was a good match with the KM84, and even though we needed *mucho* gain to record certain sounds (such as a cat purring), they came through clear without being lost in a sea of hiss. Similar characteristics were apparent when recording a vocal whisper.

It's clear that CLM Dynamics has constructed a quality piece of audio gear with the DB400s. Whether you need it or not depends upon the methods by which you record. Purists may be put off by the fact that the limiter cannot be bypassed. For multitracking live or in the studio, or recording live-to-2-track, the DB400s is a very useful tool. MS stereo aficionados *must* check the out the DB400s because it makes MS a breeze. It can even convert stereo tracks into an MS pair using the built-in WHIP™ (Wide Horizontal Imaging Plane) matrix for manipulation of soundstage width. Overall the unit performs well and has plenty of headroom. **EQ**



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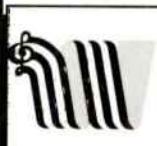


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Opcode Systems *Studio 64 XTC*

Sync your studio with
one box

BY TIM TULLY

Opcode's cross-platform (Mac/Windows) Studio 64XTC is a cost-effective, professional synchronizer for project studios. Al-

though it has a limited MIDI interface, what this box does — as well and as inexpensively as anything else — is provide solid, multi-format, multidevice sync to a variety of digital audio and video devices.

the only effect is that some notes will be slightly out of time. (However, this could be a problem with music where very tight timing is important.)

Adding audio capabilities to MIDI complicates the situation. If you use a MIDI/audio sequencer like Studio Vision or the audio versions of Cubase, Cakewalk, or other sequencers, the SMPTE/MTC trick will pretty much lock your audio and MIDI sequence to the videotape by adjusting their playback rates as they continuously resync to SMPTE.

resynchronizing. In this situation, any variation in the incoming SMPTE means that the digital audio will eventually drift with respect to the MIDI data.

So how do you get a solid time base for synchronization? High-level DAWs like PARIS and Pro Tools lock to another device neither with SMPTE nor MIDI timecode, but a signal called word clock (or a similar, improved system originated by Digidesign called Super Clock). This signal tells the DAW the precise instant at which to fire off each of its 44.1 kHz-per-second or 48 kHz-per-second samples. If the DAW locks to video or any device whose

though it has a limited MIDI interface, what this box does — as well and as inexpensively as anything else — is provide solid, multi-format, multidevice sync to a variety of digital audio and video devices.

The 64 XTC can serve as a synchronization hub for digital audio workstations (e.g., Digidesign's Pro Tools, Ensoniq's PARIS, or any hardware-based audio system that locks to word clock), studios that need to lock to video, MIDI or MIDI/audio sequencers, and digital multitracks like the Alesis ADAT or TASCAM DA-88-family machines.

If you're working in a MIDI-based studio, you may not feel the need for additional synchronization, even if you score for video. It's a common project studio practice to use a MIDI interface with a SMPTE input (e.g., Opcode Studio 5 or MOTU's MTP) to lock a sequencer to a videotape. You just patch an output from the video's audio track containing the timecode into the interface's SMPTE input, and it converts the SMPTE signal to MIDI timecode (MTC), sends that to your computer, and locks the software to the tape.

Unfortunately, the SMPTE timecode coming from an audio or videotape transport inevitably drifts over time, however slightly. For MIDI tracks, this is not always a disaster, as

The problem is that changing the playback rate of the audio in order to keep sync will induce jitter, which manifests itself in your audio tracks as distortion, pitch shifting, and even gapping: unacceptable — even for techno. On the other hand, some sequencers may only use "trigger sync," where they start at a specified point and run free from there on, without

timing drifts, word clock reduces the negative effects of these changes.

To minimize the wow and flutter that can come from a sync master like video, the best answer is a black burst generator. This device is common in



EQ LAB REPORT

MANUFACTURER: Opcode Systems, Inc., 3950 Fabian Way, Suite 100 Palo Alto, CA 94303. Tel: 650-856-3333. Web: www.opcode.com.

APPLICATION: MIDI interface, audio/video synchronizer.

SUMMARY: Generates word clock and super clock from SMPTE, video, and black burst; 2-in/6-out MIDI interface.

STRENGTHS: Price/performance ratio for A/V sync features.

WEAKNESSES: Short on independent MIDI outs; doesn't generate black burst.

MINIMUM SYSTEM REQUIREMENTS: PC: IBM PC compatible with 16550 COM port; Windows 3.1, 95, or Windows for Workgroups. Mac: 68020 Mac or faster or PowerMac; System 7.0.1 or newer; 4 MB available RAM.

PRICE: \$495

EQ FREE LIT. #: 130



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 eye on this
 spot for details.

video studios, which must lock up a number of video tape decks reliably. It sends a solid, unwavering time-base signal, called "house sync," out to multiple other devices, which then all play and record following the "clock" supplied by the black burst generator. Any professional or semi-pro video deck will have a port that accepts black burst, and be designed so its internal machinery will run on its time and not allow imperfections in the tape or other problems to vary its playback speed. One inexpensive black burst generator, the BSG-50 (\$289) from Horita (Horita, Box 3993, Mission Viejo, CA 92690; Tel: 949-489-0240; Web: www.horita.com), can send out six simultaneous black burst streams and a 1-kHz, 0-dB tone for reference.

The 64 XTC does a couple of jobs to integrate all these signals. It converts SMPTE to MTC, but, best of all, it will accept a black burst signal and generate simultaneous word clock and Super Clock signals that will keep your DAW(s) in rock solid sync with any video following the same black burst.

A second sync solution works almost as effectively as using house sync. This involves bringing not only the SMPTE timecode signal from a video deck to the XTC, but the video signal as well. Since the video signal provides the XTC with a time base, the XTC can determine if the SMPTE code is coming in too fast, too slow, or just right. From this information, the XTC can send a word/Super Clock signal that keeps the DAW free of jitter and its resultant ill effects on our audio.

The third, and least reliable, XTC sync method calls for just sending SMPTE timecode from the video deck to the XTC. The XTC will generate a word/Super Clock signal from this, but it provides only minimal protection from any wow and flutter the deck might produce. Frankly, there's no need to ever use this setup under any normal circumstances, since it's so easy to send SMPTE as well as video to the XTC. Even most consumer VHS decks have two video outs: it's trivial to send one video signal to a monitor and another to the XTC. Even if this is impossible for some reason, running the video to an inexpensive splitter box would provide the two outs necessary.

Another XTC feature is its ability not only to lock up multitrack digital tape decks, but also to control these units from a sequencer via MIDI Machine Control (MMC). The XTC works with the ADAT right out of the box, and will also talk to DA-88-family machines

with an optional plug-in card. A single cable connects the XTC to an ADAT (or DA-88, once the card is installed), and carries both MIDI Machine Control (MMC) and a sync signal, locking the multitrack to the XTC. After making this connection, you can control the ADAT's shuttle functions — play, record, fast forward, rewind, stop, and pause — directly from your sequencer, and be sure the sequencer and ADAT are all in nearly perfect sync.

In this setup, you can digitally transfer audio tracks from the multitrack to the DAW, edit, process or otherwise alter them, then transfer them back again to the spot from which they came. The lock-up between the devices is tight enough that the variance should be no more than a few samples either way. An ADAT 9-pin sync option, designed to provide sample-accurate ADAT sync, is in the works.

The 64 XTC's MIDI implementation is emblematic of the way digital audio has been gaining on MIDI in the project studio recently. Opcode has given the XTC only two MIDI ins and four discrete MIDI outs, rather than the eight ins and eight outs that have become something of a *de facto* standard in pro-level MIDI sync boxes. (The unit actually has six MIDI out jacks, but two of them only send duplicates of the data coming from two other jacks.)

If you have more than four multitimbral MIDI instruments, or two multi- and four monotimbral, you'll have to use the MIDI Thru ports of your instruments or network the 64 XTC to a more well-endowed MIDI interface like Opcode's Studio 128X, an 8-in, 8-out unit. But if you're not so MIDI-heavy, you can maximize the XTC's MIDI ports with a little planning, particularly if your studio uses any monotimbral instruments — those that receive MIDI data on only one channel, such as the classic Oberheim Matrix 1000 or the growing Yamaha VL series. If you set these to different channels on the same port, each will receive MIDI data intended for the other, but ignore it as being on the wrong channel.

The Studio 64 XTC is well thought-out and functional. It can be valuable as a source of synchronization in many inter-media situations, and has a breakthrough price. If you need to lock digital audio, MIDI or video together, it's a good choice. Combined with an inexpensive black burst generator, it's hard to beat. **EQ**

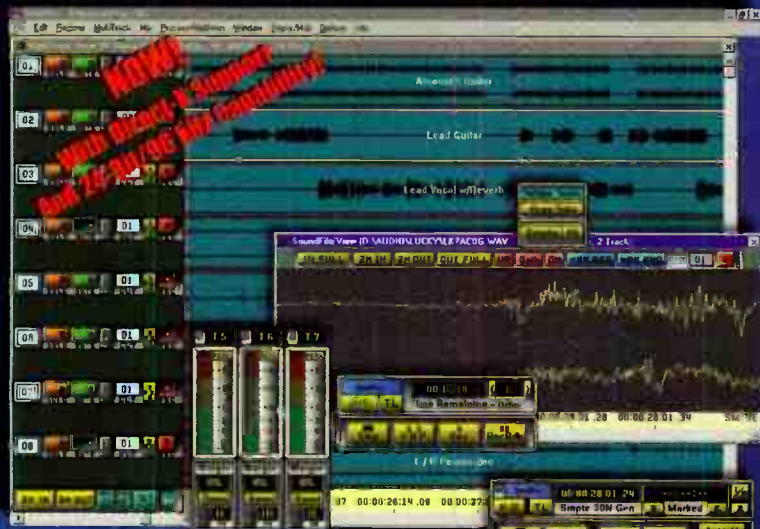
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BEYERDYNAMIC

continued from page 36

curves to your specs on an EPROM, your preferred filter parameters could be programmed and then loaded into the mic. A standard AES/EBU output from the microphone (the company calls it Perfect Match™) supplies identical signals on both the left and right outputs, and reportedly eliminates jitter. Interestingly, the microphones incorporate a self-regulating, nonclipping function to prevent digital clipping. While details were sketchy at press time, beyerdynamic claims that this provides maximum input (for the best conversion resolution) versus clipping without compressing or limiting the signal.

So how do ya hook this thing up? With Digital Phantom Power (DPP), of course. Although it is in its infancy, DPP is becoming available on digital consoles as a means of powering digital microphones. DPP provides the necessary power supply for the condenser element, the converter circuitry, and signal-processing circuitry in the mic body, much in the way conventional phantom power operates. The DPP

spec calls for 6 to 10 volts DC with a maximum current of 200 milliamps. Variable DC allows higher voltage to be used in longer cable runs, compensating for DC voltage drop over long lengths. It's important to note that beyerdynamic recently submitted this interface to the AES for review as a standard for Digital Phantom Power.

Those of us who do not own digital consoles with DPP can use an external interface for powering. Three interfaces are currently available from beyerdynamic. The MPD 100 is a two-in, one-stereo-out box that connects to digital consoles via AES/EBU digital protocol and derives its clock timing from the word clock of the console. Since the MPD 100 outputs a nominal signal of +18 dB, the console must have a digital gain adjustment on the input channel. The MPD 200 adds a digital gain adjustment (-20 to +36 dB) that serves as a bit-shifter for connecting the mic to systems with 20-bit (or lower) resolution. For multichannel mavens, there's the MPD 800: a rackmount, 8-channel unit with both AES/EBU digital output and built-in ADAT interface. A TDIF interface will be offered as an option for the MPD 800.

In recognition of the AES/EBU dig-

ital interface standard, MCD mics connect to a digital console or the MPD units with a two-conductor-plus-shield cable terminated with male and female XLRs. beyer recommends AES3-certified cable with an impedance of 110 ohms, but also notes that a high-quality, low-impedance, balanced mic cable can be used where wiring runs are less than about 20 meters. Unlike traditional microphones, the MCD 100 and MCD 101 can also be plugged directly into a tape machine or any digital processing device.

beyerdynamic's MCD 100 and MCD 101 are currently available at suggested retail prices of \$2500 each. The MCD 800 Series will be available at the end of September 1998; suggested retail prices are \$829 for the MCD 801, \$839 for the MCD 803, and \$849 for the MCD 805. The MPD 100 and MPD 200 are currently available at MSRP's of \$1499 and \$1599, respectively. Pricing and availability for the MPD 800 is TBA. An exclusive review is forthcoming in EQ.

For more information, contact beyerdynamic, 56 Central Ave., Farmingdale, NY 11735. Tel: 516-293-3200. E-mail: salesUSA@beyerdynamic.com. Web: www.beyerdynamic.com. Circle EQ free lit. #131.

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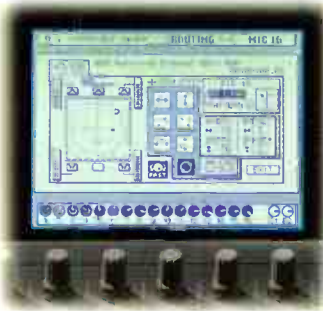
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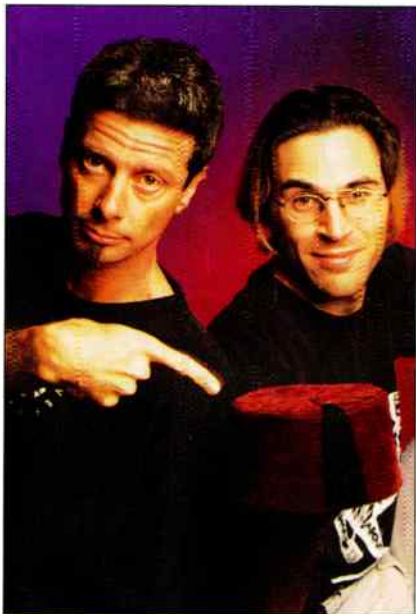


PHOTO BY STEVE JENNINGS

Your loops are strangling me (yes, we're talking to you...)

BY JON LUINI
& ALLEN WHITMAN

So there we are, working away in the early morning while innocently listening to a track from the ten-CD Steve Reich box (late-20th-century classical deconstructionists take note!) when gradually, by stages, we begin to notice a repetitive sound, just at the edge of hearing. After a cursory search of the apartment for broken appliances and a look out the window for car alarms down the street, we realize it's coming from the stereo. The CD must be skipping. But no! It's a song consisting of one one-second-long midrange piano pattern repeated for 12 minutes. But get this: halfway through the piece, the pattern slows down. Suddenly the lights came up in the darkened theater of delight that passes for our brains. "Let's not do this," we think. Let's not repeat ourselves endlessly and then *slow down*. Let's create a diversionary tactic and suggest, instead, a way to avoid common mistakes in the creation of an audio-content-based Web site.

Nice segue, huh? OK. Try this test: Don't be you. Become another. Now go to your Web site and give it a spin. That's right: Browse your own Web site. As you are experiencing the overwhelming sense of new worlds and fresh horizons, consider the suggestions below.

First off: When you arrive at your page, do you immediately hear a piece of music while the page is loading? Is this piece of mu-

sic a loop that, after loading, cycles endlessly until it drives you nuts? Do you want to leave your page, or (*grasp*) turn the sound off? Even if it's a nice loop turning 'round and 'round, is it clean? Is the stitch between the loop's beginning and end seamless? The ever-helpful FezGuys suggest using autoloading audio with care. Avoid seam glitches.

Aesthetically, we feel that repetitive sounds tend to annoy rather than en-

THINGS THAT ARE NEW

AT&T's proposed merger with **TCI Cable** means kickstarting the timeframe of widespread access to the Internet through your cable service. That's good because we can ostensibly receive 10 megabit downloads. Of course, we can only upload at far slower speeds. One's ISP would be one's phone account. One bill. This is all good for us Internet users, assuming that AT&T figures out that telecommunications is somewhat more than a telephone conversation and that TCI actually offers customer service.

Microsoft's Windows 98 release shipped at midnight recently and if there's anything new or groundbreaking about it we can't find it. Yeah, we read the box. It says that applications launch 36 percent faster. It appears to be a big maintenance release, with basic Web page editing tools and marketed in a language that assumes we are all dummies. If you're running Windows 97, there's likely no harm in upgrading. Oh yeah, it appears that two or three monitors can now be run simultaneously off the same CPU. Of course, Macs have been able to do that for ten years. Ah, well. Read the fine print. And remember, as soon as you successfully install Windows 98, an unmarked helicopter will fly over your home.

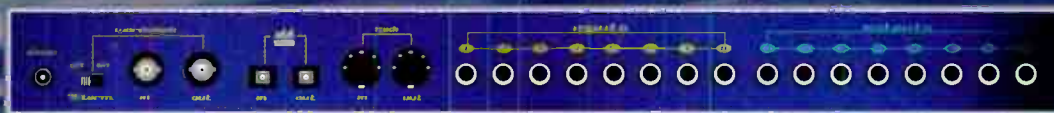
The **RealAudio** folks have brought us the newly updated Real Systems G2. It's an overall revamp of the entire RealAudio method. The codecs are a little bit better. That translates into slightly better audio quality. Up from phone talk to FM radio at last perhaps? There does appear to be an improved streaming mechanism (they call it

SmartStream). During streaming, the G2 system will transparently drop to a lower bit rate version if lines become clogged and slow down. We hope this means that it will also transparently bounce back up if the lines become clear. It also acquires new plug-ins for your Player so that (as needed) they can be downloaded and quickly updated on your computer without having to go to the Real Networks Web site to redownload and reinstall. A pop-up window (appropriately used) will intuitively update your player with the new plug-in (they call it AutoUpdate). There may even be enough goodies included in the new G2 Real Player Plus to make it worthwhile to buy (at last!). There's actually EQ (treble, bass and midrange) available, along with volume level displays and a playlist. The brightness, contrast, and color of a video image can be set as well. Currently this product is only available for Windows running (at the minimum) a Pentium 100 MHz chip with 16 MB of RAM. There's a shocker...

Res Rocket Labs (see EQ Nov. 1997 or column #13 on the FezGuys Web site) received funding to expand their technology from the well-known philanthropist Paul Allen (one of the founders of Microsoft who bailed early but kept his stock). Res Rocket is a good idea that's cool. There should be a new version out in a couple of months. Hey! If you can think of a new Internet technology that's cool somebody will throw money at you. It's still possible. Contrary to reports of the "end of the golden age" of the Web, there are still tons of venture capital funds seeking people and organizations to invest in. Be charismatic.

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hance. Of course, that throws the last 50 years of musical culture in the dumpster. Somewhere down deep, clawing for air between Philip Glass and Einstürzende Neubauten, is a Pretty Loop Of Love. Keep digging you Godless Heathens! And here's a thought: consider offering visitors a beribboned basket of audio backdrops to choose from, but only when and if visitors ask. Find (and walk) the fine line between a static Web page and one which results in a slow-to-download aural attack.

Meanwhile, the You who is momentarily Not You is observing the various graphical images loading on your site. These images do not have to be huge. There is no reason to autoload a 100k JPEG file of your album cover. Your lyrics (you sing?) do not have to be embedded in a finely-detailed *trompe-l'oeil* when a straightforward 2k text file will do admirably. This doesn't limit you from including a link to the large JPEG.

About screen width: not everybody has a 21-inch Trinitron on their desk. Visitors to your site will have to (yeah life's hard, right?) scroll around constantly to access your offered plums. The ever-contrite FezGuys suggest a screen width of about eight inches (or around 600 pixels) maximum. Simple, small and quick. Speaking of quick, what's with the automatic, pop-up browser windows no one asked for? It's irritating to be bombarded by uninvited objects. If it's not absolutely necessary, lose it. Your visitors will close it anyway.

As for multiple frames within your site: think twice about it. Now, think again. Does it really make your site simpler to navigate? If so, go for it, though if you must complexify, consider offering your visitors an option to view without frames. Your ever-goading FezGuys do suggest (if you haven't already) you upgrade your browser to the most current version available. Nonetheless, many visitors may be using earlier browsers and be unable to view your site if it requires frames. Exercising your artistic inspiration is good but keep it simple.

Back to your *raison d'être*: the music. Alongside your full song files, the ever-polite FezGuys offer that excerpts from each piece be added for easy preview. If the excerpt is from the middle of a song, then place a fade-in and -out of it. Keep the excerpt around 30 or 45 seconds, which is long enough to get a feel for the composition. Offer the excerpts and the complete pieces in MP3 and RealAudio formats. Provide links to sites where users can download the players (which you've tested yourself!) for these formats. If possible,

monitor log files to observe the popularity of these formats. Consider offering files of your songs in the funky old Sun-AU format. Yeah, it doesn't stream or sound good, but it works on almost every computer.

Make sure your Web server is set up properly for your MIME types (MIME types are the headers included when downloading the soundfile via the Web that tell your browser what to do with the file). This way a visitors' browser will launch the correct program to play your music instead of a page of textual garbage. If you are not using your own Web server, talk to your server's administrator to make sure this is set correctly.

If you expect your visitors will wish to obtain a yummy clean version, consider offering download-only versions of your songs in a very-high-quality, 44 kHz sample rate, stereo-imaged, 16-bit sample format optimized for rates of up to 128 kilobits per second. For files of this mythic "near-CD" quality, you may consider charging an actual fee. For commercial transactions, try a third party Web-billing service such as Cybercash or First Virtual. Of course, there's always mail-order. Thousands of musicians have made this system work for them.

Provide an e-mail address for visitors to offer praise, insults, or cries for help. Answer your e-mail and, as always, the ever-mannered FezGuys remind you that etiquette is still not dead. Be polite. Collect e-mail addresses. Ask for permission to add your contactees names to your announcement list and do not recklessly trade your e-mail list with inappropriate organizations. Never sell your list.

Though it may be obvious to some that we don't practice what we preach, the ever-succinct FezGuys offer Web designers this reminder: good writing makes a difference. Spelling and grammar — use them correctly.

Most important, give people a reason to come back to your site. Update frequently with new content. Include a news section and update it often. Include a "last updated" date and don't forget about it. Schedule an itinerary of new stuff. Don't put everything up at once and then leave it alone and unchanged. Creating your online community doesn't happen overnight. The ever-redundant FezGuys remind all that, "Slow cooking makes a creamy pudding."

And, finally, those little counters. What the hell is up with that? Those who think an online community is fostered by reminding visitors of their resemblance to a statistic deserve their ego-validation psychosis. Do you like being treated like

continued on page 147



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Panning For Gold *For The DIY Audio Geek*

Part one of a series on mixing

BY SIR HOUND, EDDIE CILETTI



Are you tired of hearing about surround sound? It's become a bit of a buzzword, and that's too bad, really, because beneath the gimmicky surface something important is going on.

THEN AND NOW

The difference between audio technology today and that of 40 years ago is simple. Then, professionals had the real gear and consumers got the trickle-down. Now, technology trickles up from consumer to pro. Don't believe me? I present and rest my case with DAT and S/PDIF. Both were consumer "formats" that were killed by political, legal, and misguided marketing idiosyncrasies (copy protection) and then embraced and cursed by the "pro" audio market. Why do Start ID flags exist only on S/PDIF and not AES? Because the decision was made way before anyone realized that a pro studio might need to make digital copies with accurate Start IDs.

That's why I want to encourage y'all to experiment. How can we contribute to the surround dialog if it seems out of financial reach or conceptually unnecessary? There are already several surround formats plus numerous proposals for the Audiophile DVD. Everyone else is either trying to sell hardware specific to their system or still arguing about the format — but

don't be discouraged. You can brew your own system, at least for the purpose of experimenting. (Don't miss this point. Fun first! Details later.) You may even own most of the tools already!

Of course, if you can afford all of the proper gear, go right ahead. The Players need us to conform to a "standard," so no matter what the format — Pro Logic® or 5.1 surround, DTS or Dolby — mixing for home or theater requires a lot more than just speakers. Before the end product can carry the name of the surround system employed, your facility must be approved. A certified technician will properly set up the necessary gear (encode/decode) as well as operating levels. (Equipment and format specifics will be covered in future articles.) Beyond the technology and the learning curve is today's goal: creativity.

NEAPOLITAN SURROUND

For the purpose of this discussion, there

are three flavors of surround: passive, active (Dolby Pro Logic), and discrete (5.1 fully independent channels). Passive and Pro Logic extract "hidden" information from a stereo mix. That's right, even though multiple speakers are used, there are really only two channels of information. The "center" channel is the sum of Left+Right ("mono") and the "rear" channel is the difference: Left-Right. Dolby Pro Logic "steers" the subtracted information — which consists of ambience, widely panned and/or out-of-phase information — into the rear speakers with a form of fuzzy-dumb logic. You can set up a generic passive or discrete system without buying any processing equipment.

If you already have a Dolby Pro Logic system, listen to a stereo music mix and see what happens. The trick to consumer gear is finding the "plain vanilla" Pro Logic setting. Many receivers have DSP effects like "Concert Hall," "Stadium," "Basket-

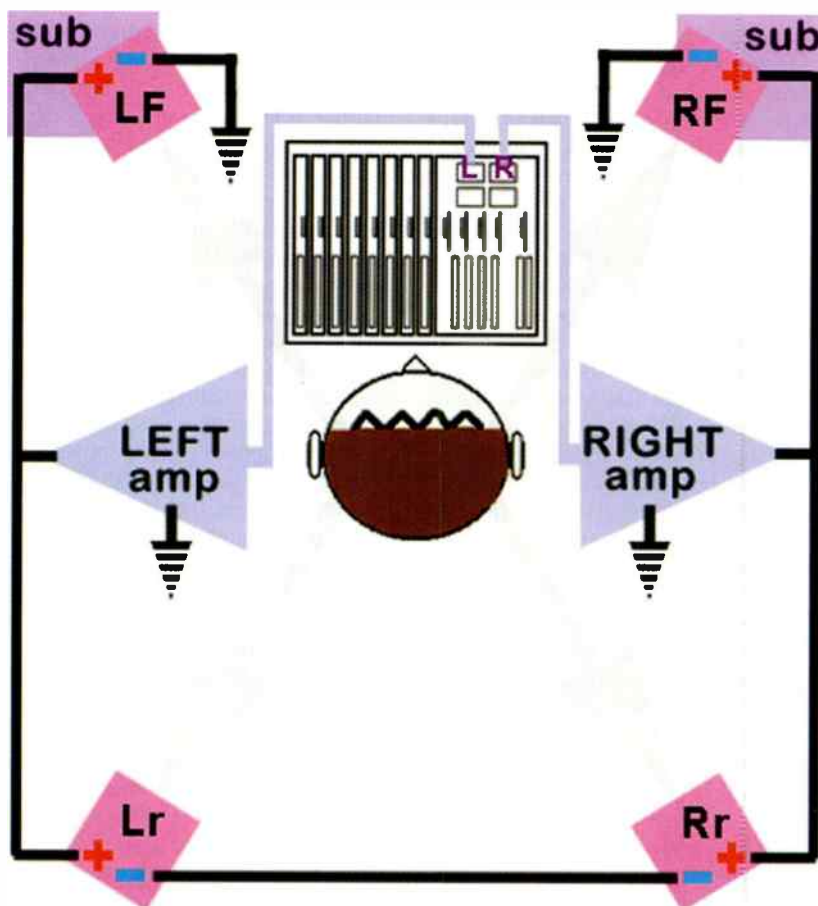


FIGURE 1

ball,” and “Bathroom.” You don’t want any of that. Also, the consumer version of Pro Logic has a built-in auto-level-balance detector circuit that can not be bypassed. The system will attempt to correct gross level discrepancies between left and right. This means it may get confused if your mix is in a very raw state.

DIY PASSIVE

The first system is super basic. You don’t need any signal processing gear to get started, just four identical passive speakers connected as shown in fig. 1. A subwoofer is recommended, but the choices are numerous, so follow the directions provided with that system. Assuming your speakers have 3- or 4-inch woofers, place them in a 4-foot square with you in the middle. (Larger speakers can be spread further apart.) The subwoofer should be in a nearby corner, either left or right of the front speakers [experiment].

THAT SPATIAL FEELING

Mono mixing and live recording are similar sorts of disciplines. The producer, arranger, and mixer are forced to make choices, up front, as to what is important and what can fall between the cracks. Stereo makes it easier to hear “space,” but a dense production can still be difficult to balance. Surround — in discrete form — will allow so much more spatial freedom that it might actually “expose” what formerly were seamless transitions.

HOW IT WORKS

Anything panned center will appear as normal. Hard-panned (full Left and Right) stereo effects like reverb, a pair of guitars, or background vocals will be very prominent in the rear speakers. So will out-of-phase material. One acid test for any mix is to listen in mono. Stuff that’s panned in the middle will seem louder while the hard-panned “pairs” will take a giant step back.

If compatibility is really important, lessen the panning “width.” This is true whether “folding” surround into stereo or stereo into mono. I’ve found that a mono-compatible stereo mix translates well to “extracted” surround. The stereo effect may not seem quite as exciting with two speakers, but the mix will come alive with four. This is actually better than using processing to make a stereo mix seem wider on a single pair of speakers.

DIY DISCRETE SURROUND

Not everyone agrees that all the monitors

(except the subwoofer) need to be identical, but it’s a safe bet. Self-powered or not, you will ultimately need a source selector and master monitor level control. Two models are available from Studio Technologies (847-676-9177 or www.studio-tech.com). It’s OK for now to connect the output of an 8-track recorder directly to the power amps. The accepted channel assignment can be found in the table below, which shows standard channel assignment from mixer-to-tape for 5.1 surround.

Speaker	Tape
Left Front	1
Right Front	2
Left Rear	3
Right Rear	4
Center (front)	5
Sub.....	6

Next is the connection from the mixer to the deck. If you have a Mackie 1604 or equivalent, use busses 1, 2, 3, and 4 as left front, right front, left rear, and right rear, respectively. Use two aux sends for the center and subwoofer channels. It will soon become obvious that pan pots need to morph into joysticks for precise sonic positioning. Calling all third-party controllers! In the meantime, have fun and let me know how you make out.

MIXED UP

I have several passive surround systems. It’s great fun and sometimes surprising to hear how your favorite mixes will be reinterpreted. One could argue that an audiophile stereo system would be better than a bunch of speakers, no matter how good, but consider the following motivating factors. We mix in the “sweet spot.” It’s fun, but it’s also work. The average listener is never precisely positioned between two accurately placed speakers. Surround widens the sweet spot, increases dynamic range and — with the aid of a subwoofer — extends low-frequency response. Many consumers are going to have the really cheap stuff, but even those systems will be better than a single 3-inch speaker mounted in a typical plastic TV cabinet.

Don’t wait for the manufacturers of consumer gear to decide what’s best for us. Start experimenting now! The next time the surround show comes through town you’ll know what questions to ask!

Eddie Ciletti is always getting mixed up. Visit tangible-technology.com or e-mail edaudio@interport.net with questions and recipes.



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FEZGUYS

continued from page 143

a number? Unless you've got a valid reason for including them ("1000th visitor gets a free CD"), we suggest you consider leaving the counter out.

The ever-reassuring FezGuys suggest that what's real in the physical world — what has depth, weight, and emotional resonance — carries that weight into the virtual world. If it's relevant, it's relevant! Use common sense, so we won't have to.

LETTERS

I'm really curious about something. It has to do with MP3 versus CD-audio quality. When I listen to an MP3 recording I'm able to hear lines and textures that I totally miss when listening to the same song on the compact disc. Little "hidden things" really jump out at me, and I'm wondering if this phenomenon has to do with the MPEG-3 technology or what? (Just to let you know, the bit rate of my MP3 files is 128 kbps and the sample rate is 44.1 kHz). A good example is the song "Alone" by Heart. When I play the CD it sounds good like a CD should, but when I play my MP3 version — I mean things really jump out! And this is only one example — I have dozens of others. So, do you guys know why this is so? Thanks. —Dana

MPEG-based (MP3, MP2, etc.) compression is based on the German concept of psychoacoustics. It removes sounds that the human ear can't hear. When compressing down to smaller and smaller sizes, the codec starts removing sounds that your ear can hear, which results in a very different listening experience. When you listen to 128 kbps MP3 files on your computer, it's good enough quality that it's within that "near-CD quality" range, yet is not quite *exactly* the same. So the music will sound different from the way the original engineer mastered it. You may find that certain sounds you prefer are accented, especially if you listen with computer speakers, which result in different qualities of the music being emphasized. An interesting experiment would be to take a variety of songs and encode them into MP3 and see if you can identify what exactly it is that you like better about them. It may be a slight reduction in high end, which makes the midrange stand out a bit more; or something entirely different. If you make music yourself, it can help you understand more about how you want your own music to sound.

We welcome your comments! Visit our Web site at www.fezguys.com and e-mail us at allen@fezguys.com and jon@fezguys.com.

MARANTZ CD-R

continued from page 128

a good excuse for an error rate indicator on the machine?

I tried three types of blank media: "gold" with a slight green cast (those by Mitsui and HHB); "gold" with a definite green cast (TDK and Sony); and "silver" with a dark blue hue (Verbatim). (None are to be confused with Genie and his light brown harem....) All of the discs that I didn't turn into coasters were "finalized" and playable. Note that the CDR-620 is a very particular machine, far less forgiving than a consumer CD player is.

OTHER PORTS OF INTEREST

XLR connectors are provided for both digital and analog I/O, plus RCA jacks for the S/PDIF ports. There is a very handsome remote control, the RC-620, which is about the size of a shallow cigar box. Once connected, however, it is the only choice of machine control (there is no local/remote switch). All buttons on the front panel, with the exception of the Door Open/Close, are duplicated on the remote control. Too bad they couldn't have squeezed an extra button for Input Monitoring....

MENU AND REMOTE

Exclusive on the remote is a numeric keypad for programming ISRC/UPC/EAN disc ID codes. These are used to identify ownership of copyright and to name each track. In addition, there are buttons for Manual/Auto Track Increment, Index, "Fast" Search, Emphasis, Time, and Peak Hold. On both the CDR-620 and the remote is a button labeled "Preset," which accesses user-default parameters.

HOW TO MAKE CDS

Not quite as user-friendly as the previous CD-R I tested, the Marantz CDR-620 is actually a usable product. It likes to copy DATs and CDs from beginning to end, which I did half-a-dozen times before having any problems. I openly admit to having a short attention span, a disability that is not suited to on-the-fly assembly. My idiosyncrasies combined with those of this machine means doing homework. The process of this review taught me a few things...

The CDR-620 is a solid unit. The Philips CDD2600 drive installed in my computer has been very reliable. While not part of the review package, a fan has been added to current production versions of the CDR-620. If yours doesn't have one, make sure it has been retrofitted. **EQ**



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DIGITAL MIXERS

MACKIE

Digital 8 Bus Mixing Console



Everything you've been waiting for and more!!! The new digital 8 bus from Mackie features great sound quality, full recording and mixdown capabilities, motorized faders and an array of digital features geared to take you flying into the next century. See for yourself what the entire industry is raving about.

FEATURES-

- 48 channels of automated compression, gating, EQ and delay
- Built-in 3-way meter display keeps you on top of your mix.
- Built-in meter bridge,
- Ultramix II automation for complete control, hook up an S-VGA monitor and you'll feel like you spent a lot more money.
- All functions can be automated, not just levels and mutes. Store EQ, reverb, compression, gating and even Aux send information.
- Fast SCENE automation allows you to change parameter snapshots on every beat.
- Reads Standard MIDI tempo maps, displaying clock info on the built-in position counter.
- Truly the cutting edge of mixing technology.



Panasonic

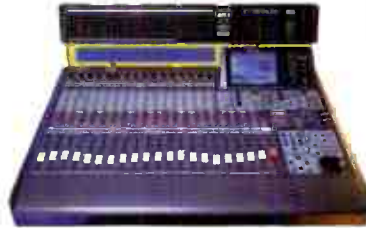
WR-DA7 Digital Mixing Console



Stop dreaming about your digital future, it's here! The Panasonic WR-DA7 digital mixer features 32-bit internal processing combined with 24-bit A/D and D/A converters as well as moving faders, instant recall, surround sound capabilities, and much more. Best of all, it's from Panasonic.

FEATURES-

- 32 Inputs/6 AUX send/returns
- 24-bit converters
- Large backlit LCD screen displays EQ, bus and aux assignments, and dynamic/delay settings.
- 4-band parametric EQ
- Choice of Gate/Compressor/Limiter or Expander on each channel
- 5.1 channel surround sound in three modes on the bus outputs
- Output MMC
- Optional MIDI joystick



TASCAM

TMD1000 Digital Mixing Console



You want to see what all the digital mixing buzz is about? The NEW TMD1000 from Tascam will have you smiling & automating in no time. It features fully automated EQ, levels, muting, panning and more in an attractive digital board with an analog 'feel'. Your digital future never looked, or sounded, so clear.

FEATURES-

- 4 XLR mic inputs, 8 1/4" balanced TRS inputs.
- 20-bit A/D D/A conversion, 64x oversampling on input, 128x on output.
- Store all settings, fully MIDI compatible.
- Optional IF-TD1000 adds another 8 channels of TDIF and a 2-channel sample rate converter.
- Optional FX-1000 Fx board adds another 4 dynamic processors and another pair of stereo effects.



MIC PREAMPS

Focusrite

Green 3 "Voicebox MKII"



The Voicebox MKII provides a signal path of exceptional clarity and smoothness for mic recording, combining an ultra-high quality mic amp, an all new Focusrite EQ section optimized for voice, and full Focusrite dynamics. The new MKII now includes a line input for recording and mixdown applications.

FEATURES-

- Same mic pre section as found on the Green Dual Mic Pre include: +48V phantom power, phase reverse, and a 75Hz high-pass filter. Mute control and a true-VU response LED bargraph are also provided
- EQ section includes a mid parametric band with frequency and gain control as well as a gentle bell shape to bring out the character of the voice.
- Dynamics section offers important voice processing functions of compression and de-essing combined with a noise reducing expander
- Single balanced Class A VCA delivers low distortion and a S/N ratio as low as -96dBu



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ULTIMATE SOUND MACHINES

Finalizer Plus



Improving on the multi-award winning Finalizer platform, The Finalizer Plus delivers an unprecedented level of clarity, warmth and punch to your mix. Inserted between the stereo output of your mixer or workstation and your master recording media, the Finalizer Plus dramatically rounds out your material, creating that "radio ready" sound.

FEATURES-

- Balanced Analog as well as Digital outputs including AES/EBU, S/PDIF, & TOS.
- 24-bit precision A/d & D/A Converters
- 5-band 24-bit stereo EQ
- Enhance - De-essing, stereo adjust or digital radiance
- Real-time gain maximizer
- Variable slope multi-band expander
- Multi-band compressor • Word Clock Sync
- MIDI section useful for controlling sequencer fades or any of the Finalizer's parameters from a remote MIDI controller.

Lexicon

PCM81 Multi-Effects Processor



The PCM-81 has everything that made the PCM80 the top choice among studio effects processors, and more. More effects, more algorithms, longer delay and full AES/EBU I/O.

FEATURES-

- 300 Presets include pitch, reverb, ambience, sophisticated modulators, 20 second stereo delays, and dynamic spatialization effects for 2-channel or surround sound applications
- 2 digital processors including Lexicon's Lexchip for the reverb and a second DSP engine for the other effects.
- 24-bit internal processing
- Dynamic patching matrix for maximum effects control. PCM card slot

EQUALIZERS

Focusrite

Green 2 "Focus EQ"



The Green 2 Focus EQ is suitable for a variety of applications combining a Focusrite equalizer section with a multi-source input section. Use it as a high-quality front end for recording applications or patch it into the send/return loop to upgrade a single channel of console eq, either way, it sounds great.

FEATURES-

- XLR & 1/4" inputs are similar to the Dual Mic Pre but have been adapted to cope with a wider range of levels
- VU metering via a 10-LED bargraph
- EQ section derived from the Red and Blue range processors for superb audio quality.

COMPRESSORS

JOE MEEK

VC1 Studio Channel



The Joe Meek Studio Channel offers three pieces of studio gear in one. It features an excellent transformer coupled mic preamp, a great compressor and an enhancer unit all in a 2U rackmount design. Fine out why more and more studio owners can live without one.

FEATURES-

- 48V phantom power, Fully balanced operation
- Mic/Line input switch
- Mono photo-optical compressor
- High pass filter for large diaphragm mics
- Extra XLR input on front makes for easy patching
- Compression In/Out and VU/compression meter switches
- Twin balanced XLR outputs with one DI XLR output for stage use
- Enhancer In/Out switch and enhance indicator
- Internal power supply 115/230V AC



dbx

Blue Series 160S Stereo Compressor

The dbx 160S combines the best features of all the great dbx compressors in a well-built unit where the craftsmanship is as stunning as the engineering is innovative. This is truly a desirable compressor.

FEATURES-

- 127dB dynamic range • Program dependent "Auto" or fully variable attack and release
- Hard knee/OverEasy switchable.



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HARD DISK RECORDERS



VS1680 Digital Production Studio

New

The new VS-1680 Digital Studio Workstation is a complete 16 track, 24-bit recording, editing, mixing and effects processing system in a compact tabletop workstation. With its advanced features, amazing sound quality and intuitive new user interface, the VS-1680 can satisfy your wanderlust.

FEATURES-

- 16 tracks of hard disk recording, 256 virtual tracks.
- 24-bit MT Pro Recording Mode for massive headroom and dynamic range.
- Large 320 x 240 dot graphic LCD provides simultaneous level meters, playlist, EQ curves, EFX settings, waveforms and more.
- 20-bit A/D D/A converters
- 2 optional 24-bit stereo effects processors (VS8F-2) provide up to 8 channels of independent effects processing.
- New EZ routing function allows users to create and



save various recording, mixing, track bouncing, and other comprehensive mixer templates for instant recall.

- 10 audio inputs: 2 balanced XLR-type inputs w/ phantom power, 6 balanced 1/4" inputs and 1 stereo digital input (optical/coaxial)
- 12 audio outs: 8x RCA, 2x stereo digital & phones.
- Direct audio CD recording and data backup using optional VS-CDR-16 CD recorder.

AKAI DR16 16-Track HD Recorder

The Akai DR16 is a digital hard disk recorder with sophisticated non-destructive editing functions for near instant data access. Recording & playback is as straight forward as tape. The DR16HD ships with an internal 2GB drive for 24 minutes per track of record time.

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- **IB805R RS422 interface board** • **IB806B Bi-phase interface board**
- **IB807V VGS monitor interface board** • **EQ16 16-channel digital EQ board** • **ALX50 Remote Cable**



DIGITAL MULTI-TRACK RECORDERS

TASCAM DA-98 Digital Audio Recorder

The DA-98 takes all the advantages offered by the DTRS format and significantly ups the ante for the professional and post-production professional alike. With enhanced A/D and D/A converters, a comprehensive LCD display and full compatibility with the DA-88 and DA-38, the DA-98 delivers the absolute best in digital multitrack functionality.

FEATURES-

- Confidence monitoring for playback and metering
- Individual input monitor select switch facilitates easier checking of Source/Tape levels
- Switchable reference levels for integration into a variety of recording environments with internal tone generator
- Digital track copy/electronic patch bay functionality
- Comprehensive LCD display for easy system navigation
- Dedicated function/numeric keys make operation easier
- Built-in sync with support for MMC and Sony P2
- D-sub connector (37-pin) for parallel interface with external controller
- Optional RM-98 rack-mount ear for use with Accuride 200 system



DA-88 A standard digital multitrack for post-production and winner of the Emmy award for technical excellence, the DA-88 delivers the best of Tascam's Hi-8 digital format. Its Shuttle/Log wheel and track delay function allow for precise cueing and synchronization and the modular design allows for easy servicing and performance enhancements with third-party options.

DA-38 The DA-38 was designed for musicians. Using the same Hi-8 format as the highly acclaimed DA-88, the DA-38 is an 8 track modular design that sounds great. It features an extremely fast transport, compatibility with Hi-8 tapes recorded on other machines, rugged construction, ergonomic design and sync compatibility with DA-88s.

ALESIS ADAT XT20 Digital Audio Recorder

New

The New ADAT-XT20 provides a new standard in audio quality for affordable professional recorders while remaining completely compatible with over 100,000 ADATs in use worldwide. The XT20 uses the latest ultra-high fidelity 20-bit oversampling digital converters for sonic excellence, it could change the world.

FEATURES-

- 10-point autolocate system
- Dynamic Braking software lets the transport quickly wind to locate points while gently treating the tape.
- Remote control
- Servo-balanced 56-pin ELCO connector



- Built-in electronic patchbay
- Copy/paste digital edits between machines or even within a single unit. Track Copy feature makes a digital clone of any track (or group of tracks) and copies it to any other track (or group) on the same recorder.

SOFTWARE

SONIC



SONIC FOUNDRY CD Architect & CD Factory

CD Architect is the perfect solution for designing professional audio CDs to Red Book spec on Windows NT and Windows 95. Sample audio from compact disks, record from DAT, or digitize material through a sound card. It comes complete with an editor including dozens of effects and tools to process sound files and can optionally operate as a Sound Forge plug-in. CD Factory adds a CD burner, SCSI card and cables for a complete production package.

FEATURES-

- Multi file playlisting
- Master volume faders (-96dB to +20dB)
- Adjustable envelope levels for any region
- Mix or crossfade overlapped regions
- Convert from mono to stereo on the fly
- Multiple levels of undo/redo
- Up to 99 tracks with 99 subindexes per track
- Make glass-masters directly from burned CDs.



STUDIO DAT-RECORDERS

Panasonic SV-3800 & SV-4100

The SV-3800 & SV-4100 feature highly accurate and reliable transport mechanisms with search speeds of up to 400X normal. Both use 20-bit D/A converters to satisfy even the highest professional expectations. The SV-4100 adds features such as instant start, program & cue assignment, enhanced system diagnostics, multiple digital interfaces and more. Panasonic DATs are found in studios throughout the world and are widely recognized as the most reliable DAT machines available on the market today.

FEATURES-

- 54x Oversampling A/D converter for outstanding phase characteristics
- Search by start ID or program number
- Single program play, handy for post.
- Adjustable analog input attenuation, +4/-10dBu
- L/R independent record levels
- Front panel hour meter display
- 8-pin parallel remote terminal
- 250x normal speed search



TASCAM DA-30MKII

A great sounding DAT, the DA-30MKII is a standard mastering deck used in post-production houses around the world. Among many other pro features, its DATA/SHUTTLE wheel allows for high-speed cueing, quick program entry and fast locating.

FEATURES-

- Multiple sampling rates (48, 44.1, and 32kHz).
- Extended (4-hour) play at 32kHz.
- Digital I/O featuring both AES EBU and S/PDIF
- XLR balanced and RCA unbalanced connections.
- Full function wireless remote.
- Variable speed shuttle wheel.
- SCMS-free recording with selectable ID.
- Parallel port for control I/O from external equipment.



Fostex D-15

The new Fostex D-15 features built in 8Mbit of RAM for instant start and scrubbing as well as a host of new features aimed at audio post production and recording studio environments. Optional expansion boards can be added to include SMPTE and RS-422 compatibility, allowing the D-15 to grow as you do.

FEATURES-

- Hold the peak reading on the digital bargraphs with a choice of 5 different settings
- SRT cue levels and cue times
- Supports all frame rates including 300f
- Newly designed, 4-motor transport is faster and more efficient (12hr minute tape shuttles in about 60 sec.)
- Parallel interface • Front panel trim pots in addition to the level inputs

D-15TC & D-15TCR

The D-15TC comes with the addition of optional chase and sync capability installed. It also includes timecode reading and output. The D-15TCR comes with the further addition of an optional RS-422 port installed, adding timecode and serial control (Sony protocol except vari-speed)



SONY PCM-R500

Incorporating Sony's legendary high-reliability 4D.D. Mechanism, the PCM-R500 sets a new standard for professional DAT recorders. The Jog/Shuttle wheel offers outstanding operational ease while extensive interface options and multiple menu modes meet a wide range of application needs.

FEATURES-

- Set-up menu for preference selection. Use this menu for setting ID6, eval sync threshold, date & more. Also selects error indicator.
- Includes 8-pin parallel & wireless remote controls
- SBM recording for improved S/N (Sounds like 20bit)
- Independent L/R recording levels
- Equipped with auto head cleaning for improved sound quality.



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MIDI HARDWARE



Mark of the Unicorn **MIDI Time Piece™ AV** 8x8 Mac/PC MIDI Interface

The MTP AV takes the world renowned MTP II and adds synchronization that you really need like video genlock, ADAT sync, word clock sync, and even Digidesign superclock!

- FEATURES-**
- Same unit works on both Mac & PC platforms.
 - 8x8 MIDI merge matrix, 128 MIDI channels.
 - Fully programmable from the front panel.
 - 128 scene, battery-backed memory.
 - Fast 1x mode for high-speed MIDI data transfer.

Digital Time Piece™ Digital Interface



Think of it as the digital synchronization hub for your recording studio. The Digital Timepiece provides stable, centralized sync for most analog, digital audio, and video equipment. Lock together ADAT, DA-88's, ProTools, word clock, S/PDIF video, SMPTE, and MMC computers and devices flawlessly. It ships with "Clockworks" software which gives you access to its many advanced features and remote control of some equipment settings: such as record arm.



Studio 64XTC Mac/PC MIDI Interface



The Studio 64XTC takes the assorted, individual pieces of your studio-you computer, MIDI devices, digital and analog multitrack; and even pro video decks, and puts them all in sync.

- FEATURES-**
- 4 In / 4 Out, 64 channel MIDI/SMPTE interface patchbay with powerful multitrack & video sync features
 - ADAT sync with MIDI machine control
 - Simultaneous wordclock and Superclock output, 44.1kHz or 48kHz for perfect sync with ADAT, DA-88 and ProTools
 - Video and Blackburst in (NTSC and PAL)
 - Cross-platform Mac and Windows compatibility

SAMPLING

E-MU e-6400 Sampling and more!



The e-6400 from EMU features a easy interface that makes sampling easy. Automated features like looping, normalizing and more allow you to flexibly create your own sound palettes or access any of the 40K sounds provided on 2 CDs for unlimited sound creation. It is upgradeable to 128MB of RAM (4MB standard) and features 64 voice polyphony, 8 balanced analog outputs, SCSI, stereo phase-locked time compression, digital re-sampling and more. A dream machine

KEYBOARDS & SOUND MODULES



XP60 & XP80 Music Workstations

The XP-80 delivers everything you've ever wanted in a music workstation. An unprecedented collection of carefully integrated features provide instant response, maximum realtime control and incredible user expandability. The XP-80 features a practically 76-note weighted-action keyboard while the NEW XP-60 features the same sound engine in a 61-note keyboard.

XP80 FEATURES-

- 64-voice polyphony and 16-part multitimbral capability
- 16 Mbytes of internal waveform memory, 80Mbytes when fully expanded (1k-bit linear format)
- 16-track MRC-pro sequencer with direct from disk playback. Sequencer holds approx. 60,000 notes
- New sequencer functions like "non-stop" loop recording and refined Groove Quantize template



- Enhanced realtime performance capability with advanced Arpeggiator including MIDI sync and guitar strum mode and Realtime Phrase Sequence (RPS) for on-the-fly triggering of patterns.
- 40 insert effects in addition to reverb and chorus
- 2 pairs of independent stereo outputs, click output jack with volume knob
- Large backlit LCD display

SR-JV80 Series Expansion Boards

Roland's SR-JV80-Series wave expansion boards provide JV and XP instrument owners a great-sounding, cost-effective way to customize their instruments. Each board holds approx. 8Mb of entirely new waveforms, ready to be played or programmed as you desire.

Boards include-

Pop, Orchestral, Piano, Vintage Synths, World, Super Sound Set, Keys of the 60's & 70's, Session, Bass & Drums, Techno & Hip-Hop Collection.



KURZWEIL

K2500 Series Music Workstations

The K2500 series from Kurzweil utilizes the acclaimed V.A.S.T. technology for top-quality professional sound. Available in Rack mount, 76-key, and 88 weighted key keyboard configurations, these keyboards combine ROM based samples, on-board effects, V.A.S.T. synthesis technology and full sampling capabilities on some units.

FEATURES-

- True 48-voice polyphony
- Fluorescent 64 x 240 backlit display
- Up to 128MB sample memory
- Full MIDI controller capabilities
- 32-track sequencer
- Sampling option available
- Dual SCSI ports
- DMTI Digital Multitrack interface option for data format and sample rate conversion (Interfaces with ADA's or DA-88s)



Trinity Series Music Workstations DRS

Korg's Trinity Series represents a breakthrough in sound synthesis and an incredible user interface. It's touch-screen display is like nothing else in the industry, allowing you to select and program patches with the touch of a finger. The 24MB of internal ROM are sampled using ACCESS which fully digitizes sound production from source to filter to effects. Korg's DSP based Multi Oscillator Synthesis System (MOSS) is capable of reproducing 5 different synthesis methods like Analog synthesis, Physical Modeling, and variable Phase Modulation (VPM).

FEATURES-

- 16 track, 80,000 note MIDI sequencer
- Flexible, assignable controllers
- **DRS (Digital Recording System)** features a hard disk recorder and various digital interfaces for networking a digital recording system configured with ADAT, DAT recorder and hard disk
- 256 programs, 256 combinations
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(Digital IF, SCSI, Hard Disk Recorder, and sample Playback/Flash ROM functions are supplied by optional upgrade boards)



88 Weighted-key/Solo Synth



76-key/Solo Synth



61-key/Solo Synth



61-key

MONITORS



V8

Powered Studio Monitors

These new powered studio monitors from KRK supply 130 watts of clean performance. Their 8" woofer & 1" silk dome tweeter ensure crystal highs as well as the bass response needed for today's studio environments.

FEATURES-

- 49Hz - 22kHz
- Magnetically shielded for use near video monitors



Hafler TRM-8

Powered Studio Monitors

Winner of Pro Audio Review's PAR Excellence Award in 1997, Hafler's TRM8s provide sonic clarity previously found only in much more expensive speakers. They feature built-in power, an active crossover, and Hafler's patented Transnova power amp circuitry.

FEATURES-

- 45Hz - 21kHz, ±2dB
- 75W HF, 150W LF
- Electronically & Acoustically matched



HR824

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FEATURES-

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- Frequency Response 39Hz to 22kHz, ±1.5dB



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FEATURES-

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No Good Deed Goes Unpunished!

Nice guys (and gals) do finish last — especially in this industry

BY MARTIN POLON



One reaches the point in one's career where one hears the catch phrase about no good deed going essentially unpunished. Perhaps it is better to think of all of this as a subset of Murphy's Laws covering misguided good deeds. Nevertheless, it is clear to many in the studio business that essentially goodness demands restraint in the hope of self preservation. Consider the following:

1. Never cut anyone a special deal in Studio A. This will, without fail, be the client who will not pay you for 17 months and/or will depart with at least one of your Neumann's in his or her kit.

2. Do not cut your published studio rates below a pre-established level. Faster than President Bill's dalliances with Monica at an obscure Capital motel reaching the ears of the Washington press corps, the entire music community in your area will know that you discount and your rates will never be the same!

3. Never fix the computer of anyone you know, love, or feel beholden to. Inevitably, as if controlled by some foreign psychic force, the repaired computer will fail again whether in three days, three weeks, three months, or even three years. You will be blamed and never allowed to forget that you "fixed it."

4. It is considered conventional wisdom not to recommend equipment of any kind to anybody. What will happen is that you will run into this person or that person for whom you made recommendations many moons later as you chat with the president of a television network at a cocktail party or the chief executive officer of a major record label at an industry fund raiser. The recommendee will interrupt your important conversation by loudly deriding both your help and competency. This will destroy any chances you had of achieving the business relationship of a lifetime (at least yours).

5. Never *but never* volunteer your help at any event you may be attending. Whether it is your daughter's dance recital or the performance of your town's symphony orchestra, stand clear and bite your tongue. You will never perform a simple act of courtesy without penalty. The sound operator will view your arrival as a godsend, since the problem or failure can be blamed on someone else should it occur again. Sometimes it can even be blamed on you from the "get-go."

6. Do not attempt to volunteer to provide sound-reinforcement equipment or recording services for any organization you may be involved with whether fraternal, educational, familial, or professional. You will very likely not have the correct equipment, cables, connectors, power cords, or patch cords. Worst of all, you will be asked to do it again and again into the next millennium and even well beyond — always for free and with just a little bit more gear each time!

7. Do not try and install, fix, or upgrade anybody's home stereo system — especially that of a business relation or a distant relative. You may want to do this to impress a current or prospective boy friend or girl friend, but jewelry or a subscription to *Baseball Weekly* would

probably be a safer bet. Most important, never do this for a prospective client. You will probably find a stereo system with old electric blanket wiring connecting the loudspeakers. To replace this, you will find yourself in a crawl space also occupied by large black busy spiders and various sizes and shapes of small and not-so-small rodents. Besides avoiding hantavirus and black widow bites, you will probably get fiberglass insulation burns on your arms and face.

Let's face it: The bottom line here is that you do many things well but you can't be all things to all people. Your time is valuable and should be spent in billable modes in your studio. You cannot escape the "curse of audio professionals." Everybody thinks they are an audio pro and will without fail second guess you — unless you are charging for the service. Then you will be viewed as a veritable genius.

If you have guilt, feel obligated, charitable, or just plain committed — or perhaps that you should be (committed, that is), give a financial gift or consider the donation of used studio equipment. It may well be tax deductible and is much harder for anyone to criticize or question and you escape from the obligation of good deeds that return to haunt you. And remember, in our business, it is sad but true that no good deed ever goes in some way or another unpunished.

Do not cut your published studio rates below a pre-established level — your rates will never be the same!

ACROSS THE BOARD

continued from page 162

12. Sony V-77 reverb. You should have more than one brand of reverb to smooth out your mixes. Each manufacturer uses their proprietary methods of generating reverbs. If you use reverbs from different manufacturers, the slight differences make for a much richer soundfield.

13. Brooke Siren AR-116 direct boxes. Still my favorite after 14 years of looking for something better.

14. Fostex D-10 DAT machines.

These are my workhorse machines. Six years of hard work along with my Fostex D-20B, D-30, and D-15 machines that keep them company.

15. Monster cables. I use tons of Monster digital cables to connect my gear, Monster mic cables for recording, and Monster cables to feed my speakers. Jay Graydon turned me on to them about a decade ago.

16. Apple Macintosh PowerBook computers. I have been using Mac portables since before there were Mac portables. There was a company named Outbound that made Mac-compatible laptops for awhile until Apple decided the laptop business might be lucrative.

I just got rid of my 180c and replaced it with a G3 PowerBook. Pro Tools works very well on it. The only bad thing is that I am now expected to edit Pro Tools files in my hotel room.

17. Panasonic Linear shaver. Yup, my road kit includes this high-speed linear motor (repelling magnetic fields propel the blades instead of rotating motors) shaving device so I look nice in the studio for the female background singers. A face as smooth as a spanked baby's butt.

18. If you are working hard, you have to eat well. On the West Coast the choices are The Palms for steak and lobster, or, my favorite, Fatburger. I even thanked Fatburger when I accepted my first Grammy. On the East Coast I like Burritoville — health food Mexican fare. When I'm at home in Miami, it has to be Chrysanthemum — Chinese food on South Beach. You can actually call ahead and get any fortune you want stuffed into the fortune cookies handed out after your meal. I usually take clients there and after dinner their fortune cookie says, "You will be a much happier person after you PAY YOUR RECORDING STUDIO BILL." **EQ**

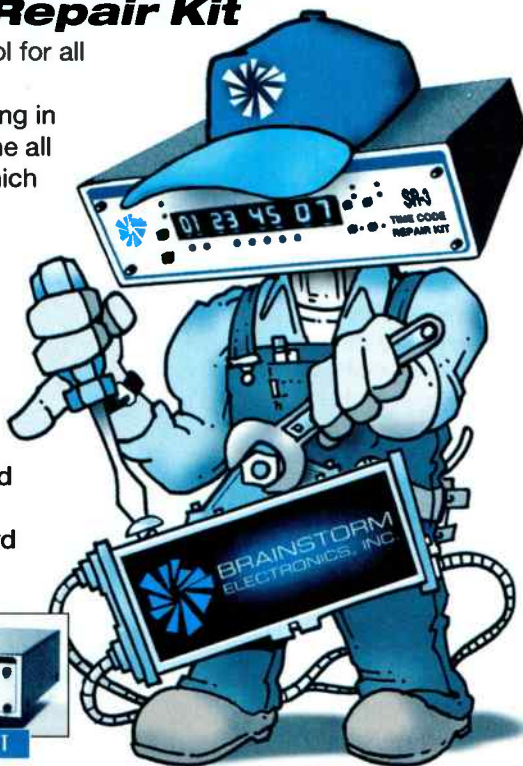
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SURROUND SOUND

continued from page 96

bel believes that their artist is going to come out on this format, then you're contracted to do that. You've got to turn in a 5.1 mix.

Jim Pace: Where in the creative process would you like to see the 5.1 concept introduced? In the mixing or when you're sitting down to write the song?

Ed Cherney: I think where it's going to go is written, conceived, arranged, and created for 5.1. I think we'll see that at some point, and then we'll get to see how clever writers, arrangers, and producers really are.

Al Schmitt: When stereo first came in, guys like Juan Garcia Escovil did things where the arrangements were specifically for stereo. I think we're going to find arrangers and composers doing the same thing for 5.1.

Chris Stone: So far we have attempted to fill half the mind, and half the mind is the creative process. Now we're going to look forward and we're going to listen to what our minds, with what we've seen and heard, can add to it. **EQ**

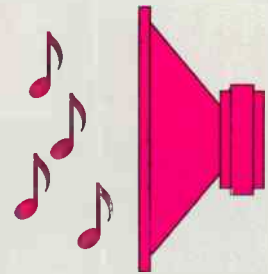
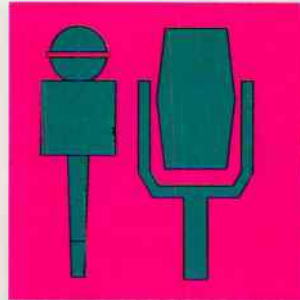
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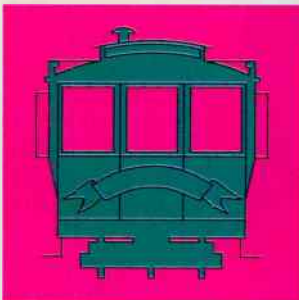


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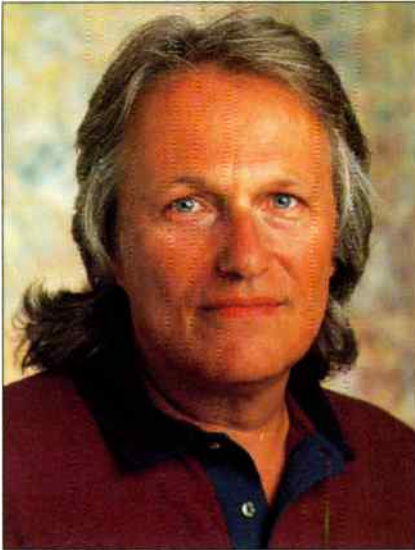
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Lasting Relationships



These are (still) a few of my favorite things

BY ROGER NICHOLS

I'm sitting in the recording studio right now playing with all the toys that engineers like to play with. Cool toys come along almost every day, but only the best ones withstand the test of time. Here is the "My Favorite Stuff" list.

1. **Pro Tools**24. OK, Pro Tools24 hasn't been around that long, but I have been using it every day since September '97. Besides that, I have been using Sound Designer and Pro Tools in one form or another since early '89. I have every hardware revision since day one. And you know what? It keeps getting better all of the time.

2. **TC Electronic M5000 reverb and DSP.** I have two DSP engines in mine, because I always found myself renting a second one because it has so many uses; one just isn't enough. The programs I use most are pitch shift and the 3-band compressor. For those of you who don't want to fork over the cash for a twin engine M5000, try the Finalizer Plus. It has

the same 3-band compressor/limiter, but does not have any of the reverbs or pitch shift programs. The Finalizer Plus does have a built-in sample-rate converter, 24-bit A/D and D/A converters, and tons of mastering programs that are not available in the M5000.

3. **Valley Audio 730 Dynamap digital limiter.** For fast transparent limiting, I haven't found anything that beats this one. Another piece that I can't leave at home.

4. **Z Systems Sample-Rate Converter.** I have been using this little puppy for all of my sample-rate conversion needs for about three years. I've tried the rest, but keep coming back to the best.

5. **Z Systems De-Tangler.** Z Systems makes a variety of digital audio routers in 8x8, 16x16, 32x32, and 64x64 configurations. Any of the I/Os can be ordered as AES, S/PDIF, or optical. You can get a software program that runs on your computer that will reconfigure the routing with a click of your mouse. Just click on MIX and all of your digital audio gear will be instantly repatched for the new task.

6. **Lexicon DC-1 Surround Control Center.** Pro Logic, Dolby Digital, and DTS decoding with perfect Lexicon quality. The DC-1 includes DSP processors to add room simulation to any home theater environment. Some of the best ambience effects I have ever heard. This piece stays at home. Most hotels frown on high-power home theater systems bothering other guests.

7. **ADATs.** I just finished working on

three albums that were recorded and mixed completely on ADATs. Remember, Alesis started the digital multitrack trend, and they are doing a pretty good job of keeping on top of that field with the largest number of installed digital multitrack.

8. **Yamaha digital consoles.** I currently use the 02R, 03D, and the new 01V. I cut my small-format-digital-console teeth on the Yamaha DMP-7D in 1988. There must be a big market for small digital consoles, because Mackie, TASCAM, Panasonic, and Soundcraft Spirit have released small digital consoles to try to cash in on the market frenzy.

9. **Audio-Technica 4050 microphones.** I have three of them. I use them for vocals, acoustic piano, and string sections. Audio-Technica should raise the price of these little puppies (since I already have mine) and they would still be a good buy.

10. **Roland 880 reverb.** A high-end product that not enough people have heard about. The quality of this unit is right up there with the best. You could probably find a used one cheap, unless they see this column before you do.

11. **Meyer HD-1 powered nearfield monitors.** After nine years of using the HD-1's for all of my recording and mixing, mastering facilities keep telling me that they have to do nothing to my mixes during the final CD mastering. That says a lot for a speaker system.

continued on page 160

For those of you who don't want to fork over the cash for a twin engine M5000, try the Finalizer Plus. It has the same 3-band compressor/limiter, but does not have any of the reverbs or pitch shift programs.

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